# ACADEMIC RESILIENCE AMONG SENIOR SECONDARY STUDENTS: INFLUENCE OF METACOGNITION, SELF EFFICACY AND LEARNING ENVIRONMENT

Thesis Submitted to


For the Award of

**DOCTOR OF PHILOSOPHY**
**IN**
**EDUCATION**

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# DECLARATION

I do hereby declare that the thesis entitled ***"Academic Resilience among senior secondary students: Influence of Metacognition, Self Efficacy and Learning Environment"*** has been prepared and submitted by me under the guidance of Dr. Vijay Kumar, Associate Professor, School of Education, Lovely Professional University, Phagwara, Punjab, as per the full requirement for the award of the degree of Doctor of Philosophy (Ph.D) in Education is entirely my original work and all ideas and references have been duly acknowledged. It does not contain any work that has been submitted for the award of any other degree or diploma of any university.

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# CERTIFICATE

This is to certify that Ms. Simranjit Kaur has completed Doctor of Philosophy (Ph.D.) in Education Thesis titled ***"Academic Resilience among senior secondary students: Influence of Metacognition, Self Efficacy and Learning Environment"*** under my guidance and supervision. To the best of my knowledge, the present work is the result of her original investigation and study. No part of the thesis has ever been submitted for any other degree or diploma to any other university. The thesis is fit for the award of Doctor of Philosophy (Ph.D.) degree.

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# ABSTRACT

Education plays a great role in the life of students all through the life. Through school education, students learn and develop personality, mental skills, moral & physical powers and promotes well being. Many times student faces many adverse situations in school environment which needs more resilient students. Students have to deal with study, time, friends, relationships, vocational choices etc. at school as well as at home. The present study explores the level of academic resilience, metacognition, self efficacy and learning environment of the senior secondary students and to find the role of schools in fostering academic resilience in students. The study investigated the influence of gender, locality and population on academic resilience, metacognition, self efficacy and learning environment of students. Further, the study investigated the influence of metacognition, self efficacy and learning environment on academic resilience of the students. Present study also explored the initiatives taken by the school for developing academic resilience among senior secondary students. Descriptive survey method of research was used for collecting the data. In total, sample size consisted of 1200 senior secondary school students. Academic Resilience Scale and Learning Environment scale constructed and standardized by investigator, Metacognitive Awareness Inventory (MAI) by Schraw and Dennison (1994), Self Efficacy Scale by Dr. Arun Kumar Singh and Dr. Shruti Narain (2005) & Questionnaire for assessing Initiatives taken by schools were used to collect the data. Keeping in view the different objectives of the study, the obtained data was analyzed using statistical software SPSS 16.0. Different statistical techniques like mean, median, standard deviation, percentage, t-test, scheffe test, one way ANOVA, three way ANOVA and correlation analysis were used for data analysis. The major findings of the study revealed that the boy and girl senior secondary students from rural and urban localities possess average level of academic resilience; senior secondary school students from least populated districts fall under above average level of academic resilience but students from highly populated districts falls under average level of academic resilience; senior secondary school students exhibit average level of metacognition and self efficacy

on the basis of gender, locality and population; senior secondary boys and girls from rural urban localities perceived moderate level of learning environment; Students who perceive favourable learning environment are found more academically resilient than students who perceive moderate and unfavourable learning environment; Students who perceive moderate learning environment are found more academically resilient than students who perceive unfavourable learning environment; Urban senior secondary students have better sense of well being than rural senior secondary students; Students from least populated districts are more academically resilient than students from highly populated districts; Gender and population together have remarkable influence on emotional regulation and physical health of senior secondary urban girl students than rural girl students; Urban students from highly populated districts have greater sense of well being than senior secondary students from rural highly populated districts; Senior secondary boys from least and highly populated districts are more academically resilient than girls from highly populated districts; Gender and population has direct influence on metacognition; senior secondary girl students are more aware of their own cognitive abilities and their application for learning than senior secondary boys and students from least populated districts; Locality and population has effect on metacognition of senior secondary students from urban least populated districts are better in their metacognitive abilities than students from rural highly populated districts; Gender, locality and population has influence on the declarative knowledge and evaluation dimension of metacognition of students; Urban senior secondary students are more self efficacious than the rural senior secondary students; Senior secondary boys are more confident about their abilities than senior secondary girls; Further, boys are also better in terms of efficacy expectation and outcome expectation. Students from least populated districts are more self confident in their own abilities to perform a task than students from highly populated districts; Gender and locality has influence on self confidence, positive attitude and outcome expectation dimensions of the self efficacy of the senior secondary school students; Boys from urban localities are having more positive attitude than girls from rural localities. Similarly, girls from urban localities, are having more positive attitude than boys

from rural localities; Students from urban least populated areas are more self efficacious than senior secondary students from urban highly populated districts; Senior secondary girls from highly populated districts and boys from least populated districts are more self efficacious than senior secondary girls from least populated districts; Learning environment at home is perceived better by students belonging to urban areas than belonging to rural areas; Senior secondary girls perceive effective and better learning environment at home than boys; Senior secondary students from least populated districts are getting more secure and stimulating environment than students from highly populated districts; Metacognition, self-efficacy and learning environment has direct influence on academic resilience of senior secondary school students; Relationship between academic resilience among senior secondary students with metacognition, self efficacy and learning environment was found significant; There are some of the facilities that are provided by all schools like safe and inviting school environment to the students, engagement of the students in a variety of sports and motor activities, parent teacher association, and safety practices like ragging are provided by all schools; Some facilities are available in majority of the schools like provision of safe ramp roads, initiatives for the development and personal growth of the students, organize medical checkups and pro social activities, engage students in a variety of motor activities, provision of Parent Teacher Association for making parents aware about the progress, provide safety from ragging in the school, effective discipline is followed in the school, school staff motivates and understands the problems faced by the students. But some of the facilities were not available in the majority of the schools like CCTV cameras in the school building, rest room facility for students, professional counselor in the school to advice students on personal problems and career related issues. The research has wider implications for the teachers, parents and administrators in terms of developing academic resilience among senior secondary students.

**Keywords:** Academic Resilience, Metacognition, Self-Efficacy, Learning Environment.

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Dated:……..

Simranjit Kaur

# TABLE OF CONTENTS

# LIST OF TABLES

# LIST OF FIGURES

# LIST OF APPENDICES

# CHAPTER I

# THEORETICAL ORIENTATION OF THE PROBLEM

Education, definitely, has a powerful impact on the students, parents, community and nation. It is a dream of every nation that their individuals have good educational attainment so that they can face the challenges of the global world. For fulfilling that dream schools play an eminent role. School should prepare students to make them well educated, responsible citizens, develop their personality, and help them to adjust in the occupational settings and develop harmonious relation with others in their locality. Time spent in school is the best time in human life. Schools and teachers play eminent role in children's development. Werner and Smith (1989, cited in Benard, 1998) found that teachers acted as role models for children, outside their circle of family members. Schooling has direct impact on students' academic achievement. The learning of specific skill and new knowledge is a direct result of classroom teaching (Good and Brophy, 1986b). In school, children spend most of their time in learning, socializing and growing. It's a time when students experience new emotions, relationships, friendships, physical development and especially growth of knowledge.

The primary concern of a student is learning or academic attainment. But today, students face day to day challenges and problems in the school surroundings that may not only provide social and emotional support but also affect their academic performance. Academic performance of a student is affected by a wide variety of factors. They have to deal with study, time, friends, relationships, vocational choices etc. Many a time students are themselves not aware of their problems and they do not admit their problems. Usually they develop emotional and psychological problems and these problems become part of their personality due to the hectic student life. There is greater risk of developing behavioural and mental health problems in students who struggle academically (Noam and Hermann, 2002).

Student performance that falls noticeably becomes a major problem for teachers, educators and researchers, especially when young students with high ability face this problem. Poor academic performance, less attention in school work, lack of interest in studies, lack of motivation and poor relationship with peer and teachers are some of the problems faced by school students. Some students' failure or underachievement in school is due to some obvious reasons like poor performance in academics, low confidence, frequent and excessive absence from school, disruptive behaviour, indisciplined actions, low self esteem, poverty and other family problems (Reis and McCoach, 2000). Teachers are the expert observers in the classroom. They can recognize the signs of these psychological problems. By keeping in mind the problems of the school students, school policies and intervention programmes can be planned for school students.

Many studies have reflected that home and school affects the learning process, home work completion, social relationships, and handling emotions of the students. In real sense, the growing child is dependent on the immediate environment i.e. home and the school to meet his/her growth needs. School size and culture, school resources, teacher-student ratio, teacher's qualification, home environment, neighbourhood conditions, parents' involvement and participation, school policies and practices, instructional material, school facilities, physical conditions of the school and number of experienced teachers; all these factors have an impact on student outcomes such as academic performance, educational aspirations and access to higher education (Artiles et al., 2002; Evans, 2004; Barton and Coley, 2007; Fenning and Rose, 2007).

## 1.1 ACADEMIC RESILIENCE

Many studies have found that child's development is largely affected by biological, psychological, social characteristics and conditions in her/his family, peer group, school and community. All these factors also have influence on the learning of the child. There are some students who give excellent performance and achieve their targets, even when they face any pressure and difficulty in their surroundings. They are unaware of the fact that is responsible for their high level

performance. So, it becomes really important to understand that why some students succeed in schools while their peers from similar social and economic backgrounds do not. The term commonly used to refer to such children is 'academically resilient'.

The term academic resilience is made from the term 'resilience' which comes from Latin word 'resiliens' which means the pliant or elastic quality of a substance (Joseph, 1994).It is essential to understand resilience before academic resilience. Fonagy et al. (1994) defined resilience as normal development under difficult conditions.The term resilience is a capacity for healthy development and successful learning despite challenging or threatening circumstances (Howard and Johnson, 2000). Grotberg (2003) stressed that resilience is the human capacity to deal with, overcome, learn from, and be transformed by adversity.Resilience is universally considered strength or asset, a desirable quality, characteristic or process that is likely to impact positively on aspects of an individual's performance, achievement, health and wellbeing (Bartley et al., 2010).

According to Fraser et al. (2004) resilience is less a personal trait or attribute of an individual, than the product of dynamic interactions between adversity and a variety of both interpersonal and environmental assets that mediate risk. It can be said that resilience is determined by personal characteristics of an individual (intelligence, coping skills and strategies, self efficacy) and environmental factors (family support, supportive and caring relationships with teachers and adults). Further, Fraser (2004) stated that resilience is a dynamic, developmental process occurring over time and not a static, fixed, or one-time event.

Henderson and Milstein (1996) discussed that the capacity for resilience differs from individual to individual, and it may grow or decline over time, depending on the protective factors within the person that might mitigate the negative impacts of stressful events or conditions. Resilience is multifaceted and multidimensional in nature and has various domains such as academic, social and emotional resilience. Martin and Marsh (2006) were first to examine the resilience in academic context and the associated challenges, setbacks, and pressures,

understood of academic adversities or challenges and the ways to cope with them. They have termed it as *academic resilience*, which refers to academic achievement or academic success despite challenging or difficult circumstances in the educational process. Interestingly, Martin and Marsh (2006) pointed out that there has been little research on academic resilience in spite of how all students may experience some level of poor performance, adversity, or challenge at school. Since the 1970s researchers have become more interested in the phenomenon of academic resilience due to the number of dropouts in schools and colleges (Masten, 2001).

Today, students have to face many academic pressures and stress in schools like under achievement, poor performance, completing assignments on time, competition, tough class load etc. Even in these most difficult circumstances, there are some children who not only survive, but actually thrive. It is really important to understand that why some students succeed in schools while their peers from similar social and economic backgrounds do not. The term commonly used to refer to such children is academically resilient.

According to Wang et al. (1994) academic resilience is the heightened likelihood of educational success despite personal vulnerabilities and adversities brought about by environmental conditions and experiences. Solberg et al. (1998) identified six key skills as the foundations of academic resilience: building confidence, making connections, setting goals, managing stress, increasing well-being, and understanding motivation. These factors are most closely linked to academic performance.

Academic resilience is a student's ability to successfully deal with academic stress, pressure and challenges in the academic setting or school life (e.g. poor grades, competiting deadlines, exam pressure and stress, difficult school work). Broadly, academic resilience is a child's ability to maintain academic performance at a certain level in the face of life. Academic resilience is a student's ability to overcome academic setbacks, stress and study pressure associated with school (Martin, 2002).Academic Resilience is the ability to

overcome the difficulties encountered in achieving personal, professional or academic goals (Hijón, 2017).

Characteristics of academic resilience in student includes high participation in school, strong interpersonal skills (Benard, 1991; Finn and Rock, 1997), high self esteem and self efficacy, high expectations, and autonomy (Masten, 1994; Benard, 1991).Alva (1991) conducted a study on tenth-grade Mexican American students to examine the characteristics of resilient or invulnerable students (i.e. students who maintained a high grade point average in the tenth grade and were from a low socioeconomic background). Study reported that students gained higher levels of educational support from their teachers and friends and were more likely to feel encouraged and prepared to attend college, enjoy coming to school and being involved in high school activities, experience fewer conflicts and difficulties in their intergroup relations with other students, and experience fewer family conflicts and difficulties.

Werner and Smith (1992) asserted that a resilient child is one who loves well, works well, plays well and expects well. Wang et al. (1994) explained individual characteristics of resilient children may include an internal locus of control, high self-esteem, high self-efficacy, and autonomy. Benard (1995) explained that resilient children usually have four attributes in common: *Social Competence*: Ability to elicit positive responses from others, thus establishing positive relationships with both adults and peers; *Problem-solving skills*: Planning that facilitates seeing oneself in control and resourcefulness in seeking help from others; *Autonomy*: A sense of one's own identity and an ability to act independently and exert some control over one's environment, and; *A sense of purpose and future*: Goals, educational aspirations, persistence, hopefulness, and a sense of a bright future.

Academically resilient children have strong interpersonal skills, maintain healthy expectations, and have a high level of activity (Benard, 1991). They also actively engaged in school activities (Finn and Rock, 1997).

Past research indicates that there are large numbers of factors like factors relating to school, family and community which has impact on the student's

academic performance. Toldson (2008) examined the social, emotional, and cognitive factors contributing to the academic success of African American males (n=6000). Four overarching components empirically linked to academic performance were identified: 1) personal and emotional factors, such as emotional well-being and self esteem; 2) family factors, including household composition, parents' education and relationship with their children; 3) social and emotional factors, including economic standing and community involvement; and 4) school factors, relating to their perceptions of school and relationships with teachers.

Literature evidences that student's academic resilience is related to academic success for at risk students (Davey et al., 2003; Ungar, 2004). Waxman and Huang (1997) assessed inner-city students in the south-central United States. They found that students who ranked in the 90th percentile on the standardized tests in mathematics were highly resilient, reporting significantly higher levels of task orientation and satisfaction, social self-concept, achievement motivation, and academic self-concept than their counterparts who ranked below the $10^{th}$ percentile.

Padron et al. (1999) defined educational resilience as the heightened likelihood of success in school and other life accomplishments despite environmental adversities brought about by early traits, conditions, and experiences. They conducted a study on fourth- and fifth-grade students located in a major metropolitan area in the south central region of the United States. Their study revealed that nonresilient students had more difficulty with their class work than both average students and resilient students. The results also revealed that resilient students spent significantly more time interacting with teachers for instructional purposes, whereas nonresilient students spent more time interacting with other students for social or personal purposes. Resilient students were also observed watching or listening significantly more often than nonresilient students, whereas nonresilient students were observed more often not attending to task. The percentage of time that resilient students were on task was much higher than that of nonresilient students. Resilient students were also less often distracted or disruptive than nonresilient students.

Wayman (2002) examined diploma and degree attainment in Mexican American and non-Latino White dropouts, hypothesizing that utilization of the educational resilience framework would increase knowledge about degree attainment in dropouts and provide factors that are more easily affected by practitioners. Results indicated that viewing the returning dropout as a resilient student does provide a more useful set of factors associated with degree attainment.

Hanson and Austin (2003) conducted a longitudinal study of students in California and found that nearly every measure of resilience was positively related to concurrent test scores. The highest increases in test scores occurred in schools where the students reported high levels of resilience. Moreover, resilience development proved to be equally beneficial for successive test score improvements in both low and high performing schools. Similarly, Dass-Brailsford (2005) conducted a study on black youth in South Africa and found that youths who were experiencing the adversity of poverty, they still achieve high academic scores therefore, this study suggested that there is relationship between academic resilience and academic success.

Scales et al. (2006) found that higher levels of resilience traits are strongly correlated with higher grade point averages (GPAs) among middle and high school students. These findings hold true over time, i.e. students reporting more resilience characteristics early in the study had higher GPAs three years later, compared to students with fewer assets at the start.

Sarwar et al. (2010) investigated the relationship between resilience and academic achievement of secondary level students of Gujranwala, Pakistan. The sample consisted of 127 secondary students, including 52 boys and 75 girls. The data revealed that there was no association between resilience and achievement as measured through marks obtained in 10th grade. The boys are more resilient than girls at the secondary level in Pakistan.

Foshee (2013) investigated the role of college students' affective attributes and skills, such as academic competence and academic resilience, in an adaptive mastery-based learning environment on their academic performance, while

enrolled in a remedial mathematics course. The results showed that the combined influence of students' affective attributes and academic resilience had a statistically significant effect on students' academic performance. Further, the mastery-based learning environment also had a significant effect on their academic competence and academic performance.

Mwangi et al. (2015) studied the relationship between academic resilience and academic achievement among secondary school students in Kiambu County, Kenya and found that there is a positive and significant relationship between academic resilience and academic achievement.

Roy (2017) assessed the efficacy of Motivational Interviewing on improving resilience among students with below average academic performance. A student with below average academic performance was selected for the study from Dibrugarh Bengali High School, Dibrugarh, Assam. Pre and post assessment of the resilience level was assessed by using the Adolescent Resilience Scale. In between pre and post assessment, Motivational Interviewing was applied to the student for 10 sessions alternatively. Post assessment and follow-ups were done to check any improvement on resilience. The result of the study concluded that Motivational Interviewing had shown to be effective on improving resilience among students with below average academic performance.

### 1.1.1 CHARACTERISTICS OF RISK AND PROTECTIVE FACTORS

Most researchers examined two important concepts that are essential in the understanding of resilience and these are: risk factors and protective factors (Rutter, 1990). An emphasis on both risk and protective factors may significantly contribute to the understanding of how students succeed in school despite the presence of adversity (Greene and Conrad, 2002).

#### 1.1.1.1 RISK FACTORS

There are large numbers of factors which are associated with the academic success of students in the school. These factors are responsible for placing students at risk for academic failure, which includes: adverse circumstances like poverty, inferior school conditions, lack of parental involvement etc. Risk factors are those conditions that are linked with a higher likelihood of negative outcomes

in students or circumstances that may increase a student's likelihood of disengaging in social or academic matters (Winfield, 1993; Murray, 2003). Rutter et al. (1979) in his seminal work demonstrated that risks often coexist, and that the effects tend to be cumulative, with the resulting outcomes much poorer than when any of the risks exists in isolation. Doll and Lyon (1998) pointed out that risk factors have consistently been found to be significant predictors of later maladjustment which may include: childhood poverty, ineffective or uncaring parenting, physical and/or emotional abuse, and marital conflict or other forms of family dysfunction.

Without having experienced any significant risk, such children can be called competent, well adjusted, or normal, but cannot be called resilient (Masten and Reed, 2002). Resilience literature generally describes risk factors as conditions that increase the likelihood of developing a problem (Green and Conrad, 2002). Fraser et al. (2004) define risk factors as ―any influences that increase the probability of onset, digression to a more serious state, or maintenance of a problem condition.

Schools that serve racial minority and poor students may introduce risk factors like less supportive school climate, institutionalizing low academic expectations, or inadequate educational resources (Borman and Overman, 2004). Risk factors do not guarantee that children will have academic and behavioral problems, but rather increases the probability that such problems will arise. Further, risk factors may include genetic, biological, behavioral, socio-cultural, and demographic conditions, characteristics, or attributes that affect the probability of a poor developmental outcome for children (Fraser, 2004).

Literature reveals that risk factors or adverse conditions negatively affect the resilience capacity and healthy development of children and youth. For instance, Luster and McAdoo (1996) investigated African American families and children to explore the relationship between the number of risk factors and the probability that they were experiencing academic or behavioural problems. McCabe et al. (1999) conducted a similar study that examined the relationship between child stressors, family risk factors, and the behavioural adjustment of

African American youth. These studies concluded that there is a positive relationship between the number and frequency of stress and risk factors and the degree of academic, psychological and behaviour problems observed in children.

#### 1.1.1.2 PROTECTIVE FACTORS

Resilience is not a personality; it is a dynamic characteristic that changes with the child's social circumstances. The real causes of the individuals' success are the protective factors that involve personal attributes, support systems, institutions, resources, etc. that allow individuals to defy the effects of risk factors (Beauvais and Oetting, 1999). The term protective factors imply internal and external resources that moderate or mediate the effects of risk or adversity and enhance good adaptation or competence (Masten, 1994). Protective factors can be seen as buffering a child's reaction to the stressful condition, including both internal and external sources. The research on protective factors delineates both internal and external protective factors. Internal protective factors have been identified as those influences within a person that facilitate resilience. Environmental or external factors support students and tend to build resilience (Henderson and Milstein, 2003; Rivera and Waxman, 2011; Henderson, 2012). Similarly, Greene and Conrad (2002) define protective factors as individual characteristics and environmental assets that buffer, interrupt, or even prevent risk.

In a study of urban students, Wasonga et al. (2003) suggested that schools, parents, community, and peers should promote protective factors by providing supportive environments and opportunities for participation in activities that promote social bonding and life skills. For at-risk students, schools must develop methods to help them become resilient learners who can succeed under adverse circumstances. In many schools, just the opposite is true. At-risk youth are ignored, suffer the humiliation of labels associated with special education placement, and are socially isolated. Support of resiliency is very important for at-risk youth because they experience significantly higher levels of school pressure and significantly lower levels of support from school, parents, and community. These students need to be resilient to just survive.

Bryan (2005) discussed the role of family, school, and community in fostering educational resilience and academic achievement of minority and poor children. School counsellors in urban schools serve a disproportionate number of minority and poor children at risk for school failure. Urban school counsellors can play critical roles in engaging their school's stakeholders in implementing partnership programs that foster student achievement and resilience.

Stewart & Sun (2007) explored the 4 ways to promote resilience in depressed students by building a supportive environment embed resilience concept in the curriculum build partnerships between school, family and community. It was discovered that post-interventions resilience improved and in turn improved student's depressive state. They asserted that interventions were not only important for the depressed students but also at maintaining the mental health of the healthy students.

Wasonga et al. (2003) & Gizir and Aydin (2009) evaluated urban student protective factors predicting academic resilience and academic achievement. These studies revealed that home high expectations, school caring relationships and high expectations, and peer caring relationships were the prominent external protective factors that predicted academic resilience. One of the similar study conducted by Hodder et al. (2011)examine the potential effectiveness of such an intervention approach in improving adolescent resilience and protective factor scores; and reducing the prevalence of adolescent tobacco, alcohol and marijuana use in three high schools. Data were collected from grade 7 to 10 students at baseline (n = 1449) and one year following a three year intervention (n = 1205). The results suggest that the intervention has the potential to increase resilience and protective factors, and to decrease the use of tobacco, alcohol and marijuana by adolescents.

Stumblingbear and Romans (2012) studied the effects of enculturation, self esteem, subjective well being, and social support on resilience among urban American Indian (AI) adolescents from a South Central region of the U.S. and study revealed that protective factor i. e. social support from friends remained the strongest predictor than enculturation, self esteem, subjective well being. Foster

(2013) explored the external protective factors of family, school, and community as perceived by rural students who live in poverty and demonstrate academic resilience. The study revealed protective factors of connections, expectations, experiences, and instruction supported school success in rural students living in poverty.

Researchers have theorized that protective factors that promote positive school related and developmental outcomes for youth are more rooted in environmental interactions among three systems: family, community, and school (Bronfrennber, 1979; Benard, 1991; Masten and Coatsworth, 1998; Fraser et al., 2004). These systems may have a direct or indirect impact on student outcomes, serving as a protector (to mitigate) from risk or, at the very least, acting as a buffer between educational failure and academic success (Murry and Brody, 1999). To a large extent, the lack of protective factors within these systems makes a person vulnerable to negative outcomes. For example, the stress poverty places on the mental well-being of single-parents in turn may cause them to lash out at their children. Hostility from one's parent may serve as a mental distraction which may eventually affect a child's ability to concentrate on their schoolwork (Fraser, 2004).

In relation to families, some protective factors identified in literature are related to: (a) the presence of a strong, supportive relationship with at least one adult; (b) parental guidance and household rule-making and enforcement; and (c) the establishment of high, meaningful, yet realistic expectations (Benard, 1995; 2004). In relation to the communities, youth from disadvantaged neighbourhoods are often considered more at risk than children from more affluent areas. However, some community characteristics such as the informal networks of neighbours, churches, and community-based organization available for emotional support and counsel, along with access to specialist services do seem to operate as protective factors, buffering young people from the effects of adversity (Benard, 1991; 2004). In relation to schools, it's supportive teachers, relevant curriculum, and opportunities for meaningful social participation that seem to ameliorate certain risks (Benard, 1991; 2004). In conclusion, researchers underscored the

importance of identifying which protective factors mitigate against certain risks (Bernard, 1991; Winfield, 1991; Wang and Gordon, 1994; Masten and Coatsworth, 1998).

### 1.1.2 ROLE OF SCHOOLS IN FOSTERING RESILIENCE IN CHILDREN

School is a place where students spend most of their time within the school system and plays eminent role in fostering resilience in students (Braxton et al. 2000). Academic institutions like school help students to develop academic resilience by providing safe learning environments, setting positive social and academic expectations and ensuring academic and social success. Some studies indicate that schools can positively influence resilience among students (Henderson and Milstein, 1996; Finn and Rock, 1997).

The type of positive environment in school helps to settle down students who face various obstacles in the path of their academic success. In addition, counseling intervention programs and guiding cells or centers within the school are valuable resources from where students can get help to remain stable in difficult situations. Rutter (1987) identified four main protective processes or methods that foster resilience: Reduce negative outcomes by altering the risk or child's exposure to the risk; Reduce negative chain reactions following risk exposure; Establish and maintain self-esteem and self-efficacy; and Open up opportunities to acquire skills and invest in prosocial activities.

Schools can develop resilience in students by using combination of these four processes (Benard, 1991). For example, schools can reduce negative outcomes by providing free/reduced meal programs, providing access to school-based health clinics, providing clothing and other basic needs, and providing links to community resources. Schools can reduce negative chain reactions with the help of teachers following risk exposure by having smaller classes, developing mentoring programs or tutoring options, and offering additional tutoring or counselling.

Reyes and Jason (1993) found that educationally resilient students significantly reported more satisfaction with their school sites when compared to their peers. Additionally, interviews with these students also revealed that educationally resilient students were less likely to report that they were approached to join a gang. Lastly, researchers did not find a difference between these two groups when comparing socioeconomic status, parent-student involvement, or parent supervision.

In a review of research, Winfield (1994) developed a set of recommendations that provided guidance for schools to foster resiliency among at-risk youth. She suggested that schools systematically develop a school culture, policies, and structures to enhance resiliency factors. Suggestions to schools included: promote positive peer interactions, improve extracurricular programs, encourage collaborative relationships between students and staff, and develop strong linkages with community groups. For many at-risk youth, the expectations of school are difficult to meet and they receive few intrinsic rewards. Resilience may provide these students with the capacity to endure their perceived negative view of school culture.

Jew et al. (1999) indicated that schools can help students develop these protective factors in a variety of ways. Stakeholders—teachers, parents, community members, and peers—can support at-risk students and provide opportunities for participation in activities that promote social bonding and life skills. If protective factors that enhance students' resilience can be cultivated, these students may be able to cope with the stressors of life and perform better in school.

There are large numbers of factors which have been identified and responsible for influencing child's mental health including school curriculum, school policy, the rules and regulations of the school, school physical and social environment, discipline in the school for managing the students behaviour and opportunities provided by the school for developing positive relationship between students and teachers (Baker et al., 2003).

School can provide some of the positive experiences like positive peer and teacher interactions, helpful rules and regulations, high performance expectations, constructive feedback are helpful for encouraging and developing resilient behaviour (Niesel and Griebel, 2005). Brooks (2006) explores ways in which the school environment could be structured to strengthen resilience in children and youth. He proposed that schools can strengthen resilience by developing social competence, increasing bonding between students and caring adults, communicating high expectations for students' academic and social performance, maximizing opportunities for meaningful participation of students in the school environment, promoting resilience in school teachers and staff, and creating partnerships with families and community resources.

Morrison and Allen (2007) outlines specific actions that school personnel can take to promote the healthy social and emotional development of students at their schools. These recommendations are conceptually grounded in risk and resiliency theory and in the recognition that environments as well as individuals hold risk and protective possibilities. Focus is placed on protective possibilities that address the individual risk and resilience domains of autonomy, sense of purpose, social competence, problem- solving, and achievement motivation in classroom, peer, and school wide and family-school contexts.

Downey (2008) stated some specific recommendations for classroom practices that can help foster academic resilience and support the academic achievement of students placed at risk for failure. These recommendations were organized into 4 clusters-(a) teacher-student rapport, (b) classroom climate, (c) instructional strategies, and (d) student skills.

Further, Steinhardt et al. (2008) examined the effectiveness of a 4-week resilience intervention to enhance resilience, coping strategies, and protective factors, as well as decrease symptomatology during a period of increased academic stress of college students The experimental group received a psycho-educational intervention in 4 two-hour weekly sessions. Measures of resilience, coping strategies, protective factors, and symptomatology were administered pre- and post intervention to both groups. Analyses indicated that the experimental

group had significantly higher resilience scores, more effective coping strategies (i.e., higher problem solving, lower avoidant), higher scores on protective factors (i.e., positive affect, self-esteem, self-leadership), and lower scores on symptomatology (i.e., depressive symptoms, negative affect, perceived stress) post intervention than did the wait-list control group. These findings indicate that this resilience program may be useful as a stress-management and stress-prevention intervention for college students.

In a subsequent study comparing 133 resilient and 81 non-resilient Mexican American high school students, Gonzalez and Padilla (1997) found that resilient students reported significantly higher perceptions of family and peer support, teacher feedback, positive connections to school, value placed on school, and peer belonging. Using academic grades as an indicator for academic resilience, researchers found that the sole significant predictor of educational resilience was a student's sense of belonging in school. Sharkey et al. (2008) used a research group of 20,000 students from California. The study concluded that teacher student relationship is essential to promote resilience, especially with students who have less family support. Also, this study concluded that student engagement is essential for students to succeed in school.

A study on fourth and fifth grade students by Nettles et al. (2000) revealed that access to social resources, such as caring parents, participation in extracurricular activities, and supportive teachers were beneficial to students' academic achievement. Study also revealed that students' perceived exposure to violence had a significant negative impact on their mathematics and reading achievement, while teacher support had a positive impact on mathematics achievement. Students' perceptions of stressful life events, however, did not have a significant effect on achievement.

Cunningham and Phillips (2010) examined factors within the school context that facilitates educational resilience among African American high school students. The participants were 206 African American adolescents (65.54% female) who resided in a large urban city in the south-central geographic area of the United States. Results supported the notion that educational resilience

was associated with perceived school support, academic self-esteem and mother's work history.

Schools can foster academic resilience in students by setting up classroom environments so that students can experience success and feel a sense of control over aspects of their environment. Finally, schools can provide opportunities for students to acquire skills and engage in prosocial activities by offering a range of extracurricular activities. While all of these suggestions make intuitive sense, schools face challenges in trying to implement these various programs to foster resilience in students. Schools that lack sufficient resources, such as those located in low SES etc may not be able to implement programs like a school-based health centre. Schools that are overcrowded may have difficulty making class sizes smaller. Again, schools that do not already possess these programs or characteristics may not be able to acquire them.

## 1.2 METACOGNITION

Metacognition is a term that was coined by Flavell in 1970s.Flavell (1971) first used the term metamemory, and later the term metacognition. Metacognition was described simply as knowledge of knowledge, thinking about thinking, cognition about cognitive processes, or knowledge and cognition about cognitive phenomena (Flavell, 1979). The basic description of metacognition was that of cognition about cognition.It refers to the people's awareness of their own cognitive machinery and how it works (Meichenbaum et al.,1985). Metacognition literally means 'cognition about cognition' or 'knowledge about knowing and learning'. This metacognitive knowledge is used to monitor and regulate cognitive processes such as reasoning, comprehension, problem solving, learning and so on (Metcalfe and Shimamura 1994). Metacognition comprised metacognitive skills like monitoring and regulating cognitive processes (Flavell, 1987). Kluwe (1982) stresses that human beings can understand themselves as agents of their own thinking, and can also assess themselves as such, as self-regulatory organisms.

Metacognition is a higher order thinking which involves active control over the cognitive processes engaged in learning activities such as planning how to accomplish given learning task, monitoring comprehension or understanding about that task and evaluating the progress toward the completion of a task are metacognitive in nature. People differ in their metacognitive knowledge and skills, they differ in how well and how quickly they learn (Brown et al., 1983; Morris, 1990). Metacognition is generally defined as the activity of monitoring and controlling one's cognition. It can further be defined as what we know about our cognitive processes and how we use these processes in order to learn and remember (Ormrod, 2004).

Metacognition concerns itself with many aspects of student development, ranging from academic competence to knowledge about the self as learner. Students are said to be metacognitive to the degree to which they are engaged in thinking about themselves, the nature of learning tasks, and the social contexts (Brown, 1987). The effective learners are those who are aware of their strengths and weaknesses and find ways to remedy the latter (Bransford et al., 1999). When students are engaged in metacognitive activities like self-assessment, self-explanation, monitoring or revising, their learning is enhanced. Weaker students are found to benefit even more than stronger students from such activities (White and Frederiksen, 1998). However, students cannot be engaged in metacognitive thinking but they can be encouraged to do so through carefully designed instruction, pedagogy and curricular activities. Therefore, it is important to include metacognitive support in the design of learning environment.

Metacognitively aware learners are more strategic and perform better than unaware learners, allowing individuals to plan, sequence and monitor their learning in a way that directly improves performance. Metacognitive skills appear to develop and contribute to learning performance, partly independent of intelligence (Veenman and Spaans, 2005). Similarly, Downing (2009) & Kummin and Rehman (2010) found that there is significantly positive relationship between metacognition skills and academic achievement. Everson and Tobias (1998) assessed student's knowledge monitoring accuracy involved in metacognitive

regulation. Study revealed greatest relationship between the Knowledge Monitoring Accuracy and students' end of course grade in English and also found that this measure of metacognitive regulation, the Knowledge Monitoring Accuracy, was related to academic achievement in college and it was a good predictor for success in college.

Metacognition is separate from other cognitive constraints on learning such as aptitude, intelligence and domain knowledge. There is strong support for the two-component model of metacognition which includes knowledge and regulation of cognition. Metacognition involves:

1. Knowledge and Control of Process (Knowledge of Cognition)
2. Knowledge and Control of Self (Regulation of Cognition)

### 1.2.1 KNOWLEDGE AND CONTROL OF PROCESS (KNOWLEDGE OF COGNITION)

Knowledge may be Declarative, Procedural, or Conditional. Declarative information is factual and involves knowing the concepts of a given task. Procedural knowledge refers to information about how to apply metacognitive strategies. Conditional knowledge is an awareness of when and why one strategy may be superior to another or more appropriate to use. Teachers who identify and teach these components of tasks are helping students to exert metacognitive control over a process. Evaluation, planning, and regulation help students gain executive control of behavior. Evaluation refers to students' ongoing assessment of their knowledge or understanding, resources, tasks, and goals. Planning involves the purposeful selection of strategies for specific tasks and is dependent on declarative and conditional knowledge. Regulation includes the monitoring and revision of progress toward goals. Evaluation, planning, and regulating should take place at stages before, during, and after tasks.

Metacognition includes at least three different types of metacognitive awareness when considering metacognitive knowledge:

#### 1.2.1.1 DECLARATIVE KNOWLEDGE

Declarative knowledge refers to knowledge about oneself as a learner and

about what factors can influence one's performance. Declarative knowledge can also be referred to as "world knowledge". Descriptive knowledge, also declarative knowledge or propositional knowledge is the type of knowledge that is, by its very nature, expressed in declarative sentences or indicative propositions. This distinguishes descriptive knowledge from what is commonly known as "know-how", or procedural knowledge (the knowledge of how, and especially how best, to perform some task), and "knowing of", or knowledge by acquaintance (the knowledge of something's existence).

#### 1.2.1.2 PROCEDURAL KNOWLEDGE

Procedural knowledge refers to knowledge about doing things. This type of knowledge is displayed as heuristics and strategies. A high degree of procedural knowledge can allow individuals to perform tasks more automatically. This is achieved through a large variety of strategies that can be accessed more efficiently. Procedural knowledge, also known as imperative knowledge, is the knowledge exercised in the performance of some task.

Procedural knowledge or implicit knowledge is different from other kinds of knowledge, such as declarative knowledge, in that it can be directly applied to a task. For instance, the procedural knowledge one uses to solve problems differs from the declarative knowledge one possesses about problem solving because this knowledge is formed by doing.

One limitation of procedural knowledge is its job-dependence; thus it tends to be less general than declarative knowledge. For example, a computer expert might have knowledge about a computer algorithm in multiple languages, or in pseudo-code, whereas a Visual Basic programmer might only know about a specific implementation of that algorithm, written in Visual Basic. Thus the 'hands-on' expertise and experience of the Visual Basic programmer might be of commercial value only to Microsoft job-shops.

One advantage of procedural knowledge is that it can involve more senses, such as hands-on experience, practice at solving problems, understanding of the limitations of a specific solution, etc. Thus procedural knowledge can frequently eclipse theory.

#### 1.2.1.3 CONDITIONAL KNOWLEDGE

Conditional knowledge refers to knowing when and why to use declarative and procedural knowledge. It allows students to allocate their resources when using strategies. This in turn allows the strategies to become more effective.

### 1.2.2 KNOWLEDGE AND CONTROL OF SELF (REGULATION OF COGNITION)

Successful students are aware of, monitor, and control their learning. Central to this knowledge of self and self-regulation are commitment, attitudes, and attention. Indeed, attitudes play an important role in metacognitive self-control because successful students attribute their success to their own efforts. Conscious control of attention helps students understand that the level of attention required for a task varies depending on the task and that they can adjust the focus of their attention accordingly. This sense of personal control is related to the efficient performance of tasks.

Regulation of cognition refers to a set of activities that help students control their learning. Research supports the assumption that metacognitive regulation improves performance in a number of ways, including better use of attentional resources, better use of existing strategies, and a greater awareness of comprehension breakdowns. A number of studies report significant improvement in learning when regulatory skills and an understanding of how to use these skills are included as part of classroom instruction (Cross and Paris, 1988; Brown and Palincsar, 1989).

Similar to metacognitive knowledge, metacognitive regulation or "regulation of cognition" contains three skills that are essential i.e. planning, monitoring and evaluation.

#### 1.2.2.1 PLANNING

Planning refers to the appropriate selection of strategies and the correct allocation of resources that affect task performance. Planning involves identification and selection of appropriate strategies and allocation of resources, and can include goal setting, activating background knowledge, and budgeting time. Planning involves the selection of appropriate strategies and the allocation

of resources that affect performance. Examples include making predictions before reading, strategy sequencing, and allocating time or attention selectively before beginning a task. For example, studies of skilled writers reveal that the ability to plan develops throughout childhood and adolescence, improving dramatically between the ages of 10 and 14 (Berieter and Scardamalia, 1987).

#### 1.2.2.2 MONITORING

Monitoring refers to one's awareness of comprehension and task performance. Monitoring refers to one's on-line awareness of comprehension and task performance. The ability to engage in periodic self-testing while learning is a good example. Research indicates that monitoring ability develops slowly and is quite poor in children and even adults (Pressley and Ghatala, 1990). However, several recent studies have found a link between metacognitive knowledge and monitoring accuracy. Studies also suggest that monitoring ability improves with training and practice (Delcols and Harrington, 1991). Monitoring or regulating involves attending to and being aware of comprehension and task performance and can include self-testing.

#### 1.2.2.3 EVALUATING

Evaluating refers to appraising the final product of a task and the efficiency at which the task was performed. This can include re-evaluating strategies that were used. Evaluating refers to appraising the products and efficiency of one's learning. Typical examples include re-evaluating one's goals and conclusions. A number of studies indicate that metacognitive knowledge and regulatory skills such as planning are related to evaluation (Baker, 1989). With respect to text revisions, Bereiter and Scardamalia (1987) found that poor writers were less able than good writers to adopt the reader's perspective and had more difficulty "diagnosing" text problems and correcting them. Finally, evaluation is defined as appraising the products and regulatory processes of one's learning, and includes revisiting and revising one's goals (Schraw et al., 2006).

Metacognition is comprised of two major components: 'metacognitive knowledge' and 'metacognitive regulation' (Schraw and Moshman, 1995). The metacognition is important in various problem-solving tasks, not to mention

weighing in with role of strategic variability and metacognition in the fundamental reasoning mechanism debate (Roberts and Erdos, 1993; 2000). 'Metacognitive knowledge' refers to knowledge of cognition such as knowledge of skills and strategies that work best for the learner, and how and when to use such skills and strategies. 'Metacognitive regulation' refers to activities that control one's thinking and learning such as planning, monitoring, comprehension, and evaluation (Schraw and Dennison, 1994).

The successful learners employ a range of metacognitive skills. The learners who are skilled in metacognitive self-assessment and are therefore aware of their abilities are more strategic and perform better than those who are unaware. Metacognition enables students to be successful learners, and has also been associated with intelligence (Sternberg 1984, 1986a, 1986b; Borkowskiet al. 1987). Metacognitive knowledge plays a significant role in learning, teaching and assessing. Pintrich (2002) agreed that with development, students become more aware of their own thinking as well as more knowledgeable about cognition in general. Furthermore, as they act on this awareness, they tend to learn better. The labels for this general developmental trend vary from theory to theory, but they include the development of metacognitive knowledge, metacognitive awareness, self-awareness, self-reflection, and self regulation.

Rani and Govil (2013) suggested learners to understand and regulate their own thinking process to resolve the real life complexities. The learner learns or rather constructs knowledge through experiences, therefore, the task of the teacher is to provide rich and authentic problem-solving environment. If a learner is well acquainted with concept of knowledge i.e. existing knowledge, acquiring knowledge, study habits etc. along with the regulation of cognitive processes, success can be achieved.

Rozencwajg (2003) asserted that metacognitive levels were related to performance in solving problems of science in school. Two indicators of metacognition were established i.e. Metaknowledge about learning in the classroom and second is metacognitive monitoring of the difficulty of the problem. The two indicators were related to student performance on IQ tests and

strategies for solving problems related to science. The results showed that 'metaknowledge' was related to crystallized intelligence, whereas 'metacognitive monitoring' appeared associated with fluid intelligence. However, both indicators were strongly related to metacognitive strategies for solving scientific problems.

Veenman and Spaans (2005) investigated the relation between intellectual growth and metacognitive skills. The study revealed that metacognitive skillfulness develops alongside, but not fully dependent on intellectual ability and intelligence as predictor of learning performance. Further, it was found that metacognitive skills appeared to be general for third year secondary school students. Moreover, metacognitive skills appear to develop and contribute to learning performance.

Zulkiply (2006) examined the relationship between student's academic performance and each of the five components of metacognition regulation namely planning, information management strategies, comprehension monitoring, debugging strategies and evaluation. It also examined metacognition awareness in students across gender and different academic years. Overall, the findings revealed a significant positive relationship between student's academic performance and metacognitive awareness, and no significant difference in metacognition awareness between male and female across all academic years.

Young and Fry (2008) examined the Metacognitive Awareness Inventory (MAI) (Schraw and Dennison, 1994) to determine how it relates to broad and single measures of academic achievement in college students. Correlations were found between the MAI and cumulative GPA as well as end of course grades. Scores on the MAI significantly differ between graduate and undergraduate students. Similarly, Sawhney and Bansal (2015) measured the metacognitive awareness of the undergraduates and found significant difference in academic achievement of undergraduate students with highand low scores in metacognitive awareness.

Abafa (2008) found that cognitive strategies related to simple and difficult tasks and metacognitive strategies and these are more frequently used by successful students than weak students. The study revealed that students of math,

experiential sciences, and humanities are different with regard to using cognitive strategies, but they are similar in using metacognitive strategies.

Ndidiamaka (2010) examined the relationship between mastery goals, performance goals, metacognition and academic success. The study involved 179 undergraduates (87 females, 92 males).The findings of the study showed that mastery goals were related to GPA whereas performance goals were unrelated to GPA performance. Metacognition is also related to academic success and students with good metacognition have good GPAs. Mastery goals influence GPAs through metacognition as students with mastery goals may have superior metacognitive skills and strategies that they use to master information.

Caliskan and Sunbul (2011) investigated the effects of learning strategies instruction on metacognitive knowledge, metacognitive skills, and achievement and found that learning strategies instruction increased awareness of strategy and metacognitive knowledge and it was effective in using metacognitive skills. It was also found that using metacognitive skills increase the academic achievement. Rahman et al. (2011) conducted a study on the impact of some students' related factors on their metacognitive awareness. Results of the study revealed that metacognitive awareness was significantly correlated with internet use and library habits. Further the study revealed that children of highly educated parents were highly metacognitive aware than the children of less educated parents. Results further indicated that there was no significant difference in the metacognitive awareness of male and female students.

Saraç et al. (2014) investigated the relations among text learning performance, general intelligence and the three components of metacognition; namely metacognitive knowledge, metacognitive monitoring and metacognitive control. The results of the study indicated metacognitive monitoring and general intelligence correlated significantly whereas no relationship exists in metacognitive knowledge, metacognitive control and general intelligence. The results also revealed that metacognitive knowledge did not contribute to student's text-learning performance whereas metacognitive monitoring and metacognitive control, together with general intelligence, were found to be significant predictors

in explaining student's text-learning performance.

Nett et al. (2014) explored students' learning-related cognitions prior to an in-class achievement test, with a focus on metacognitive strategy use of 70 grade 11 students Results illustrated students' self-regulatory ability to preserve their motivational and cognitive resources, with test-related cognitions evidenced significantly more often in learning-related as opposed leisure settings. Metacognitive strategy use was also found to significantly increase as the test date approached. Higher increases in frequency of test-related cognitions over time positively corresponded to test performance. Of the three metacognitive strategies assessed, monitoring was found to positively correspond with test performance.

Serhat (2014) examined the relationships between metacognition and self-regulation. The sample of study consists of 422 primary education students who were enrolled in different programs at Sakarya, in Turkey. Results of the study showed that positive relation between metacognition and self-regulation. According to results, self-regulation is predictor of metacognition.

Abdullah et al. (2017) investigated the role of metacognitive skills in solving mathematical problems, particularly non-routine Ones. Results showed that the level of the students' performance in solving non-routine mathematical problems was very low. There was also a significant difference in the metacognitive skills among students with different performance levels in solving non-routine mathematical problems. They concluded that metacognitive skills should be emphasized for improving performance of students.

## 1.3 SELF EFFICACY

Albert Bandura devised the term 'Self Efficacy' in his Social Cognitive Theory. It is a major component in Social Cognitive Theory. According to Bandura (1995) self-efficacy is the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations. In other words, self-efficacy is a belief of a person in his or her abilities to succeed in a particular task or situation. Bandura(1994) described these beliefs as determinants of how people think, behave, and feel. In other words, persons with strong

efficacy beliefs are more confident in their capacity to execute behaviour. Beliefs about self-efficacy have a significant impact on our goals and accomplishments by influencing personal choice, motivation, and our patterns and emotional reactions. Perceived self-efficacy also affects how successfully goals are accomplished by influencing the level of effort and persistence a person will demonstrate in the face of obstacles.

The history of self-efficacy begins within Bandura's (1977) social learning theory that was renamed social cognitive theory in1986. According to theory and research (Bandura, 1995), self-efficacy makes a difference in how people feel, think, behave, and motivate themselves. In terms of feeling, a low sense of self-efficacy is associated with stress, depression, anxiety, and helplessness. Such individuals also have low self-esteem and become pessimistic about their accomplishments and personal development. In terms of thinking, a strong sense of efficacy facilitates cognitive processes and performance in a variety of settings, including quality of decision-making and academic achievement.

Perceived self efficacy concerns people's beliefs in their capabilities to mobilize the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives (Wood and Bandura, 1989). A person needs both skill and self efficacy to successfully perform a particular task (Bandura, 1982; 1986; Wood and Bandura, 1989). They have found that any individual's self-efficacy plays a major role in how he direct or approaches his goals, tasks, and challenges. For example, a person with strong sense of self efficacy view problems as challenging tasks, form a strong sense of commitment, more confident, self motivated and recover quickly from setback and disappointments. On the other hand, people with low sense of self efficacy, avoid challenging tasks and easily lose confidence.

Self-efficacy is a set of beliefs that function as "an important set of proximal determinants of human motivation, affect, and action". These beliefs constitute a form of action through motivational, cognitive, and affective intervening processes. Bandura (1994) stated that self-efficacy is concerned with people's beliefs in their capabilities to exercise control over their own functioning

and over events that affect their lives. Beliefs in personal efficacy affect life choices, level of motivation, quality of functioning, resilience to adversity and vulnerability to stress and depression. The emotional reactions can affect action both directly and indirectly by changing the thought process and is dependent on how well people think they can cope. People who believe they can manage threats are less disturbed by them. They can lower their stress and anxiety by exercising control over the potential threats (Bandura, 1995). People's beliefs in their efficacy mainly developed by four main sources of influence including mastery experiences, seeing people similar to oneself manage task demands successfully, social persuasion that one has the capabilities to succeed in given activities, and inferences from somatic and emotional states indicative of personal strengths and vulnerabilities. People must, therefore, have a robust sense of efficacy to sustain the perseverant effort needed to succeed. Succeeding periods of life present new types of competency demands requiring further development of personal efficacy for successful functioning. The nature and scope of perceived self-efficacy undergo changes throughout the course of the lifespan.

In the views of Klassen et al. (2008) Self efficacy is decision making abilities for fulfilling the piece of work successfully. It is an important factor in educational field. Self efficacy is the major sign of performance in academics.In particular, self-efficacy has been positively related to higher levels of achievement and learning as well as wide variety of adaptive academic outcomes such as higher levels of effort and increased persistence on difficult tasks in both experimental and correlation studies involving students from a variety of age groups (Pintrich and Schunk, 2002).

Zulkosky (2009) studied that the self-efficacy beliefs influence how people think, feel, motivate themselves, and act. Self-efficacy was concerned about the perception or judgment of being able to accomplish a specific goal and cannot be sensed globally. He found that in order to gain a sense of self-efficacy, a person can complete a skill successfully, observe someone else doing a task successfully, acquire positive feedback about completing a task, or rely on physiological cues.

Aarabian et al. (2004) concluded that self-efficacy beliefs have a positive influence on university students' mental health and academic achievement. Zimmerman (2000) discussed that self-efficacy has emerged as a highly effective predictor of students' motivation and learning during the past two decades. As a performance-based measure of perceived capability, self-efficacy differs conceptually and psychometrically from related motivational constructs, such as outcome expectations, self-concept, or locus of control. Self-efficacy beliefs have been found to be sensitive to subtle changes in students' performance context, to interact with self-regulated learning processes, and to mediate students' academic achievement.

Saunders et al. (2004) explored gender differences in the relationship between self -perceptions and academic outcomes and found that females are more favorably oriented toward high school completion. Both male and female students with more positive self -perceptions have stronger intentions to complete the current year of high school. Higher grade point averages were more strongly associated with greater self - efficacy for females than for males.

Uwah et al. (2008) examined the relationship between perceptions of school belonging, educational aspirations, and academic self-efficacy among 40 African American male high school students. Correlation and multiple regression designs were used for result analysis. Results indicated that feeling encouraged to participate and educational aspirations were significant, positive predictors of academic self-efficacy.

Kadivar (2008) demonstrated significant association between self-efficacy beliefs and academic achievement. Self-efficacy is a considerable factor in academic achievement. Similarly, Tella et al. (2008) investigated self efficacy and locus of control as predictor of academic achievement among junior secondary school students. Study indicated that significant relationship exists between self efficacy, locus of control and academic achievement. The study also revealed that self efficacy and locus of control predict well students ' academic achievement.

Deireh and Banijamali (2009) found that self-efficacy has both direct and indirect influence on cognitive and metacognitive strategies through affecting

goals, ascendency, and homework value. Lavasani et al. (2009) revealed that self-efficacy is a good predictor of the amount of effort, cognitive and metacognitive strategies, homework value, and students' academic achievement.

Adeoye and Emeke (2010) examined the impact of emotional intelligence and self efficacy training on the achievement of senior secondary school students in English language. There was a significant main effect of treatment on students' academic achievement in English language ($F(2,269) = 364.447$, $P<0.05$). Students exposed to Emotional intelligence training ($x=42.81$) performed better in the English language achievement test than those in the Self-efficacy training group ($x=33.88$) and those in the Control group ($x=27.89$). Though Emotional intelligence and Self-efficacy trainings tremendously enhanced the performance of the students in English Language, Emotional intelligence training had a more significant impact on students' academic achievement.

Motlagh et al. (2011) revealed that self-evaluation, self directing and self-regulation are correlated with academic achievement. In general, research has shown that self-efficacy beliefs exert a great influence on students' motivation and their academic achievement.

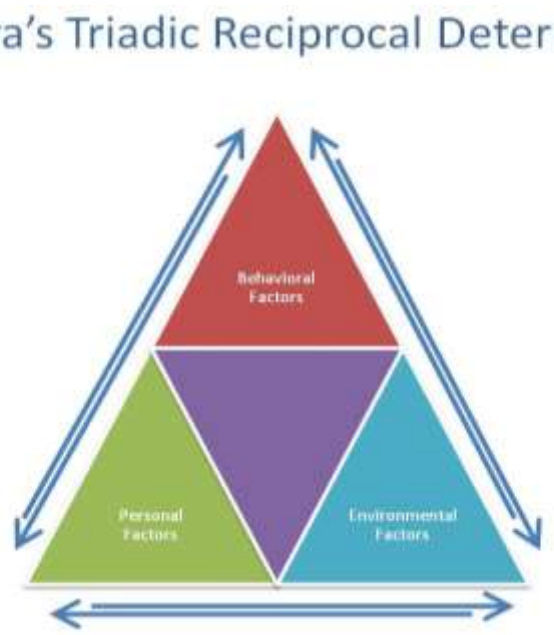
Ochieng (2015) explored the relation between self efficacy and academic achievement from a Mathematical perspective among secondary schools in Kenya. Study findings revealed that those with high Self Efficacy perform better in Mathematics more often than those with lower Self Efficacy. In a same way, Akram and Ghazanfar (2014) also found significant relationship between academic achievement and self efficacy. Kolo et al. (2017) investigated the levels of students' academic self-efficacy beliefs and relationship between academic self-efficacy with students' academic performance among final year students' in one of Nigerian Colleges of education. Study results revealed the positive and significant relationship between academic self-efficacy beliefs with students' academic performance ($r=0.342$, $p<0.01$). They recommended that students' should be exposing to the kind of self-efficacy intervention program in order for the students' to be having a kind of confidence to feel that, they can really perform well and deal with all academic related task positively, which in turn improve academic achievement of students' positively.

Saeid and Eslaminejad (2017) relationship between students self-directed learning and academic self-efficacy and Achievement Motivation in Payamnoor students. The findings of research showed significant relation between student's Self-directed learning readiness and academic self-efficacy and academic motivation in Students University of Payamnoor. Also Independence in learning and Study skills and problem solving has the most ability for academic self-efficacy and academic motivation prediction and there was the most correlation. According to results and that self-directed learning readiness to enhance self-efficacy and academic motivation, it is necessary to teach strategies to students.

Fernandez-Rio (2017) assess the interactions between self-regulated learning, cooperative learning and academic self-efficacy in secondary education students experiencing cooperative learning as the main pedagogical approach for at least one school year. Self-regulated learning was found more influential than cooperative learning on students' academic self-efficacy. In cooperative learning contexts students interact through different types of regulations: self, co, and shared.

### 1.3.1 SOCIAL COGNITIVE THEORY

This theory assumes a wider view of human agency, as humans do not live in isolation but have a number of interacting factors that determine their actions (Bandura, 1997). This theory explains that human functioning is explained in terms of a model of triadic reciprocality in which behaviour, cognitive and other personal factors, and environmental events all operate as interacting determinants of one another (Bandura, 1986). This suggests that human agency is reciprocally caused when behaviour, cognition (other personal factors), and environmental factors interact bi directionally (Bandura, 1989; 1997). The strength that these determinants exert on human agency is not equal, but varies for different tasks (Bandura, 1997). Self efficacy represents one of the'cognitive and other personal factors' in this theory (DiIorio, 1997).




### 1.3.2 SOURCES OF SELF EFFICACY

According to this theory, an individual can develop a sense of self-efficacy through four main sources. The first is through 'enactive mastery experience', which involves previous performance accomplishments or failures that increase or decrease perceived self-efficacy (Bandura, 1977; 1994; 1997). The second source is through 'vicarious experience', which involves appraising one's abilities in comparison to those of others and modelling or observing others who have desired skills (Bandura, 1977; 1994; 1997). The third source is through verbal or social persuasion in which the individual is persuaded verbally by significant others that they possess certain skills to achieve their desired goals thus instilling a high sense of self-efficacy; however, a low sense of self-efficacy can be instilled if a significant other expresses doubts (Bandura,1977; 1994; 1997). The last source of developing self-efficacy is through'physiological and affective states' in which individuals rely on somatic indicators such as arousal or emotional states when judging their abilities (Bandura, 1977; 1994; 1997). These four sources are then integrated and only become instructive of self efficacy when they are cognitively processed through reflexive thought (Bandura, 1997).

### 1.3.3 DYNAMICS OF SELF EFFICACY

Self efficacy has three dimensions namely: magnitude, strength and generality (Gist, 1987). First magnitude describes thedifficulty level (e.g. easy, moderate, and hard) an individual feels is required to perform a certain task (Van der Bijl and Shortridge-Baggett, 2002). For example: How difficult is my class work? Are the quizzes easy or hard? Second, strength refers to the amount of conviction an individual has about performing successfully at diverse levels of difficulty (Van der Bijl and Shortridge-Baggett, 2002). How confident am I that I can excel at my work tasks? How sure am I that I can climb the ladder of success? Finally, generality is described as the degree to which the expectation is generalized across situations (Lunenburg, 2011). For example: how confident am I able to apply current knowledge or learning to assigned new tasks.

### 1.3.4 IMPACT OF SELF EFFICACY ON HUMAN FUNCTIONING

According to Bandura self efficacy affects human functioning through the four major psychological processes i.e. cognitive, motivational, affective and selection processes. Each process is described below with respect to its association with self efficacy.

#### 1.3.4.1 SELF EFFICACY AND COGNITIVE PROCESSES

Self efficacy impacts cognitive process by influencing the anticipatory scenarios humans construct and rehearse (Bandura, 1994). For instance, it has been observed that those with high self efficacy beliefs expected to be more successful while those with low self efficacy beliefs tend to remain at same position and anticipate failure. In short, self efficacy impacts analytic thinking (Bandura, 1994).

#### 1.3.4.2 SELF EFFICACY AND MOTIVATION PROCESSES

Self efficacy impacts motivation by determining goal level, perseverance, and resilience to failure (Bandura, 1994). Individuals with a high sense of self efficacy tend to set higher goal levels than those with low self efficacy. Person with low self efficacy tend to give up in difficult situations and limit their future

involvement in similar endeavours (Bandura, 1997; Weiner, 1985). Conversely, persons with high self efficacy keep on going even in difficult circumstances and are resilient in light of failure (Bandura, 1997; Weiner, 1985).

#### 1.3.4.3 SELF EFFICACY AND AFFECTIVE PROCESSES

Affective processes, which regulate emotional states and the elicitation of emotional or physiological reactions, are influenced by self efficacy on several fronts. Bandura (1994) concluded that a person with a weak sense of self efficacy tends to be failure to control over stressors. Conversely, those with a greater sense of self regulatory efficacy tend to be more successful in reducing health impairing habits and incorporating health promoting habits into their lifestyle (Bandura, 1994).

#### 1.3.4.4 SELF EFFICACY AND SELECTION PROCESSES

Self efficacy influences the type of activities and environments people choose. Bandura (1994) tells us that people avoid situations that they believe are beyond their capabilities, but readily undertake challenges that they perceive themselves to be capable of handling. Higher self efficacy will lead to more challenging undertakings (Bandura, 1997).

People believe that they can produce desired results by their actions even in the face of adversities and difficulties than, self efficacy is assumed as important trait in the development of competence when facing difficulties. Bandura (1993) indicated that students with strong self-efficacy were further motivated to persist through academic challenges and access necessary resources to succeed. It has been shown that higher levels of self efficacy lead to better performance in some academic tasks (Bandura 1997).

Similar to resiliency, self-efficacy is a multidimensional construct which should be measured in relation to specific contexts or outcome domains such as academic settings (Bandura, 1986; Pajares, 1996). Measuring self efficacy of school students focuses on their confidence in their ability to accomplish the assigned school tasks, complete assignments on time etc. Many studies have been

conducted and found positive relationship between self efficacy and academic performance. Student grades, persistence, and number of hours studying, all have been found to be strongly related to academic self-efficacy (Lent et al., 1984, 1986, Hackettet al., 1987; 1992; Brown et al., 1989; Multon et al., 1991; Zhang and RiCharde, 1998; Bong, 2001; Torres and Solberg, 2001; Finn and Frone, 2004; Hsieh et al., 2007; Alldred, 2013).

People with high levels of self-efficacy are more likely to set higher goals, commit to challenges that are more difficult, and strive to meet those goals. They achieve the goals by visualizing successful outcomes instead of dwelling on the potential negative consequences. People with high self-efficacy approach difficult tasks as challenges and do not try to avoid them. People's self-efficacy beliefs determine their level of motivation, as reflected in how much effort they will exert in an endeavour and how long they will persevere in the face of obstacles (Bandura, 1989).Perceived self-efficacy likely affects individuals' ability to adapt and deal flexibly with difficult situations, and also affects individuals' aspirations, analytical thinking, and perseverance in the face of failure (Bandura et al., 2001).

Zajacova et al. (2005) investigated the joint effects of academic self-efficacy and stress on the academic performance of 107 non-traditional, largely immigrant and minority, college freshmen at a large urban commuter institution. The study was conducted by using a survey instrument to measure the level of academic self-efficacy and perceived stress associated with 27 college-related tasks. They estimated structural equation models to assess the relative importance of stress and self-efficacy in predicting three academic performance outcomes: first-year college GPA, the number of accumulated credits, and college retention after the first year. They found that academic self-efficacy was a more robust and consistent predictor than stress of academic success.

Valle et al. (2009) found that self-efficacy beliefs, controlling learning, and test anxiety have direct causal effect on students' cognitive and metacognitive strategies on their way to gain academic achievement. Students enjoying high self-efficacy seek merit and ascendency. They make use of elaboration and

organization strategies in a deep and elaborate manner and this may be the reason why they enjoy challenging issues and prefer difficult tasks (Greene et al. 2004).

Thomas et al. (2009) examined the relationships among self-efficacy beliefs, intrinsic and extrinsic motivation, and academic adjustment among 111 African American women in college. Results revealed that self-efficacy beliefs predicted Motivation to Know, Externally Regulated motivation, Identified motivation, and academic adjustment. Furthermore, Motivation to Know partially mediated the relationship between self-efficacy beliefs and academic adjustment. Contrary to prediction, extrinsic motivation did not mediate the relationship between self-efficacy beliefs and academic adjustment.

Bresó et al. (2011) evaluated a 4-month, individual cognitive-behavioral intervention program to decrease burnout and increase self-efficacy, engagement, and performance among university students. The main objective of the intervention was to decrease the anxiety the students coped with before exams in order to increase their beliefs of self-efficacy. Besides the study group intervened, two control groups were involved (i.e., a "stressed" control group and a "healthy" control group). All 3 groups filled out a questionnaire before the intervention and then again 6 months later (2 months after the intervention was completed). The results show that self-efficacy, engagement and performance increased in the intervened group when compared to both control groups. Regarding burnout, decreases were noted in both the intervened and stressed control groups but not in the healthy control group. The implications of the study are discussed, together with its limitations and suggestions for future research.

O'Sullivan (2011) explored eustress, hope and self-efficacy and their relation with life satisfaction among undergraduates. The results revealed a significant positive correlation between eustress and life satisfaction. Results indicated that hope is the best predictor of life satisfaction. The work reported provides a reliable tool for measuring eustress, examines eustress in a new way at the academic level, and provides helpful information about student wellness to college administrators.

In the same line, Faramarzi and Khafri (2017) examined the role of alexithymia, anxiety, and depression in predicting self-efficacy in medical college students. Pearson correlation coefficients revealed negative significant relationships between alexithymia and the three subscales with student self-efficacy. There was no significant correlation between anxiety/depression symptoms and student self-efficacy. A multiple regression analysis revealed that alexithymia was a negative significant predictor of self-efficacy in academic students. The prevalence of alexithymia was 21.8% in students. Multiple backward logistic analysis regression revealed that number of passed semesters, gender, mother's education, father's education, and doctoral level did not accurately predict alexithymia in college students. As alexithymia is prevalent in college students and affects self-efficacy and academic functioning, they suggest medical college students should be routinely evaluated by mental physicians at universities.

Bradley and Corwyn (2001) analyzed the role of self-efficacy beliefs as a mediator and moderator of the relation between the home environment and well-being was examined for both European American and African American children ages 10 through 15. There was evidence that self-efficacy beliefs pertaining to school and to family functioned as a mediator between EA HOME (Home Observation for Measurement of the Environment) scores and social behavior and also between EA-HOME scores and an overall problems index. The effects occurred in both ethnic groups but more often in European American adolescents. Likewise, self-efficacy beliefs pertaining to peers and to family served to moderate the relation between HOME scores and social behavior, achievement test scores, and the overall problems index. Again, however, the effects were largely restricted to European Americans.

Bandura, et al. (2001) tested with 272 children a structural model of the network of socio-cognitive influences that shape children's career aspirations and trajectories. Familial socio-economic status is linked to children's career trajectories only indirectly through its effects on parents' perceived efficacy and academic aspirations. The impact of parental self-efficacy and aspirations on their

children's perceived career efficacy and choice is, in turn, entirely mediated through the children's perceived efficacy and academic aspirations. Children's perceived academic, social, and self-regulatory efficacy influence the types of occupational activities for which they judge themselves to be efficacious both directly and through their impact on academic aspirations. Perceived occupational self-efficacy gives direction to the kinds of career pursuits children seriously consider for their life's work and those they disfavor. Children's perceived efficacy rather than their actual academic achievement is the key determinant of their perceived occupational self-efficacy and preferred choice of work- life. Analyses of gender differences reveal that perceived occupational self-efficacy predicts traditionality of career choice.

Concannon and Barrow (2009) conducted a cross-sectional study of 519 under graduate engineering majors' self-efficacy beliefs at a large, research extensive, Midwestern university. Engineering self-efficacy is an individual's belief in his or her ability to successfully negotiate the academic hurdles of the engineering program. Engineering self-efficacy was obtained from four variables: self-efficacy 1, self-efficacy 2, engineering career outcome expectations, and coping self-efficacy. The four variables were analyzed using a repeated analysis of variance among levels of gender, ethnicity, years students had been enrolled in their engineering program, and transfer status. No significant differences in mean engineering self-efficacy scores were found by gender, ethnicity, and transfer status. However, significant interactions between gender and the subscales, ethnicity and the subscales, and transfer status and the subscales were found. Significant differences in mean engineering self-efficacy scores were found among years students had been enrolled in the program.

Klassen (2010) examined the self-efficacy for self-regulated learning of 146 early adolescents with and without learning disabilities (LD). Results from the study showed that a 7-item self regulatory efficacy measure demonstrated factorial invariance for the adolescent sample and also for a validation sample of 208 undergraduates with and without LD. Adolescents with LD rated their self-regulatory efficacy and reading self-efficacy lower than their NLD peers.

Hierarchical multiple regression showed that self regulatory efficacy made a significant contribution to end-of-term English grade after controlling for sex, SES, reading self-efficacy, and reading score. Finally, students with LD who scored low on self-regulatory efficacy were significantly more likely than their higher-scoring LD peers to have a low end-of-term English grade, although there was no difference on a reading performance score.

Zhao (2010) examined the relationships between international students' ethnic identity, self-efficacy, uncertainty avoidance, and their socio-cultural adjustment. A total of 65 international students (aged 18 to 33 years) from seven countries completed the online questionnaire. A positive relationship between students' self-efficacy and their socio-cultural adjustment was found. The investigator concluded that international students' uncertainty avoidance had a negative relationship with their self-efficacy, but a positive relationship with ethnic identity.

Dinther et al. (2011) investigated the empirical literature about the role of student's self-efficacy in higher education. They found that several factors affected the self-efficacy of students such as intervention programmes, enactive mastery experiences, vicarious experiences and verbal persuasion. It was found possible to influence students' self-efficacy within higher educational programmes; eighty percent of the intervention studies across several types of study and across several domains demonstrated a significant relation between an intervention programme and students' self-efficacy. Intervention programmes that were based on social cognitive theory were more effective in influencing students' self-efficacy than interventional treatments with underlying theories other than social cognitive theory.

Gardner (2011) conducted study on parents influence on child social self efficacy and social cognition. Children ages 8 to 10 and their parents participated in the present study. Parents and children completed self report measures assessing social self efficacy, parenting style, and self esteem. Parent and child social cognition was measured using the Social Cognition and Object Relations Scale- Revised. Study demonstrates a significant relationship between parent

social self efficacy and child social self efficacy. Significant differences between parent and child socio cognitive scores suggest a developmental trajectory of socio cognitive skills.

## 1.4 LEARNING ENVIRONMENT

Learning environment is sum of internal and external circumstances and influences surrounding an individual that affect a person's learning. Proper environment is essential in student's learning. A well structured classroom/learning environment also tends to improve student and his or her behavioral outcomes (MacAulay, 1990). Though, learning environment should be designed in a way that notonly limits student distractions and behavior problems but ensure academic success (Bettenhausen, 1998).The research has also shown that classroom environment acts as an indicator to students and others regarding what teachers value in behavior and learning (Weinstein, 1992). If a classroom is not properly organized to support planned learning objectives, it will impact the functioning of the lesson as well as limit what and how the students learn.

Learning environment plays a significant role in inducing learning. Learning environment refers to the whole range of components and activities within which learning takes place (Sternberg and Kaufman, 1998). It includes set of features that affect the learning of a child. Learning environment has direct influence on student's learning, their involvement in what is being taught, their motivation level, and their sense of well-being, their belonging, and interaction with teachers. For example, learning environment filled with stimulating educational materials and physical facilities would likely be considered more conducive to learning. Urquiola and Verhoogen (2009) stated that learning is reduced if the classroom condition is too hot, too cold, or lacks fresh air that leaves them drowsy. Wolf and Fraser (2007) assert that class size and infrastructure are primary classroom characteristics that shape the learning environment.

Rutter (1979) found that school environments could act as an important protective factor that buffer children against the adverse effects of stress. More specifically, Rutter concluded that schools focusing on academics, clear

expectations and rules, and high levels of student involvement experienced higher rates of attendance and academic attainments and lower rates of delinquency and behavioral disturbances. Rutter's study revealed that behavioral disturbances decreased over time in schools possessing a culture of high expectations and increased in schools that did not foster similar learning environments.

Zandvliet and Broekhuizen (2017) developed and standardized a new instrument for the measurement of perceptions of the physical environment at school and they defined learning environment as relationship between the environment and learning encompasses science education, environmental psychology, campus ecology and architecture, as well as inter- or multi-disciplinary fields of study such as environmental or place-based forms of education. It is student perceptions of both informal and formal learning environments within school.

### 1.4.1 HOME ENVIRONMENT

Home is a primary environment or institution where a child learns the basics. The home learning environment is formative in a child's social development and is an essential contributing factor to educational outcomes at all stages of the learning trajectory (Bull et al., 2008; Kendall et al., 2008).

A stimulating home learning environment which consists of a variety of educational materials and positive reinforcement of the value of education by parents is integral to intellectual and social development in children of all ages (Hendersonand Berla, 1994;Sylva et al., 2004; Sammons et al., 2008). In addition to making learning enjoyable and rewarding, a quality home learning environment contributes to the standards that children set for themselves and their aspirations for education (Jeynes, 2007). Home-based involvement also includes activities which do not take place in the home such as taking children to events and places that foster academic achievement. These can include museums, libraries, galleries, talks and performances (Hill et al., 2009).

Evidence indicates that parental involvement in the form of at-home good parenting has a positive effect on children's achievement (Sheldon and Epstein, 2005; Duckworth et al., 2009). Many studies have been conducted on Home

environment and academic achievement and concluded that there is a strong association between home environment and academic achievement (Jagannadhan, 1986; Liq, 1993; Koutsoulis, 1995).

Parents can communicate their expectations and educational aspirations by, for example, discussing subject selection and choices, academic aspirations and post-school pathways (Pomerantz et al, 2007). Such communication represents a style of parenting which is supportive of a child's academic progress, places value on learning, and models behaviours appropriate for achievement (Hoover-Dempsey and Sandler, 2005). Students' study habits and mental state is totally dependent on the environment provided to them by their parents at home. Dayal and Kaur, (2001) explored that family climate does affect one's level of home adjustment, mental health and study habits of students.

The contribution of the home environment to educational outcomes lies not in how parents teach their children specific subjects or content, but how they guide and encourage their children in learning (Bakker and Denessen, 2007).Henderson and Mapp (2002) state that more families support their children's learning and educational progress, the more their children tend to do well in school and continue their education. Pandhi (1989) conducted similar study who studied home environment, parent child relationship and children's competence during adolescence. He concluded that relationship of home environment, socio economic status, socio cultural stimulation and socio psychological atmosphere at home had a significant effect on mental development.

Shah (1989) studied the effect of family climate on the home adjustment of adolescent students. It was found that home adjustment of students having satisfactory family climate was found to be far superior to those who had highly dissatisfactory family climate. In case of girls, the family climate did not play an important role on determining the level of home adjustment. While in case of entire adolescents, significant and positive relationship was observed between family climate and home adjustment. Better home adjustment of adolescents was due to satisfactory family climate.

Kaur (2007) revealed that there is no significant difference between achievement motivation of government and private school students at high, average and low level of family climate.Another study conducted by Robert et al. (2010) explored home environment and school performance among black elementary children and found children's behavioural development is affected by the environment in which they live.

Similarly, Dzever (2015) study revealed a positive and significant relationship between permissive patenting style with academic performance ($p<0.05$). However, no relationship exists between authoritarian parenting and demanding parenting with academic performance of students ($p>0.05$). Also, the result from the study identified income, educational background and occupational level as well as permissive parenting style as the main predictive variables influencing students' academic performance.

Dev (2016) conducted study to investigate and analyze the relationship of General Mental Ability, Interest and home environment with Academic Achievement. The study reveals that General Mental Ability, home environment Interest and academic achievement are significantly and positively correlated. Whereas the high score of girls indicates that they are superior to boys.

### 1.4.2 SCHOOL ENVIRONMENT

The school environment includes classrooms, library, technical workshops, teachers' quality, teaching methods, peers, among others variables that can affect the teaching–learning process (Ajayi, 2001). The extent to which pupils learn could be enhanced depending on what the school environment provides to the learners and the teacher. School develops the factors of caring relationships, high expectation messages, and meaningful opportunities to meet the needs of the youth. When students meet their needs they are able to develop internal assets of self-efficacy, empathy, problem solving, and self-awareness which helps to improve students' readiness to learn.

Generally, results showed that schools which serve youth from high-risk backgrounds are most successful when: (a) curriculum was rigorous, future-focused, and aligned to standards and assessments which promote high

expectations for student performance; (b) teachers were well-prepared; (c) counselors, administrators, and teachers developed collaborative partnerships to advocate for and to promote students and their academic success; (d) support and preventive services were provided; (f) school and classroom environments were safe and orderly; (g) data was used to improve curriculum and instruction and for defining the need and implementation of differential instruction; (h) school-based professionals, parents, and community leaders developed collaborative partnerships to analyze student needs; (i) goals were consistent and consistently understood; (j) new teachers were socialized into the high academic focus environment and assisted with instruction; (k) caring and supportive relationships among students and school-based professionals were formed; and (l) the focus was on academic achievement and not rule-following (Kober, 2001; Carey and Gregory, 2002; Bennett et al., 2004; Evans, 2004; Williams et al., 2004; Ceci, and Papierno, 2005; and Kannapel and Clements, 2005).

Research shows that schools are filled with the conditions that promote resilience (Werner, 2003). These include caring, encouraging relationships, role models, and mentors (Thomsen, 2002; Theron and Engelbrecht, 2012; and Walsh, 2012); clear and fair boundaries and structure (Benard, 2004; Theron and Engelbrecht, 2012); exploration of other worlds and possibilities (Birdsall, 2013); stories of overcoming adversity in literature, films, and history (Walsh, 2012); and basic human respect and dignity that too many kids like me do not find in their troubled homes (Thomsen, 2002; and Benard, 2004).

Eshiwani (1993) and Ayoo (2002) agreed that school environment such as; classrooms, desks and books have a direct impact on good performance among the students in developing countries. Classrooms are a place that pupils spend the greatest part of their day. Wabuoba (2011) quoted in Chuma (2012) observed that overcrowding in classrooms make it difficult for pupils to write the teacher is also unable to move around the class to assist needy pupils and this affects the teaching-learning process.

Marsden (2005) which reported that safe and orderly classroom environment, school facilities were significantly related to student's academic

achievement in schools. Hence, physical facilities, instructional materials, class size and school location are some factors within the school environment that were found to have an influence on the process of teaching-learning hence the school environment remains an important area that should be studied and well managed to enhance pupils academic performance (Oluchukwu, 2000; and Ajayi, 2001) quoted in Kilel (2012).

Schools with equipped laboratory have their pupils performing better than their counterparts in schools without laboratories or those with ill equipped laboratories. Laboratory work stimulates learners' interests as they are made to personally engage in useful scientific activities and experimentations (Owoeye and Yara, 2011).

Byoung-suk (2012) stated that children need safe, healthy and stimulating environment in which to grow and learn. During the school year, children can spend 6 to 8 hours at the school where the environment plays a significant/critical role in child development. More of the time is spent in the school yard or travelling to and from school. This condition requires careful planning and designing to optimize experiences that support education, health and stewardship. Therefore, the school environment is of paramount importance in shaping and reshaping intellectual ability. However, supportive and favourable school environment enriched with enough learning facilities, and favourable climate makes students more comfortable, more concentrated on their academic activities that resulted in high academic performance. The forces of the environment begin to influence growth and development of the individual right from the womb of his mother. The educational process of development occurs in physical, social, cultural and psychological environment. A proper and adequate environment is very much necessary for a fruitful learning of the child. The favourable school environment provides the necessary stimulus for learning experiences. The children spend most of their time in school, and this school environment is exerting influence on performance through curricular, teaching technique and relationship (Arul, 2012).

A study conducted by Orlu (2013) indicated that the school environment has a significant influence on academic performance. The location of the school affects students' performance. For example, when a school is sited in a noisy area like an airport or in the heart of a city where activities disrupt the teaching-learning of the student. One will not expect such students in this area to be doing well academically. Noise in anything interferes with teaching/learning process. However, the physical structure of the school building and the interactions between teachers and students are also influence students' performance. School climate can be a positive influence on the health of the learning environment or a significant barrier to learning. The school environment can affect many areas and people within schools. For example, a positive school climate has been associated with fewer behavioural and emotional problems for students. Therefore, it is believed that positive interpersonal relationship and optional learning opportunities for students in all demographic environments can increase achievement behaviour. Positive student teacher relationship brings about a positive and supportive school climate for students for smooth running of academic activities which results in good academic performance.

Anita et al. (2013) conducted a research in Nandi District, Kenya, aimed to establish the relationship between teachers' characteristics and students' academic achievement. The findings revealed that students' academic achievement (in 2007, 2008 and 2009) was below average for 45% of the schools, 6 (30%) performance was on average while 5 (25%) of schools had high student academic achievement. The poor performance was attributed to an inadequate number of teachers in most secondary schools within the district. On teacher qualification, the study established that 65% of teachers were degree holders, 25% had diploma certificates while only 10% were untrained. Cross tabulation results suggest that there was no difference in performance between teachers who had degree or diploma, suggesting that teacher qualification did not lead to increased students' academic achievement. It also indicated that a participation of teachers in professional development programmes has benefited a lot with the improvisation of teaching methods.

Dorman (2001) conducted research to found the association between classroom environment and academic efficacy. A sample of 1055 mathematics students from Australian secondary schools responded to an instrument that assessed ten dimensions of mathematics classroom environment (viz. Student Cohesiveness, Teacher Support, Investigation, Task Orientation, Cooperation, Equity, Involvement, Personal Relevance, Shared Control, and Student Negotiation). Results revealed statistically significant correlations between these classroom environment dimensions and academic efficacy. Results showed that classroom environment relates positively with academic efficacy.

### 1.4.3 COMBINED ROLE OF HOME AND SCHOOL

It is very important to have healthy home and school environment. Home and school learning environment influences the learning and achievement goals of a child. Hill (2010) stated that home environment provides the foundation for learning and is an element of the student's life that can affect grades. The contribution of the home environment to educational outcomes lies not in how parents teach their children specific subjects or content, but how they guide and encourage their children in learning (Bakker and Denessen, 2007). Parental involvement with children's education, especially in the context of the school, has been positively linked to children's achievement (McWayne Hampton et al., 2004), Activities related to learning at home may include arranging all the things in order and creating a schedule of homework and daily tasks. Home is a place where a child studies, accomplish the assignments and does the majority of assigned school work. Having a peaceful space at home to study and complete school work is important. Perham and Vizard (2011) stated that serial recall was better achieved in a quiet environment versus liked and disliked music.

Academic achievement or performance of the student can be improved when healthy and supportive learning environment prevails both at home and school. The parental support or help at home, a quality home learning environment, a positive relationship between parents and teachers, and a quality learning environment at school have been found to make positive impact on

children's academic achievement throughout the schooling years (Gutman and Midgley, 2000; Henderson and Mapp 2002; Epstein and Sheldon, 2006; Narad, 2007; Wang and Holcombe, 2010).

## 1.5 SIGNIFICANCE OF THE PROBLEM

Today's world is a competitive world. Academic attainment of the student helps to meet the challenges of the modern global world. In this competitive world, students have to face lots of difficulties in getting academic success like challenging subjects, demanding schedules, peer pressure, difficulty in learning, challenging environment at home and at school etc. These situations make obstacles in the way of their academic success. They can only be successful if they will overcome all these challenging situations or difficulties in their life. Wang et al. (1994) suggested the academic resilience as the heightened likelihood of success in school despite environment adversities brought about by early traits, conditions, and experiences.

Students should seek to build their academic resilience. Many studies have shown that students who are academically resilient easily cope up with the difficulties and challenging situations. Resilient students sustain high levels of achievement motivation and performance despite the presence of stressful events and conditions that place them at risk of doing poorly in school and ultimately dropping out of school (Alva, 1991).

There are evidence in the literature that there is great connection between academic resilience and academic achievement. It has been reported that students getting poor grades are found to be 'non resilient' and students who are getting good grades are found to be 'resilient'. Students who score good marks are found to be highly resilient, reports higher levels of task orientation and satisfaction, social self-concept, achievement motivation, and academic self-concept than their counterparts (Alva, 1991; Gonzalez and Padilla, 1997; Hanson and Austin, 2003).Further, studies conducted by US Department of Education also confirmed the results. Waller (2001) stated that resilience plays a key role in the process of the academic achievement.

Findings revealed the direct connection of self efficacy and self regulation to the resilient behavior in the face of adversity as well as in the normal development of the child. Efficacy beliefs regulate human functioning and emotional well-being through cognitive, motivational, affective and selective processes. When facing adverse events, those who retain the belief that they will be able to exert control over their thoughts are more likely to persevere in their efforts. Those who are self-efficacious are also more likely to reject negative thoughts about themselves or their abilities than those with a sense of personal inefficacy (Ozer and Bandura, 1990). Perceived self-efficacy likely affects individuals' ability to adapt and deal flexibly with difficult situations, and also affects individuals' aspirations, analytical thinking, and perseverance in the face of failure (Bandura et al., 2001).

Review of literature revealed that metacognition also affects the academic resilience among students. Metacognitive skills or abilities enable learner to use skills and knowledge in situations other than those in which the skill was learned and are therefore critical to solving problems in a rapidly changing world (Boddy et al., 2003; Fazey et al., 2007; Fazey, 2010). Metacognition enable students to think critically to solve complex problems (Chapin et al., 2009; Fazey, 2010). In a similar way role of learning environment cannot be ignored. There are many studies which have focused on examining learning environment and student's resilience to make them academically motivated. School environment strengthens resilience by developing social competence, increasing bonding between students and caring adults, and maximizing opportunities for meaningful participation of students in the school environment (Anderman and Midgley, 1997; Rouse, 2001; Brooks, 2006; Linke, 2010; Ryan and Patrick, 2010; Abolmaali, et al., 2011; Kirmayer, et al., 2011; and Zolkoskiand Ballock, 2012). Not only school learning environment but parents can also develop resilience in their children through supportive and caring relationships (Benzies and Mychasiuk, 2009), show flexibility during times of stress (Walsh, 2006), empathy (Bernard, 1993), create a respectful and accepting family environment (Ungar et al., 2013), reasonable

expectations (Grant et al., 2004), and create opportunities for participation in social activities (Easterbrooks et al., 2011).

Considering the very importance of academic resilience among senior secondary students, the researcher intends to undertake the study how metacognition, self-efficacy and learning environment collaboratively affects the academic resilience of senior secondary students. Very few studies have been conducted on these variables separately as well as taken together in India. This study will add to the literature specific study from Punjab, India on academic resilience among senior secondary students.

Secondly, there is great need of developing academic resilience scale for exploring academic resilience abilities among senior secondary students, as there is no specific tool available to the Indian setting. Studies into development of the resilience scale for early adolescents were carried out by Gizir and Aydın (2006) & Baltaci and Karatas (2014). A study on scale adaptation for university student's resilience was done by Terzi (2006) & Gürgan (2006). Khalal (2014) standardized and developed academic resilience scale for university students in Egyptian context. For adults, a resilience scale adaptation study was carried out by Basim and Çetin (2011). In addition to which, there are studies for family and mother resilience, for which scale was developed by Kaner and Bayrakli (2010a, 2010b). Kapikiran (2012) developed academic resilience scale in a Turkey language for Turkish high school students. However, efforts have been made for developing and standardizing the academic resilience scale for Indian students.

Similarly, some of the tests have appeared in recent years to study the learning environment such as Learning Environment Scale by Singh (1987); Home Environment Inventory by Misra (1989); Socio- Emotional School Climate Inventory by Sinha (1994); Family Environment Scale by Bhartia & Chadha (2002); and School Environment Inventory by Misra (2002). From these standardized tools, it is evident that separate tools are available to measure either learning environment at home or learning environment at school. Collaborative effort has not been made for studying the learning environment both at home and at school. Research reports that environment both at home and at school is equally

important to influence learning. Environment at home and school conjointly affect the learning of the student (Gutman and Midgley, 2000; Henderson and Mapp, 2002; Epstein and Sheldon, 2006). Keeping this in view, the learning environment scale was developed and standardized to measure the learning environment of the students that prevails both at home and school.

Thirdly, studies are very rarely available that explored that influence of population density on the academic resilience, metacognition, self efficacy and learning environment of the senior secondary students. Many studies revealed that there is reciprocal relationship between place and people. The place may contribute or undermine the physical and psychological health of the people who are living there (Cummins et al., 2007). So, living place may have an effect on the overall health of the people (Macintyre et al., 2002). Similarly, people who are living in highly populated areas will get fewer resources ultimately lead to poor health conditions, lesser number of school enrollments, less empowering girls etc. it will directly or indirectly affect the resilience abilities of the people.

Fourthly, the study will be important to bring into light on the strategies followed by the schools to build resilience in the students. The role of school cannot be ignored in fostering and developing academic resilience in students. Walker et al. (2005) found that when schools implement programs that build resilience in this way, they are able to focus on the development of the whole child.

Lastly, this study will be very much helpful to the administrators, teachers and parents for understanding the psychological needs of the students and make efforts to adjust them properly at school. Educational planners and policy makers will use the findings to make decisions in developing strategies for building academic resilience in students by ensuring all the required facilities at school. The tremendous importance of Academic Resilience in relation to metacognition, self efficacy and learning environment inspired the investigator to attempt and take up the present study.

## 1.6 STATEMENT OF THE PROBLEM

The study is entitled as "ACADEMIC RESILIENCE AMONG SENIOR SECONDARY STUDENTS: INFLUENCE OF METACOGNITION, SELF EFFICACY AND LEARNING ENVIRONMENT". It explores the academic resilience, metacognition, self efficacy and learning environment of senior secondary students in different contexts i.e. gender, locale and population. Further the influence of metacognition, self efficacy and learning environment on academic resilience among senior secondary students has been studied. It also explored the relationship of academic resilience with metacognition, self efficacy and learning environment of senior secondary students.

## 1.7 OPERATIONAL DEFINITIONS

In the present study, various terms that have been used are defined as:

**Academic Resilience**

Academic resilience refers to academic achievement despite challenging or threatening circumstances in the educational process. It is student's ability to successfully deal with setbacks, stress and challenges in the academic setting or school life e.g. competiting deadlines, exam pressure and stress, difficult school work. Academic resilience is operationally defined as academic confidence, sense of well being, motivation and ability to get goals, relationship with peers and adults and emotional regulation & physical health in spite of difficult situations/circumstances.

**Metacognition**

Metacognition refers to a learner's awareness of the cognitive abilities and their application for learning. Metacognition is operationally defined as knowledge of cognition (declarative, procedural & conditional knowledge) and regulation of cognition (planning, information management strategies, comprehension monitoring, debugging strategies, & evaluation).

**Self Efficacy**

Self efficacy is defined as the person's belief in his or her ability or competency to perform a task, reach a goal or overcome an obstacle; beliefs about

their capabilities to produce designated levels of performance that exercise influence over events that affect their lives. Self efficacy is operationally defined as self confidence, efficacy expectation, positive attitude and outcome expectation of an individual to perform tasks.

**Learning Environment**

Learning Environment refers to the whole range of components and activities provided to the students within which learning happens. Learning environment at home indicates secure and stable atmosphere which promote the development of positive attitude towards learning in the children. Learning environment at school indicates whole range of activities and opportunities that provided to the students in school to ensure and maximize learning. Present study learning environment is operationally defined as components and activities provided to students at home and at school.

**Population**

The population herein refers to the total number of people living in the area as per the census of 2001. Based on the population of the districts, the district having lowest population in the region have been operationally defined as least populated district. Similarly, the districts having highest population in the region have been operationally defined as highly populated district.

## 1.8 OBJECTIVES OF THE STUDY

The objectives of the study are:

1. To explore the level of academic resilience among senior secondary students.
2. To analyze the metacognition, self efficacy and learning environment of the senior secondary students.
3. To find out significant difference among senior secondary students in their academic resilience, metacognition, self efficacy, and learning environment in relation to gender, locale and population.

4. To analyze the relationship between academic resilience of the senior secondary students with their metacognition, self efficacy and learning environment.
5. To study the influence of metacognition, self efficacy and learning environment on academic resilience of senior secondary school students.
6. To explore the initiatives taken by school personnel in developing academic resilience among senior secondary students.

## 1.9 HYPOTHESES OF THE STUDY

The following hypotheses have been formulated to achieve the objectives of the study:

1. There exists no significant difference between rural and urban senior secondary students in their academic resilience.
2. There exists no significant difference between senior secondary boys and girls in their academic resilience.
3. There exists no significant difference between senior secondary students from least and highly populated districts in their academic resilience.
4. There is no interaction effect of gender and locality on the scores of academic resilience of senior secondary students.
5. There is no interaction effect of locality and population on the scores of academic resilience of senior secondary students.
6. There is no interaction effect of gender and population on the scores of academic resilience of senior secondary students.
7. There is no interaction effect of locality, gender and population on the scores of academic resilience of senior secondary students.
8. There exists no significant difference between rural and urban senior secondary students in their metacognition.
9. There exists no significant difference between senior secondary boys and girls in their metacognition.
10. There exists no significant difference between senior secondary students from least and highly populated districts in their metacognition.

11. There is no interaction effect of gender and locality on the scores of metacognition of senior secondary students.
12. There is no interaction effect of locality and population on the scores of metacognition of senior secondary students.
13. There is no interaction effect of gender and population on the scores of metacognition of senior secondary students.
14. There is no interaction effect of locality, gender and population on the scores of metacognition of senior secondary students.
15. There exists no significant difference between rural and urban senior secondary students in their self efficacy.
16. There exists no significant difference between senior secondary boys and girls in their self efficacy.
17. There exists no significant difference between senior secondary students from least and highly populated districts in their self efficacy.
18. There is no interaction effect of gender and locality on the scores of self efficacy of senior secondary students.
19. There is no interaction effect of locality and population on the scores of self efficacy of senior secondary students.
20. There is no interaction effect of gender and population on the scores of self efficacy of senior secondary students.
21. There is no interaction effect of locality, gender and population on the scores of self efficacy of senior secondary students.
22. There exists no significant difference between rural and urban senior secondary students in their learning environment.
23. There exists no significant difference between senior secondary boys and girls in their learning environment.
24. There exists no significant difference between senior secondary students from least and highly populated districts in their learning environment.
25. There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students.

26. There is no interaction effect of locality and population on the scores of learning environment of senior secondary students.
27. There is no interaction effect of gender and population on the scores of learning environment of senior secondary students.
28. There is no interaction effect of locality, gender and population on the scores of learning environment of senior secondary students.
29. There exists no significant relationship between academic resilience of senior secondary students with metacogniton.
30. There exists no significant relationship between academic resilience of senior secondary students with self efficacy.
31. There exists no significant relationship between academic resilience of senior secondary students with learning environment.
32. There exists no significant influence of metacognition on academic resilience of senior secondary students.
33. There exists no significant influence of self efficacy on academic resilience of senior secondary students.
34. There exists no significant influence of learning environment on academic resilience of senior secondary students.

## 1.10 DELIMITATIONS

1. The study is delimited to the six districts of Punjab i.e. Ludhiana, Barnala, Jalandhar, Nawashahr, Amritsar and Tarntaran.
2. The study is confined to senior secondary school students only.

# CHAPTER II

# METHODOLOGY

This chapter deals with the important aspects of sampling, research tools employed and statistical treatment. The purpose of the present research study is to study the academic resilience among senior secondary school students and also to study the influence of metacognition, self efficacy and learning environment of senior secondary students. In order to achieve the aim of this study, it was required to select a representative sample of senior secondary school students and to develop or select necessary tools for collecting the requisite information. The detailed explanation of various aspects pertaining to the methodology of the study is given as following.

## 2.1 RESEARCH METHOD

The study was conducted through descriptive survey method of research. The descriptive method is the most popular and most widely used method in educational research. The major purpose of descriptive research is description of the state of affairs as it exists at present. It is concerned with conditions, practices, structures, differences or relationships that exist, opinions held processes that are going on or trends that are evident. The description of sampling and tools is given as under.

## 2.2 SAMPLE

The population of the study is senior secondary students of Punjab state. A sample is representative of the whole population. The sample for the study was confined to Punjab. Purposive sampling technique was used for the selection of two districts from each region of Punjab. For drawing sample from three regions of Punjab namely: Majha, Doaba and Malwa, the sampling procedure is executed in 3 stages.


At the first stage, the data of the population in each district of Punjab has been taken as per Census, 2011. The population of the districts in each of the three regions arranged into ascending order to select two districts from each region: one district with higher population and another district with lower population. The same is presented below in Table. 2.1.

**TABLE. 2.1**

**LIST OF DISTRICTS FROM DIFFERENT REGIONS WITH THEIR POPULATION (AS PER CENSUS, 2011)**

| Regions | Districts | Population | Remarks |
|---|---|---|---|
| **MAJHA** | **Tarntaran** | **11,20,070** | **Least Populated** |
| | Gurdaspur | 22,99,026 | |
| | **Amritsar** | **24,90,891** | **Highly Populated** |
| **DOABA** | **Nawanshahr** | **6,14,362** | **Least Populated** |
| | Kapurthala | 8,17,668 | |
| | Hoshiarpur | 15,82,793 | |
| | **Jalandhar** | **21,81,753** | **Highly Populated** |
| **MALWA** | **Barnala** | **5,96,294** | **Least Populated** |
| | Fatehgarh Sahib | 5,99,814 | |
| | Faridkot | 6,18,008 | |
| | Rup Nagar | 6,83,349 | |
| | Mansa | 7,68,808 | |
| | Muktsar | 9,02,702 | |
| | Mohali (Sahibzada Ajit Singh Nagar) | 9,86,147 | |
| | Moga | 9,92,289 | |
| | Bathinda | 13,88,859 | |
| | Sangrur | 16,54,408 | |
| | Patiala | 18,92,282 | |
| | Ferozpur | 20,26,831 | |
| | **Ludhiana** | **34,87,882** | **Highly Populated** |

The Majha region comprised of 3 districts, the Doaba region 4 districts and Malwa region comprised of 13 districts. Amritsar and Tarntaran districts were selected from Majha region, Jalandhar and Nawashahr districts were selected

from Doaba region and Ludhiana and Barnala districts were selected from Malwa region of Punjab.

At the second stage, the sample from each of the three regions i.e. Majha, Doaba and Malwa selected as per their proportion to the population of Punjab which is shown in Table 2.2.

**TABLE. 2.2**
**SAMPLE FROM THE THREE REGIONS**

| Regions | Total Population in the Regions | Percentage of the Population in the Regions | No. Of Students taken for the study |
|---|---|---|---|
| **Majha** | 51,96,576 | 19% | 200 |
| **Doaba** | 59,09,987 | 21% | 300 |
| **Malwa** | 1,65,97,673 | 60% | 700 |
| Total No. of Students | 1200 | | |

At the third stage, further sample has been selected from each district as per the proportion of the population of least and highly populated district. The district wise sample distribution is presented in Table 2.3.

**TABLE 2.3**

**DISTRICT WISE SAMPLE DISTRIBUTION**

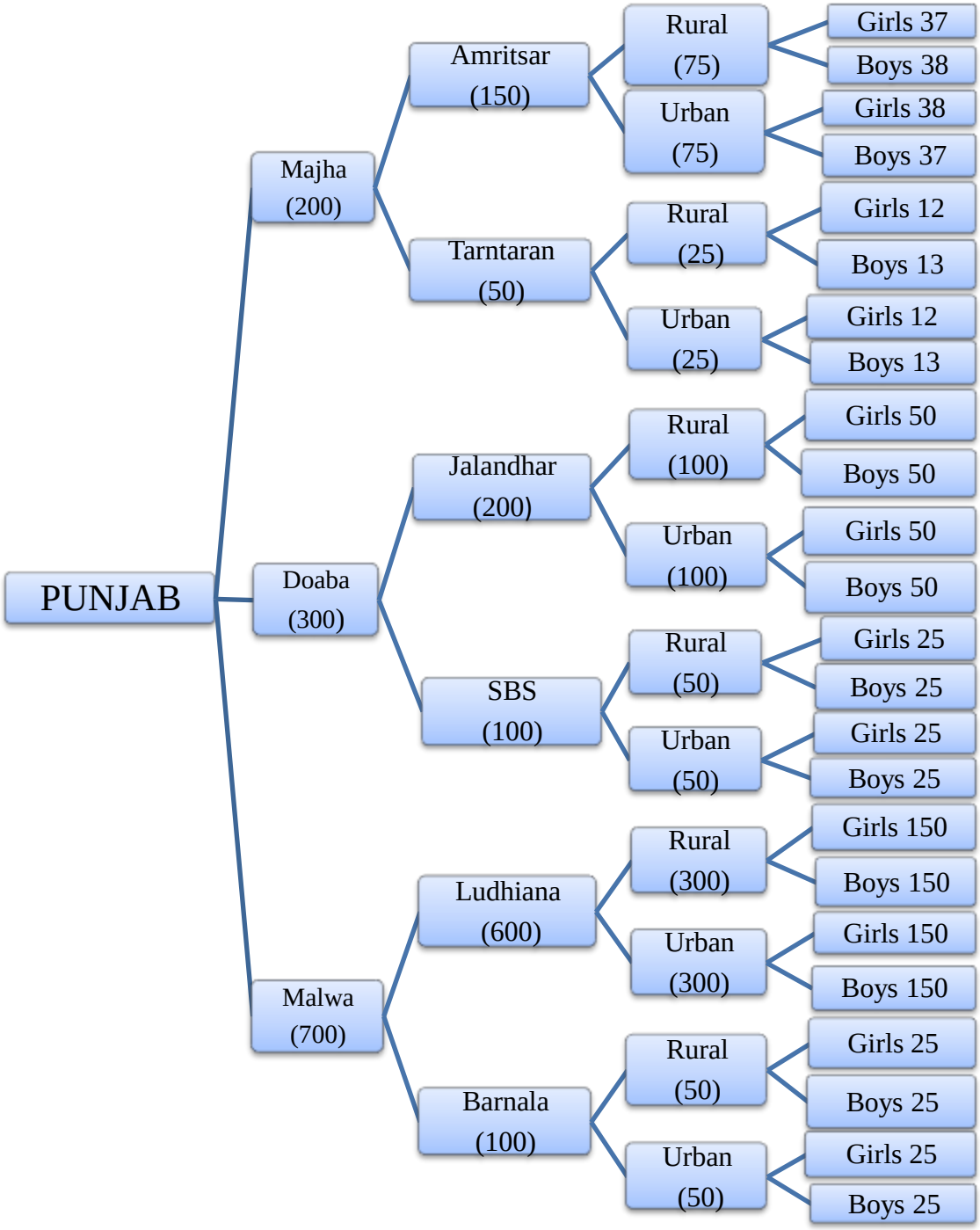
| Region | District | Population in Districts | Sample | Sample from each District |
|---|---|---|---|---|
| Majha | Amritsar | 24,90,891 | 200 | 150 (69%) |
| | Tarntaran | 11,20,070 | | 50 (31%) |
| Doaba | Jalandhar | 21,81,753 | 300 | 200 (78%) |
| | Nawashahr | 6,14,362 | | 100 (22%) |
| Malwa | Ludhiana | 34,87,882 | 700 | 600 (85%) |
| | Barnala | 5,96,294 | | 100 (15%) |
| Total sample of the study | | | 1200 | |

After selecting the sample from six districts, the list of government and non government senior secondary schools in these districts was procured from District Education Office. The sample size of the study 1200 senior secondary students including boys and girls studying in both Government and private schools were chosen from urban and rural areas of these six districts through convenient sampling technique.

The stratification of the sample from population, locality and gender point of view from different regions of Punjab is shown in Figure 2.1.

**FIGURE 2.1**

**STRATIFICATION OF THE SAMPLE**



The list of senior secondary students from where data has been collected in the six districts is presented below in Table 2.4 along with number of students from each school.

**TABLE 2.4**
**THE LIST OF SCHOOLS ALONG WITH NUMBER OF STUDENTS FROM DIFFERENT DISTRICTS**

| **S. No** | **Districts** | **Name of Schools** | **Locality** | **Number of Students** | **Total students** |
|---|---|---|---|---|---|
| 1. | Amritsar | Prabhakar Senior Secondary School | Rural | 75 | 75 |
| 2. | Amritsar | DAV Public School, Lawrence Road | Urban | 75 | 75 |
| Highly Populated Districts from Majha Region | | | | | |
| 3. | Tarntaran | Shri Guru Harkrishan Public School, Chabal | Rural | 25 | 25 |
| 4. | Tarntaran | Shri Guru Harkrishan Public School, Jandiala Road | Urban | 25 | 25 |
| Least Populated Districts from Majha Region | | | | | |
| **Total number of students in Majha Region** | | | | | **200** |
| 5. | Jalandhar | Govt. Senior Secondary School, Raipur Prohla | Rural | 46 | 100 |
| 6. | Jalandhar | Govt. Senior Secondary School, Hazara | Rural | 54 | |
| 7. | Jalandhar | Govt. Model Senior Secondary School (Boys), Ladowali Road | Urban | 39 | 100 |
| 8. | Jalandhar | Govt. Model Co-education Senior Secondary School, Ladowali Road | Urban | 61 | |
| Highly Populated Districts from Doaba Region | | | | | |
| 9. | Nawanshahr (S.B.S. Nagar) | Govt. Senior Secondary School, Sahlon | Rural | 50 | 50 |

| | | | | | |
|---|---|---|---|---|---|
| 10. | Nawanshahr (S.B.S. Nagar) | Govt. Senior Secondary School, Nawanshahr (S.B.S. Nagar) | Urban | 50 | 50 |
| Least Populated Districts from Doaba Region | | | | | |
| **Total number of students in Doaba Region** | | | | | **300** |
| 11. | Ludhiana | Govt. Senior Secondary School, Sangowal | Rural | 57 | 300 |
| 12. | Ludhiana | Govt. Senior Secondary School, Jarkhar | Rural | 98 | |
| 13. | Ludhiana | Govt. Senior Secondary School, Khanpur | Rural | 53 | |
| 14. | Ludhiana | Govt. Girls Senior Secondary School, Gill | Rural | 92 | |
| 15. | Ludhiana | Sri Guru Harkrishan Public School, Model Town Extension | Urban | 61 | 300 |
| 16. | Ludhiana | Malwa Khalsa Senior Secondary School, Model Gram | Urban | 86 | |
| 17. | Ludhiana | Govt. Senior Secondary School (Boys), Jawahar Nagar | Urban | 75 | |
| 18. | Ludhiana | Nankana Sahib Public School, Gill road | Urban | 78 | |
| Highly Populated Districts from Malwa Region | | | | | |
| 19. | Barnala | Govt. Senior Secondary School, Sukhpur | Rural | 50 | 50 |
| 20. | Barnala | Govt. Senior Secondary School, Tapa | Urban | 50 | 50 |
| Least Populated Districts from Malwa Region | | | | | |
| **Total number of students in Malwa Region** | | | | | **700** |
| **Total number of Students from three regions of Punjab** | | | | | **1200** |

It may be observed from the Table 2.1 that 600 senior secondary school students from Ludhiana and 100 students from Barnala, 200 students from Jalandhar and 100 students from Nawanshahr, 150 students from Amritsar and 50 students from Tarntaran were selected for the analysis and interpretation of data.

## 2.3 TOOLS USED

The following tools were selected and used by the investigator in the present study:

2.3.1 Academic Resilience Scale (Self Constructed)

2.3.2 Learning Environment Scale (Self Constructed)

2.3.3 Metacognitive Awareness Inventory

2.3.4 Self Efficacy Scale

2.3.5 Questionnaire for assessing Initiatives taken by School (Self Constructed)

### 2.3.1 ACADEMIC RESILIENCE SCALE

In the present study, Academic Resilience Scale was self developed and standardized to measure the level of academic resilience among adolescents studying in senior secondary classes. The development and validation of the scale was carried out by adopting highly reliable ad valid scale development process. This scale has 52 items related to five dimensions of academic resilience. This scale can be used by researchers, teachers, school counsellors and psychologists. The test scores can help the teachers in designing academic activities for enabling students to overcome stress and achieve excellence in studies. The scale development and validation process is given below in a sequence.

- **Need for scale development**

There are few studies conducted on adaptation and development of resilience scale. Studies into development of the resilience scale for early adolescents were carried out by Gizir and Aydın (2006) & Baltaci and Karatas (2014). A study on scale adaptation for university student's resilience was done by Terzi (2006) & Gürgan (2006). Khalal (2014) standardized and developed academic resilience scale for university students in Egyptian context. For adults, a resilience scale adaptation study was carried out by Basim and Çetin (2011). In addition to which, there are studies for family and mother resilience, for which scale was developed by Kaner and Bayrakli (2010a, 2010b). Kapikiran (2012) developed academic resilience scale in a Turkey language for Turkish high school students.

It is clear from the review of literature that there are few studies which were conducted on the development of academic resilience scale. Only two academic resilience scales were constructed and validated, one for high school students in Turkish context, another for university students in Egyptian context. There is no academic resilience scale specific to Indian context. Therefore, there is a dire need to develop an academic resilience scale for adolescents studying in senior secondary schools which is appropriate for Indian context.

- **Dimensions of the Academic Resilience Scale**

Dimensions of the Academic Resilience Scale are given below.

- **Academic confidence:** It refers to a student's beliefs or expectations of his/her ability to achieve goal in challenging or threatening situations.
- **Sense of well being:** It refers to a positive state of mind that enables an individual to function effectively. It implies a student's interaction or positive relationship with teacher and peers. Besides, it focuses on academic self concept, social integration and attentiveness in the class and positive self attitude in adverse conditions.
- **Motivation and ability to achieve goals:** It refers to a student's internal psychological drive to work with diligence, in challenging and difficult tasks and to reach at educational or academic goals. Motivation is generally regarded as the drive to achieve targets and the process to maintain the drive.
- **Relationship with peers and adults:** It indicates how students maintain a strong and positive relationship with teachers and peers even in challenging situations. Students who form strong and supportive relationships with teachers allow them to feel safer and more secure in the school setting. They feel more competent, establish more positive connections with peers, and make greater academic gains.
- **Emotional Regulation and Physical health:** "Emotional Regulation" can be explained as an understanding and balancing of emotions. It is the ability to manage our emotions in order to stay effective under pressure.

Physical health is a way to maintain overall health and fitness by involving him/herself in physical activities, exercise, medication, sleep and rest etc.

### 2.3.1.1 ITEM SCALING, CONSTRUCTION AND DEVELOPMENT

Before starting construction of the items for the scale, it is important to decide the scaling of the items. Review literature revealed that Likert scale is an essential scaling in social surveys studies, and is a method of collecting attitudinal data (Dittrich et al., 2007). Therefore in the academic resilience scale, Likert Scale technique developed by Dr. Rensis Likert (1932) is used to measure attitude by providing a range of responses to the given statement. Each statement has five responses i.e. Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree.

After deciding the scaling of items next step was the construction of the items. Before item construction there is great need of extensive survey of literature. Review of literature was made on resilience, academic performance and life resilience etc. After reviewing the literature, the relevant dimensions were selected. Discussions with experts in the field of Psychology and Education were held, with regard to justifying the appropriateness of the selected dimensions. The tool at its initial drafting stage included 70 items. The initial draft was shown to fifteen Professors belonging to the discipline of Psychology and Teacher Education. On the bases of the opinions and suggestions given by the subject experts, some items were removed, few of them were modified and some were changed in order to avoid ambiguity and obtain clarity. After initial modification of the tool based on the suggestions of the subject experts, 54 items were retained.

- **Pilot study or Initial try out**

The Academic Resilience Scale thus prepared was put for initial try out. The scale was administered on 150 senior secondary students belonging to both rural and urban locality. Pilot study helped in determining the discriminatory power of the scale as well as modifying the language of some items for making them easily understandable.

- **Item Analysis**

The next step in the standardization of the Academic Resilience Scale after pilot study was to find out the discriminatory power of each item, which

forms the basis for item selection in order to build up the final scale. A Likert type scale was used with choices namely: “Strongly Agree”, “Agree”, “Undecided”, “Disagree” and “Strongly Disagree”. The individual score for all the 150 students were ranked from the highest to the lowest. Then 25% of the subjects with the highest total scores and 25% of the subjects with the lowest total scores were sorted out for the purpose of calculation of discriminatory power of each of the items of the tool. Then each item was taken individually and the number of students who responded “SA” (Strongly Agree), “A” (Agree), “U” (Undecided), “D” (Disagree) and “SD” (Strongly Disagree) was found out both for the high and low groups separately. Thus for all 54 items, the number of students coming under each category was found out separately for both the high and low groups and the discriminatory power value for all the 54 items were calculated. Only those items were selected whose discriminatory power value of the item was greater than 1.99 (significance at 0.05 level with degree of freedom=78). Those items were rejected which possessed less than 1.99 discriminatory power value. Discriminatory power values of the 54 items of Academic Resilience Scale are given in Table 2.5.

**TABLE 2.5**

**ITEM WISE DISCRIMINATORY POWER VALUE OF THE ACADEMIC RESILIENCE SCALE**

| Item no. | Discriminatory power value | Remarks | Item no. | Discriminatory power value | Remarks |
|---|---|---|---|---|---|
| 1. | 1.99 | Accepted | 28. | 7.26 | Accepted |
| **2.** | **1.81** | **Rejected** | 29. | 3.39 | Accepted |
| 3. | 3.20 | Accepted | 30. | 5.13 | Accepted |
| 4. | 2.10 | Accepted | 31. | 6.17 | Accepted |
| 5. | 3.47 | Accepted | 32. | 4.88 | Accepted |
| 6. | 3.25 | Accepted | 33. | 4.62 | Accepted |
| 7. | 4.72 | Accepted | 34. | 4.52 | Accepted |
| **8.** | **1.38** | **Rejected** | 35. | 5.35 | Accepted |

| | | | | | |
|---|---|---|---|---|---|
| 9. | 2.93 | Accepted | 36. | 4.28 | Accepted |
| 10. | 2.58 | Accepted | 37. | 6.15 | Accepted |
| 11. | 2.79 | Accepted | 38. | 6.60 | Accepted |
| 12. | 3.41 | Accepted | 39. | 2.60 | Accepted |
| 13. | 4.26 | Accepted | 40. | 2.74 | Accepted |
| 14. | 4.55 | Accepted | 41. | 4.66 | Accepted |
| 15. | 2.32 | Accepted | 42. | 4.28 | Accepted |
| 16. | 3.82 | Accepted | 43. | 5.10 | Accepted |
| 17. | 4.52 | Accepted | 44. | 4.33 | Accepted |
| 18. | 3.00 | Accepted | 45. | 6.88 | Accepted |
| 19. | 3.55 | Accepted | 46. | 5.15 | Accepted |
| 20. | 5.12 | Accepted | 47. | 4.50 | Accepted |
| 21. | 4.52 | Accepted | 48. | 6.60 | Accepted |
| 22. | 5.00 | Accepted | 49. | 2.24 | Accepted |
| 23. | 5.22 | Accepted | 50. | 5.76 | Accepted |
| 24. | 4.64 | Accepted | 51. | 3.56 | Accepted |
| 25. | 5.68 | Accepted | 52. | 5.40 | Accepted |
| 26. | 4.85 | Accepted | 53. | 2.60 | Accepted |
| 27. | 4.40 | Accepted | 54. | 4.03 | Accepted |

- **Final draft of the scale**

After calculating the discriminatory index of the 54 items of Academic Resilience Scale, those items were removed from the scale which possessed less than 1.99 discriminatory power value. Only two items i.e. item no. 2 and 8 were found with non significant discriminatory power value, those were removed. After item analysis, fifty two (52) items were selected to be included in the final form of the "Academic Resilience Scale". The distribution of 52 items in different dimensions of the Academic Resilience Scale is shown in the Table 2.6.

**TABLE 2.6**

**DIMENSION WISE POSITIVE AND NEGATIVE ITEM'S DISTRIBUTION IN THE ACADEMIC RESILIENCE SCALE**

| Sr. No. | Dimensions | Nature of items | Serial no. Wise items | Total no of items |
|---|---|---|---|---|
| **1.** | Academic confidence | Positive | 1, 2, 3, 4, 5, 6 | 8 |
| | | Negative | 7, 8, | |
| **2.** | Sense of well being | Positive | 9, 10, 11, 12, 13, 14, 15, 16 | 10 |
| | | Negative | 17,18 | |
| **3.** | Motivation and ability to set goals | Positive | 19, 20, 21, 22, 23, 24, 25, 26 | 10 |
| | | Negative | 27, 28 | |
| **4.** | Relationship with peers and adults | Positive | 29, 30, 31, 32, 33, 34, 35,36 | 10 |
| | | Negative | 37, 38 | |
| **5.** | Emotional regulation and physical health | Positive | 39, 40, 41, 42, 43, 44, 45, 49, 50, 51 and 52. | 14 |
| | | Negative | 46, 47 & 48 | |
| | | | Total items | 52 |

### 2.3.1.2 SCORING PROCEDURE

Academic resilience has 5 point Likert type scale. Each item has 5 response options namely: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D), and Strongly Disagree (SD). For obtaining the value of score for each item, each response of the item has assigned number. Scoring of positive and negative items has been done on the basis of Table 2.7 which is given below.

**TABLE 2.7**

**SCORING PROCEDURE FOR ACADEMIC RESILIENCE SCALE**

| Items | Strongly Agree | Agree | Undecided | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| Positive | 5 | 4 | 3 | 2 | 1 |
| Negative | 1 | 2 | 3 | 4 | 5 |

### 2.3.1.3 STANDARDIZATION OF THE SCALE

Second stage of scale development after final draft is standardization of the scale. The Academic Resilience Scale with 52 items for the purpose of standardization and preparation norms for prediction of the level of Academic Resilience, was administered on 600 students of class XI and XII, belonging to both Private and Government senior secondary schools affiliated to Punjab School Education Board (PSEB) and Central Board of Secondary Education (CBSE). The sample comprised of 300 boys and 300 girls studying in class XI and XII of both rural and urban background from Ludhiana district of Punjab were drawn by using convenient sampling technique.

### 2.3.1.4 VALIDITY

A test is said to be valid when it measures what it is supposed to measure. Alternatively, a test whose performance closely resembles an objectively defined criterion is said to be valid. Both **"Face"** and **"Content validity"** of the "Academic Resilience Scale" was determined based on the opinion of the subject experts. For determining content validity, the test was shown to 14 subject experts belonging to the field of Education and Psychology. Based on their judgement, validity index was calculated. The method developed by C. H. Lawshe (1975) was applied for measuring content validity:

CVR = (Ne- N/2) / (N/2)

Where, CVR = Content Validity Ratio

Ne = Number of subject matter experts panellists indicating item essential

N = Total number of Subject Matter Experts (SME) panellists

This formula yields values which range from +1 to -1; positive values indicate that at least half the SMEs rated the item as essential. The mean CVR

across items may be used as an indicator of overall test content validity. **Content validity index of Academic Resilience Scale was found to be 0.83** which shows the content of academic resilience scale is highly relevant. Item wise Content Validity Index was given below in the Table 2.8.

**TABLE 2.8**

**ITEM WISE CONTENT VALIDITY INDEX OF ACADEMIC RESILIENCE SCALE**

| Item No | CVI | Item No | CVI | Item No | CVI |
|---|---|---|---|---|---|
| 1 | 1 | 19 | 1 | 37 | 1 |
| 2 | 0.85 | 20 | 0.85 | 38 | 0.85 |
| 3 | 0.57 | 21 | 0.57 | 39 | 0.85 |
| 4 | 1 | 22 | 0.71 | 40 | 1 |
| 5 | 0.71 | 23 | 0.85 | 41 | 0.71 |
| 6 | 0.85 | 24 | 0.85 | 42 | 0.71 |
| 7 | 0.85 | 25 | 0.71 | 43 | 0.71 |
| 8 | 1 | 26 | 1 | 44 | 1 |
| 9 | 1 | 27 | 0.85 | 45 | 0.71 |
| 10 | 1 | 28 | 0.71 | 46 | 1 |
| 11 | 0.85 | 29 | 0.85 | 47 | 0.71 |
| 12 | 0.85 | 30 | 0.71 | 48 | 0.85 |
| 13 | 0.71 | 31 | 0.71 | 49 | 0.85 |
| 14 | 0.57 | 32 | 1 | 50 | 0.71 |
| 15 | 1 | 33 | 0.85 | 51 | 1 |
| 16 | 0.85 | 34 | 0.71 | 52 | 0.85 |
| 17 | 0.71 | 35 | 0.57 | | |
| 18 | 1 | 36 | 0.85 | | |

- **Intrinsic validity**

The intrinsic validity of the Academic Resilience scale was found with the help of index of reliability. In this case, the reliability coefficient measured through Spearman-Brown formula is 0.84. The square root of split half is 0.92.

The present index of reliability implies that the test measures true ability of the subjects to the extent of 92%. That means the validity of the scale is 0.92. Validity index of Academic resilience scale by using two methods i.e. content validity index and intrinsic validity is given below in the Table 2.9.

**TABLE 2.9**

**VALIDITY OF ACADEMIC RESILIENCE SCALE**

| Method | Validity |
|---|---|
| Content Validity Index | 0.83 |
| Intrinsic Validity | 0.92 |

### 2.3.1.5 RELIABILITY

Reliability refers to the consistency with which a test measures, whatever it measures. The concept of reliability suggests both stability and consistency of measurement. Internal Consistency Reliability was used to assess the consistency of results across the items within the test. Estimation of reliability of the Academic resilience scale was done using below mentioned methods.

- **Split-Half method**

Split half method was used for estimating the reliability of the scale. The scale was first divided into two equivalent halves and the correlation coefficient between two halves was calculated by applying different formulas.

**(i) Spearman-Brown Prophecy formula**

From the reliability of the half test, the self-correlation coefficient of the whole test is estimated by the following Spearman-Brown Prophecy formula.

$$rtt = \frac{2rhh}{1 + rhh}$$

Where, rtt = Reliability of a total test estimated from reliability of one of its halves (Reliability coefficient of the whole test).

rhh = Self correlation of a half test (Reliability coefficient of the half test).

**(ii) Rulon/Guttman's Formula**

Rulon/Guttman gave another formula for estimating the reliability from the scores on two halves of the same test. The formula is as follows:

$$rtt = 1 - \frac{(\sigma d^2)}{(\sigma t^2)}$$

Where, σ d is the variance of the difference of the raw scores on the two halves of the test. σ t is the variance of the raw scores in the test.

**(iii) Flanagan Formula**

Flanagan gave another formula for internal consistency as:

$$rtt = 2\left[1 - \frac{(\sigma 1)^2 + (\sigma 2)^2}{(\sigma t)^2}\right]$$

Where, σ 1 and σ 2 are the variances of the raw scores on the two halves. σ t is the variance of the raw scores in the test.

- **Cronbach's Alpha (a)**

Another method is Cronbach's Alpha. It is mathematically equivalent to the average of all possible split-half estimates. A statistical analysis package SPSS 16 was used to calculate the Cronbach's Alpha.

Reliability coefficient for Academic Resilience Scale by using different methods is given in Table 2.10.

**TABLE 2.10**

**RELIABILITY COEFFICIENT FOR ACADEMIC RESILIENCE SCALE**

| Sr. No. | Method | Reliability coefficient |
|---|---|---|
| 1 | Split half method | |
| | • Spearman-Brown Prophecy | 0.84 |
| | • Flanagan method | 0.84 |
| | • Rulon/Guttman | 0.85 |
| 2 | Cronbach's Alpha | 0.78 |

**2.3.1.6 DEVELOPMENT OF NORMS**

- **Percentile rank and z score norms**

Percentile rank and z score norms for Academic Resilience Scale have been developed. For this purpose, Academic Resilience Scale was administered on 600

Senior Secondary School students. Percentile rank of "Academic Resilience Scale" is given in the Table 2.11.

**TABLE 2.11**

**PERCENTILE RANK NORMS OF ACADEMIC RESILIENCE SCALE**

(MEAN: 199.04, SD: 17.22, N: 600)

| Raw Scores | Percentile Rank | Raw Scores | Percentile Rank |
|---|---|---|---|
| 237 and above | 99 | 197 | 45 |
| 232 | 98 | 196 | 40 |
| 231 | 97 | 194 | 35 |
| 227 | 96 | 191 | 30 |
| 226 | 95 | 189 | 25 |
| 220 | 90 | 184 | 20 |
| 217 | 85 | 181 | 15 |
| 213 | 80 | 177 | 10 |
| 211 | 75 | 169 | 5 |
| 208 | 70 | 167 | 4 |
| 206 | 65 | 165 | 3 |
| 203 | 60 | 161 | 2 |
| 201 | 55 | 157 and below | 1 |
| 200 | 50 | | |

- **Z – Score Norms**

Z - score norms for Academic Resilience scale have been presented in Table 2.12.

**TABLE 2.12**

**Z-SCORE NORMS FOR ACADEMIC RESILIENCE SCALE**

| Raw Score | z-score | Raw Score | z-score | Raw Score | z-score | Raw Score | z-score |
|---|---|---|---|---|---|---|---|
| 152 | -2.73 | 176 | -1.34 | 200 | +0.05 | 224 | +1.45 |
| 153 | -2.68 | 177 | -1.28 | 201 | +0.11 | 225 | +1.50 |
| 154 | -2.62 | 178 | -1.22 | 202 | +0.17 | 226 | +1.56 |
| 155 | -2.56 | 179 | -1.16 | 203 | +0.22 | 227 | +1.62 |
| 156 | -2.50 | 180 | -1.10 | 204 | +0.28 | 228 | +1.68 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 157 | -2.44 | 181 | -1.04 | 205 | +0.34 | 229 | +1.74 |
| 158 | -2.38 | 182 | -0.99 | 206 | +0.40 | 230 | +1.80 |
| 159 | -2.33 | 183 | -0.93 | 207 | +0.46 | 231 | +1.85 |
| 160 | -2.27 | 184 | -0.87 | 208 | +0.52 | 232 | +1.91 |
| 161 | -2.21 | 185 | -0.81 | 209 | +0.57 | 233 | +1.97 |
| 162 | -2.15 | 186 | -0.75 | 210 | +0.63 | 234 | +2.03 |
| 163 | -2.09 | 187 | -0.70 | 211 | +0.69 | 235 | +2.09 |
| 164 | -2.03 | 188 | -0.64 | 212 | +0.75 | 236 | +2.15 |
| 165 | -1.98 | 189 | -0.58 | 213 | +0.81 | 237 | +2.20 |
| 166 | -1.92 | 190 | -0.52 | 214 | +0.86 | 238 | +2.26 |
| 167 | -1.86 | 191 | -0.46 | 215 | +0.92 | 239 | +2.32 |
| 168 | -1.80 | 192 | -0.40 | 216 | +0.98 | 240 | +2.38 |
| 169 | -1.74 | 193 | -0.35 | 217 | +1.04 | 241 | +2.44 |
| 170 | -1.69 | 194 | -0.29 | 218 | +1.10 | 242 | +2.49 |
| 171 | -1.63 | 195 | -0.23 | 219 | +1.16 | 243 | +2.55 |
| 172 | -1.57 | 196 | -0.17 | 220 | +1.21 | 244 | +2.61 |
| 173 | -1.51 | 197 | -0.11 | 221 | +1.27 | 245 | +2.67 |
| 174 | -1.45 | 198 | -0.06 | 222 | +1.33 | 246 | +2.73 |
| 175 | -1.39 | 199 | ±0.00 | 223 | +1.39 | 247 | +2.78 |

Norms for interpretation of the level of Academic Resilience have been given in Table 2.13.

**TABLE 2.13**
**NORMS FOR INTERPRETATION OF LEVEL OF ACADEMIC RESILIENCE BASED ON Z-SCORES**

| Z-score | Levels of Academic Resilience Scale |
|---|---|
| +2.01 and above | Extremely High |
| +1.26 to +2.00 | High |
| +0.51 to +1.25 | Above Average |
| -0.50 to +0.50 | Moderate |
| -1.25 to -0.51 | Below Average |
| -2.00 to -1.26 | Low |
| -2.01 and below | Extremely Low |

Further, for qualitative interpretation of the raw score of the "Academic Resilience Scale" a separate norm has been developed which is presented in the Table 2.14.

**TABLE 2.14**

**NORMS FOR INTERPRETATION OF THE LEVEL OF ACADEMIC RESILIENCE BASED ON RAW SCORES**

| Range of Raw scores | Level of Academic Resilience |
|---|---|
| 234 and above | Extremely high |
| 221-233 | High |
| 208-220 | Above Average |
| 191-207 | Average/Moderate |
| 178-190 | Below Average |
| 164-177 | Low |
| 163 and below | Extremely low |

### 2.3.2 LEARNING ENVIRONMENT SCALE

In the present study, Learning Environment scale has been designed and developed for the senior secondary students to explore their prevailing learning environment at school as well as at home. This learning environment scale includes two subscales namely: Learning environment at home; learning environment at school. The development and standardization process was carried out by using highly reliable and valid scale development procedure. Development procedure followed in the standardization of the Learning Environment Scale is given below.

- **Need for scale development**

Some of the tests have appeared in recent years to study the learning environment such as Learning Environment Scale by Singh (1987); Home Environment Inventory by Misra (1989); Socio- Emotional School Climate Inventory by Sinha (1994); Family Environment Scale by Bhartia & Chadha (2002); and School Environment Inventory by Misra (2002). From these standardized tools, it is evident that separate tools are available to measure either

learning environment at home or learning environment at school. Collaborative effort has not been made for studying the learning environment both at home and at school. Research reports that environment both at home and at school is equally important to influence learning. Environment at home and school conjointly affect the learning of the student (Gutman and Midgley, 2000; Henderson and Mapp, 2002; Epstein and Sheldon, 2006). Keeping this in view, the learning environment scale was developed and standardized to measure the learning environment of the students that prevails both at home and school.

- **Dimensions of Learning Environment Scale**

The Learning Environment Scale has two subscales namely: Learning Environment at Home and Learning Environment at School. Dimensions of each subscale are stated below.

**Subscale I: Learning Environment at Home**

- **Parental Control and Encouragement:** It indicates parent's approval or disapproval of any activity related to education or authority to revoke any hurdle felt by the student in the process, or guide him/her to do the right or wrong.
- **Independence and Conformity:** It refers the extent to which parents allow their children to make their own decisions independently and make them conform or follow parent's commands, directions or orders.
- **Parental care and nurturance:** It indicates excessive care and unconditional physical and emotional attachment of parents with their children. It focuses on fostering the developmental needs of children through care, guidance and protection.
- **Recreational orientation:** It involves various recreational activities that are provided to a child by his/her parents.
- **Learning through Computer technology:** It implies the parental approval and encouragement for Learning through Computer technology like computers and internet at home.

**Subscale II: Learning Environment at School**

- **Cognitive Encouragement:** It refers to the teacher's behavior to stimulate cognitive or mental development of a student by encouraging his/her actions or behavior.
- **Teaching through technology:** It refers to the school environment in which teaching is facilitated by the use of technology like use of computers, internet, Emails, power point presentations etc.
- **Reward and Punishment:** It indicates the activity of the teacher to strengthen the desired behavior and avoiding the undesirable behavior.
- **Physical Infrastructure:** It includes all the physical facilities of the school like school building, grounds, library, classrooms and laboratory apparatus along with equipments etc which stimulate learning.
- **Peer influence on learning:** It refers to the supportive and positive help of peers or classmates in the learning process to achieve academic success. They can encourage each other and stimulate interest in learning and help in doing homework/assignments etc.

### 2.3.2.1 ITEM SCALING, CONSTRUCTION AND DEVELOPMENT

Before starting construction of the items for the scale, it is important to decide the scaling of the items. Review literature revealed that Likert scale is an essential scaling in social surveys studies, and is a method of collecting attitudinal data (Dittrich et al., 2007). Therefore in the Learning Environment scale Likert Scale technique developed by Dr. Rensis Likert (1932) is used to measure attitude by providing a range of responses to the given statement. Each statement has five responses i.e. Mostly, Usually, Seldom, Very Less, Never.

After deciding scaling of the items, construction of the "Learning Environment Scale" was started. Initially, an extensive study of the existing literature both on learning environment at home and school was made. Various standardized psychological tests to measure school environment, socio-emotional environment, family environment, home environment and learning environment were consulted. Based on the review of literature, the Learning Environment

Scale was divided into two subscales namely: Subscale I: "Learning Environment at Home" and Subscale II: "Learning Environment at School".

After reviewing literature and consulting the existing standardized psychological tools, in all 10 dimensions, five in each subscale were chosen. Discussions with experts in the field of Psychology and Education were held, with regard to justifying the appropriateness of the chosen dimensions. The tool at its initial drafting stage included 85 items. The initial draft was shown to fifteen Professors belonging to the discipline of Psychology and Education. On the bases of the opinions and suggestions given by the subject experts, some items were removed, a few of them were modified and some were changed in order to avoid ambiguity and obtain clarity. After initial modification of the tool based on the suggestions of the subject experts, 50 items were retained.

- **Pilot study or Initial try out**

The Learning Environment Scale thus prepared was put for its pilot study. It was administered on 150 students of class XI and XII studying in Government and Private senior secondary schools of Jalandhar district of Punjab. Selection of students was made both from rural and urban locality. Pilot study helped in determining the discriminatory power of the scale.

- **Item Analysis**

The next step in the standardization of learning environment scale after initial try out or pilot study was to find out the discriminatory power of each item, which forms the basis for item selection in order to build up the final scale. Item analysis is done to evaluate the items. A Likert type scale was used with response options namely: "Mostly", "Usually", "Seldom", "Very Less", "Never". The individual score for all the 150 students were ranked from the highest to the lowest. Then 25% of the subjects with the highest total scores and 25% of the subjects with the lowest total scores were sorted out for the purpose of calculation of discriminatory power of each of the items of the tool. Then each item was taken individually and the number of students who responded "M"(Mostly), "U"(Usually), "S"(Seldom), "VL"(Very Less) and "N"(Never) was found out both for the high and low groups separately. Thus for all 50 items, the number of

students coming under each category was found out separately for both the high and low groups and the discriminatory power for all the 50 items were calculated. If the discriminatory power of the item is found greater than 1.99 (significance at 0.05 level with degree of freedom=78) then, the item was accepted. Those items were rejected which had less than 1.99 discriminatory power. Discriminatory power of the 50 items of Learning Environment Scale is given in the Table 2.15.

**TABLE 2.15**

**DISCRIMINATORY POWER VALUES OF THE ITEMS OF LEARNING ENVIRONMENT SCALE**

| **Item no.** | **DPV** | **Remarks** | **Item no.** | **DPV** | **Remarks** | **Item no.** | **DPV** | **Remarks** |
|---|---|---|---|---|---|---|---|---|
| 1 | 4.1 | Accepted | 18 | 3.73 | Accepted | 35 | 8.27 | Accepted |
| **2** | **0.32** | **Rejected** | 19 | 7.86 | Accepted | 36 | 6.95 | Accepted |
| 3 | 5.18 | Accepted | 20 | 5.17 | Accepted | 37 | 7 | Accepted |
| 4 | 7.7 | Accepted | 21 | 7.68 | Accepted | 38 | 7.95 | Accepted |
| 5 | 7.3 | Accepted | 22 | 3.84 | Accepted | 39 | 7.63 | Accepted |
| 6 | 6.37 | Accepted | 23 | 7.68 | Accepted | 40 | 7.4 | Accepted |
| 7 | 6.37 | Accepted | 24 | 5.6 | Accepted | **41** | **0.5** | **Rejected** |
| 8 | 6.82 | Accepted | 25 | 9.66 | Accepted | 42 | 8.6 | Accepted |
| 9 | 7.85 | Accepted | 26 | 8.17 | Accepted | 43 | 8.86 | Accepted |
| 10 | 8.45 | Accepted | 27 | 8.95 | Accepted | 44 | 7.2 | Accepted |
| 11 | 8.32 | Accepted | 28 | 7.39 | Accepted | 45 | 5.11 | Accepted |
| 12 | 8.77 | Accepted | 29 | 5.81 | Accepted | 46 | 8.3 | Accepted |
| 13 | 8.75 | Accepted | 30 | 7.3 | Accepted | 47 | 5 | Accepted |
| 14 | 7.92 | Accepted | 31 | 9.32 | Accepted | 48 | 6.6 | Accepted |
| 15 | 7.58 | Accepted | 32 | 7.92 | Accepted | 49 | 9.75 | Accepted |
| 16 | 9.68 | Accepted | 33 | 8.26 | Accepted | 50 | 7.69 | Accepted |
| 17 | 4.9 | Accepted | 34 | 5.66 | Accepted | | | |

- **Final draft of the scale**

After calculating the discriminatory index of the 50 items of the Learning Environment Scale, those items were removed from the scale which possessed less than 1.99 discriminatory power. Only two items i.e. item no. 2 and 41 were found with non significant discriminatory power and they were removed. After item analysis, forty eight (48) items were selected to be included in the final form of the "Learning Environment Scale", out of which 21 items belong to the subscale I i.e. "Learning Environment at Home" and 27 items represent subscale II i.e. "Learning Environment at School". The distribution of 48 items in different dimensions of the Learning Environment Scale is shown in the Table 2.16.

**TABLE 2.16**

**DISTRIBUTION OF ITEMS IN THE LEARNING ENVIRONMENT SCALE**

| S. No. | Name of Dimension | Serial wise item no. | Total items |
|---|---|---|---|
| **Subscale I: Learning Environment at Home** | | | |
| **1** | Parental control and encouragement | 01-04 | 4 |
| **2** | Independence and conformity | 05-09 | 5 |
| **3** | Parental care and nurturance | 10-14 | 5 |
| **4** | Recreational orientation | 15-19 | 5 |
| **5** | Learning through Computer technology | 20-21 | 2 |
| **Subscale II: Learning Environment at School** | | | |
| **1** | Cognitive encouragement | 22-27 | 6 |
| **2** | Teaching through technology | 28-33 | 6 |
| **3** | Reward and punishment | 34-39 | 6 |
| **4** | Physical infrastructure | 40-44 | 5 |
| **5** | Peer influence on learning | 45-48 | 4 |
| | | TOTAL ITEMS | 48 |

### 2.3.2.2 SCORING PROCEDURE

Learning Environment scale including two subscales (Learning environment at home and learning environment at school), each item in both the subscales have 5 response options namely: Mostly (M), Usually (U), Seldom (S), Very Less (VL), and Never (N). For obtaining the value of score for each item, each response of the item has assigned number. Scoring of positive and negative items was done on the basis of Table 2.17 given below.

**TABLE 2.17**

**SCORING PROCEDURE FOR LEARNING ENVIRONMENT SCALE**

| Items | Mostly | Usually | Seldom | Very Less | Never |
|---|---|---|---|---|---|
| Positive | 5 | 4 | 3 | 2 | 1 |
| Negative | 1 | 2 | 3 | 4 | 5 |

### 2.3.2.3 STANDARDIZATION OF THE SCALE

Second stage of scale development after final draft is standardization of the scale. For estimating reliability and development of norms of the "Learning Environment Scale", the scale was administered on 600 students of class XI and XII, belonging to both Private and Government senior secondary schools affiliated to Punjab School Education Board (PSEB) and Central Board of Secondary Education (CBSE). The sample comprised of 250 boys and 350 girls studying in class XI and XII of both rural and urban background were selected from three districts of Punjab namely: Ludhiana, Jalandhar and Amritsar using convenient sampling technique.

### 2.3.2.4 VALIDITY

A test is said to be valid when it measures what it is supposed to measure. Alternatively, a test whose performance closely resembles with an objectively defined criterion is said to be valid. Both **"Face Validity"** and **"Content validity"** of the Learning Environment Scale was determined based on the opinion of the subject experts. For determining content validity, the test was shown to 14 subject experts belonging to the field of Education and Psychology.

Based on their judgements, validity index was calculated. The method developed by C. H. Lawshe (1975) was applied for said purpose.

**Content validity index of learning environment scale was found to be 0.89** which shows the content of learning environment scale is highly relevant. Item wise Content Validity Index was given in the Table 2.18.

**TABLE 2.18**

**ITEM WISE CONTENT VALIDITY INDEX OF LEARNING ENVIRONMENT SCALE**

| Item No | CVI | Item No | CVI | Item No | CVI | Item No | CVI |
|---|---|---|---|---|---|---|---|
| 1 | 0.71 | 13 | 1 | 25 | 0.85 | 37 | 1 |
| 2 | 1 | 14 | 1 | 26 | 0.85 | 38 | 0.85 |
| 3 | 0.85 | 15 | 1 | 27 | 0.85 | 39 | 1 |
| 4 | 1 | 16 | 0.85 | 28 | 0.85 | 40 | 0.85 |
| 5 | 1 | 17 | 1 | 29 | 0.71 | 41 | 1 |
| 6 | 1 | 18 | 1 | 30 | 1 | 42 | 0.85 |
| 7 | 0.85 | 19 | 1 | 31 | 0.85 | 43 | 1 |
| 8 | 0.71 | 20 | 0.71 | 32 | 0.71 | 44 | 1 |
| 9 | 0.85 | 21 | 1 | 33 | 1 | 45 | 0.71 |
| 10 | 0.71 | 22 | 1 | 34 | 0.71 | 46 | 0.85 |
| 11 | 0.71 | 23 | 0.71 | 35 | 1 | 47 | 0.85 |
| 12 | 1 | 24 | 1 | 36 | 0.85 | 48 | 0.71 |

- **Intrinsic validity**

The intrinsic validity of the Learning Environment scale was found with the help of index of reliability. In this case, the reliability coefficient measured through Spearman-Brown formula is 0.89. The square root of split half is 0.94. The present index of reliability implies that the test measures true ability of the subjects to the extent of 94%. That means the validity of the scale is 0.94. Validity index of Learning Environment scale by using two methods i.e. content validity index and intrinsic validity is given below in the Table 2.19.

**TABLE 2.19**

**VALIDITY INDEX OF LEARNING ENVIRONMENT SCALE**

| Method | Validity |
|---|---|
| Content Validity Index | 0.89 |
| Intrinsic Validity | 0.94 |

### 2.3.2.5 RELIABILITY

Internal Consistency Reliability was used to assess the consistency of results across the items within the test. In literature there exists variety of approaches for estimating internal consistency like: **(A) Split Half Reliability** by applying: (i) Spearman-Brown Prophecy Formula, (ii) Rulon/Guttman's Formula, (iii) Flanagan Formula. Another approach for estimating reliability is based on the application of **(B) Cronbach's Alpha** Formula.

Reliability coefficient for Learning Environment Scale by using different methods is given in Table 2.20.

**TABLE 2.20**

**RELIABILITY COEFFICIENT FOR LEARNING ENVIRONMENT SCALE**

| Sr. No. | Method | Reliability Coefficient |
|---|---|---|
| 1 | Split half method | |
| | • Spearman-Brown Prophecy | 0.89 |
| | • Flanagan method | 0.90 |
| | • Rulon/Guttman | 0.89 |
| 2 | Cronbach's Alpha | 0.91 |

### 2.3.2.6 DEVELOPMENT OF NORMS

- **Percentile rank and Z score norm**

Percentile rank and Z score norms for Learning Environment Scale has been developed. For this purpose, Learning Environment Scale was administered on 600 senior secondary students. Percentile Rank of Learning Environment Scale is given in the Table 2.21.

**TABLE 2.21**

**CONVERSION OF RAW SCORE INTO PERCENTILE RANK (Mean: 196.86, SD: 22.48, N: 600)**

| Raw Score | Percentile Rank | Raw Score | Percentile Rank |
|---|---|---|---|
| 239& above | 99 | 203 | 55 |
| 233 | 98 | 199 | 50 |
| 231 | 97 | 197 | 45 |
| 230 | 96 | 194 | 40 |
| 228 | 95 | 191 | 35 |
| 222 | 90 | 187 | 30 |
| 218 | 85 | 183 | 25 |
| 215 | 80 | 179 | 20 |
| 213 | 75 | 174 | 15 |
| 211 | 70 | 167 | 10 |
| 209 | 65 | 158 | 5 |
| 206 | 60 | | |

- **Percentile Rank for Subscale I**

Percentile rank for Subscale I: "Learning Environment at Home" is given in the Table 2.22.

**TABLE 2.22**

**PERCENTILE RANK OF SUBSCALE I: LEARNING ENVIRONMENT AT HOME (Mean: 82.21, SD: 12.3, N: 600)**

| Raw Score | Percentile Rank | Raw Score | Percentile Rank |
|---|---|---|---|
| 105 | 99 | 81 | 45 |
| 103 | 98 | 80 | 40 |
| 101 | 97 | 78 | 35 |
| 100 | 96 | 77 | 30 |
| 100 | 95 | 75 | 25 |
| 97 | 90 | 73 | 20 |
| 95 | 85 | 71 | 15 |
| 94 | 80 | 68 | 10 |
| 91 | 75 | 63 | 5 |
| 89 | 70 | 61 | 4 |
| 87 | 65 | 59 | 3 |
| 86 | 60 | 56 | 2 |
| 84 | 55 | 45 | 1 |
| 83 | 50 | | |

- **Percentile Rank for Subscale II**

Percentile rank for Subscale II: "Learning Environment at School" is given in the Table 2.23.

**TABLE 2.23**

**PERCENTILE RANK OF SUBSCALE II: LEARNING ENVIRONMENT AT SCHOOL (Mean: 105.17, SD: 16.6, N: 600)**

| Raw Score | Percentile Rank | Raw Score | Percentile Rank |
|---|---|---|---|
| 135 | 99 | 104 | 45 |
| 132 | 97 | 102 | 40 |
| 131 | 96 | 100 | 35 |
| 130 | 95 | 98 | 30 |
| 124 | 90 | 95 | 25 |
| 122 | 85 | 92 | 20 |
| 120 | 80 | 90 | 15 |
| 117 | 75 | 85 | 10 |
| 115 | 70 | 78 | 5 |
| 113 | 65 | 75 | 4 |
| 111 | 60 | 73 | 3 |
| 108 | 55 | 65 | 2 |
| 106 | 50 | 53 | 1 |

- **Z-score Norm**

For the qualitative interpretation, raw scores were converted into Z-scores which is shown in the given Table 2.24.

**TABLE 2.24**

**CONVERSION OF RAW SCORES INTO CORRESPONDING Z-SCORES**

**(Mean = 196.86, S.D.= 22.48, N= 600)**

| Raw score | Z-score | Raw score | Z-score | Raw score | Z-score | Raw score | Z-score |
|---|---|---|---|---|---|---|---|
| 140 | -2.53 | 166 | -1.37 | 192 | -0.21 | 218 | +0.94 |
| 141 | -2.48 | 167 | -1.33 | 193 | -0.16 | 219 | +0.99 |
| 142 | -2.44 | 168 | -1.28 | 194 | -0.12 | 220 | +1.03 |
| 143 | -2.40 | 169 | -1.24 | 195 | -0.08 | 221 | +1.08 |
| 144 | -2.35 | 170 | -1.19 | 196 | -0.03 | 222 | +1.12 |
| 145 | -2.30 | 171 | -1.15 | 197 | ±0.00 | 223 | +1.16 |
| 146 | -2.26 | 172 | -1.10 | 198 | +0.05 | 224 | +1.21 |
| 147 | -2.22 | 173 | -1.06 | 199 | +0.09 | 225 | +1.25 |
| 148 | -2.17 | 174 | -1.01 | 200 | +0.14 | 226 | +1.30 |
| 149 | -2.12 | 175 | -0.97 | 201 | +0.18 | 227 | +1.34 |
| 150 | -2.08 | 176 | -0.92 | 202 | +0.23 | 228 | +1.39 |
| 151 | -2.04 | 177 | -0.88 | 203 | +0.27 | 229 | +1.43 |
| 152 | -2.00 | 178 | -0.83 | 204 | +0.32 | 230 | +1.48 |
| 153 | -1.95 | 179 | -0.79 | 205 | +0.36 | 231 | +1.52 |
| 154 | -1.91 | 180 | -0.75 | 206 | +0.41 | 232 | +1.57 |
| 155 | -1.86 | 181 | -0.70 | 207 | +0.45 | 233 | +1.61 |
| 156 | -1.82 | 182 | -0.66 | 208 | +0.50 | 234 | +1.66 |
| 157 | -1.77 | 183 | -0.61 | 209 | +0.54 | 235 | +1.69 |
| 158 | -1.73 | 184 | -0.57 | 210 | +0.58 | 236 | +1.74 |
| 159 | -1.68 | 185 | -0.52 | 211 | +0.63 | 237 | +1.78 |
| 160 | -1.64 | 186 | -0.48 | 212 | +0.67 | 238 | +1.83 |
| 161 | -1.59 | 187 | -0.43 | 213 | +0.72 | 239 | +1.88 |
| 162 | -1.55 | 188 | -0.39 | 214 | +0.76 | 240 | +1.92 |
| 163 | -1.50 | 189 | -0.34 | 215 | +0.81 | | |
| 164 | -1.46 | 190 | -0.30 | 216 | +0.85 | | |
| 165 | -1.41 | 191 | -0.25 | 217 | +0.90 | | |

- **Norms based on Z-score**

For interpretation of Z-score of the Learning Environment Scale, Z-score norm was developed which is shown in the Table 2.25.

**TABLE 2.25**

**QUALITATIVE INTERPRETATION OF LEARNING ENVIRONMENT SCALE BASED ON Z-SCORES**

| Z-score | Levels of Learning Environment |
|---|---|
| +0.55 & above | Favourable |
| -0.97 to +0.54 | Moderate |
| -1.01& below | Unfavourable |

- **Norms based on Raw Score**

Qualitative interpretation of the Learning Environment Scale was done based on raw scores which is shown in the given Table 2.26.

**TABLE 2.26**

**QUALITATIVE INTERPRETATION OF LEARNING ENVIRONMENT SCALE BASED ON RAW SCORES**

| Score Range | Levels of Learning Environment |
|---|---|
| 201 & above | Favourable |
| 175-200 | Moderate |
| 174& below | Unfavourable |

Qualitative interpretation of the "Subscale I: Learning Environment Scale at Home" was done based on raw scores which is shown in the Table 2.27.

**TABLE 2.27**

**QUALITATIVE INTERPRETATION OF SUBSCALE I: LEARNING ENVIRONMENT AT HOME BASED ON RAW SCORES**

| Score Range | Levels of Learning Environment |
|---|---|
| 89 & above | Favourable |
| 73-88 | Moderate |
| 72& below | Unfavourable |

Qualitative interpretation of the "Subscale II: Learning Environment Scale at School" was done based on raw scores which is shown in the Table 2.28.

**TABLE 2.28**

**QUALITATIVE INTERPRETATION OF SUBSCALE II: LEARNING ENVIRONMENT AT SCHOOL BASED ON RAW SCORES**

| Score Range | Levels of Learning Environment |
|---|---|
| 114& above | Favourable |
| 91-113 | Moderate |
| 90& below | Unfavourable |

### 2.3.3 METACOGNITIVE AWARENESS INVENTORY (MAI)

In the present research study, Metacognitive Awareness Inventory constructed by Schraw and Dennison (1994) was used to measure student's metacognitive awareness because it is highly valid and reliable tool. This inventory is suitable for adolescents and adults. Metacognitive Awareness Inventory(MAI) was also validated on the Indian sample by Rahman et al. (2011); Jagadeeswari and Chandrasekaran (2013); Narang and Saini (2013); Shetty (2014); and Rao & Reddy (2015). The inventory includes 52 statements accompanied by two options: True/ False. MAI includes several subcomponents under two broader categories: Knowledge of cognition (Declarative knowledge, Procedural knowledge, Conditional knowledge) and Regulation of cognition (Planning, Information management strategies, Monitoring, Debugging strategies and Evaluation).Component wise distribution of statements is given below in the Table 2.29.

**TABLE 2.29**

**COMPONENT WISE DISTRIBUTION OF STATEMENTS OF MAI**

| Sr. No. | Components | Serial No. Of statements | Total Items |
|---|---|---|---|
| **Knowledge about Cognition** | | | |
| 1 | Declarative Knowledge | 5,10,12,16, 17,20,32,46 | 8 |
| 2 | Procedural Knowledge | 3,14,27,33 | 4 |
| 3 | Conditional Knowledge | 15,18,26,29,35 | 5 |
| **Regulation of Cognition** | | | |
| 4 | Planning | 4,6,8,22,23,42,45 | 7 |
| 5 | Information Management Strategies | 9,13,30,31,37,39,41,43,47,48 | 10 |
| 6 | Comprehension Monitoring | 1,2,11,21,28,34,49 | 7 |
| 7 | Debugging Strategies | 25,40,44,51,52 | 5 |
| 8 | Evaluation | 7,18,24,36,38,49 | 6 |
| **Total Items** | | | 52 |

### 2.3.3.1 SCORING PRODECURE

Metacognitive Awareness inventory has 52 items. Each item has two options: True/ False. Each respondent has to select only one option. For each True on the MAI (1)mark is given and for each False on the MAI (0) mark is given.

### 2.3.3.2 VALIDITY

Schraw and Dennison (1994) found evidence for the MAI's structural validity through confirmatory factor analysis, in which a 2-factor solution explained 65% of the variance in one sample, and 58% of the variance in another.

### 2.3.3.3 RELIABILITY

MAI is highly reliable instrument, the Cronbach Alpha Coefficients of Metacognitive awareness scale is ‘0.96’. Internal consistency of the inventory was excellent ranging from 0.93 to 0.88, thus provided a reliable assessment of Metacognitive Awareness. Also, the reliability of Metacogniton Awareness Inventory through split half method was calculated on a sample of 150 senior

secondary school students. Reliability coefficient through this method is found to be 0.82. Coefficients of reliability are shown in Table 2.30.

**TABLE 2.30**

**RELIABILITY COEFFICIENT OF MAI**

| Sr. No. | Reliability Method | (r) of MAI |
|---|---|---|
| 1 | Internal Consistency | 0.93 - 0.88 |
| 2 | Cronbach's Alpha | 0.96 |
| 3 | Split half method (Present study) | 0.82 |

The Percentile Rank of Metacognitive Awareness Inventory is given below in Table 2.31.

**TABLE 2.31**

**PERCENTILE RANK OF METACOGNITIVE AWARENESS INVENTORY (N=600, M=34.99, SD=10.34)**

| Raw Scores | Percentile Rank | Raw Scores | Percentile Rank |
|---|---|---|---|
| 51 | 99 | 32 | 50 |
| 50 | 98 | 32 | 45 |
| 50 | 97 | 30 | 40 |
| 50 | 96 | 28 | 35 |
| 50 | 95 | 28 | 30 |
| 49 | 90 | 26 | 25 |
| 48 | 85 | 25 | 20 |
| 47 | 80 | 23 | 15 |
| 46 | 75 | 22 | 10 |
| 44 | 70 | 20 | 5 |
| 42 | 65 | 18 | 3 |
| 38 | 60 | 17 | 2 |
| 35 | 55 | 16 | 1 |

For qualitative interpretation of the raw score of the "Metacognitive Awareness Inventory" is presented in the Table 2.32.

**TABLE 2.32**

**QUALITATIVE INTERPRETATION OF METACOGNITION BASED ON RAW SCORES**

| Score Range | Levels of Metacognitive Awareness |
|---|---|
| 50 and above | Very high |
| 47 – 49 | High |
| 33 – 46 | Above Average |
| 27 – 32 | Average |
| 23 – 26 | Below Average |
| 20 – 22 | Low |
| 19 and below | Very low |

### 2.3.4 SELF EFFICACY SCALE (SES)

In the present study, self efficacy level of the senior secondary students has been assessed by using Self Efficacy Scale by Singh and Narain (2005). This scale has been designed for use with 12 years and above age group of individuals. A brief description of different dimensions of self efficacy is given here below.

(a) **Self confidence**- The faith in oneself and in one's own abilities to perform a certain task or to arrive at a certain goal.

(b) **Efficacy expectation**- The conviction that the person himself or herself can successfully produce the behavior required to generate the particular outcome. It determines how hard people will try and how long they will persist at a particular behavior.

(c) **Positive attitude**- a positive attitude is seeing the glass half full. It means to keep a set of ideas, values and thoughts that tend to look for the good, to advance and overcome problems, to find the opportunities in every situation, and to look, as it is said, 'on the bright side of life'. It also means to have courage and exceed oneself, getting up whenever one falls.

(d) **Outcome expectation**- a person's belief that a given behavior will lead to a particular outcome.

Division of the items of Self efficacy scale is given below in Table 2.33.

**TABLE 2.33**

**DIVISION OF THE ITEMS OF SELF EFFICACY SCALE**

| Sr. No. | Division of items | Serial wise item No. | Total |
|---|---|---|---|
| I | Self Confidence | 1, 2, 3, 4, 5 | 5 |
| II | Efficacy Expectation | 6, 7, 8, 9, 10 | 5 |
| III | Positive Attitude | 11, 12, 13, 14, 15 | 5 |
| IV | Outcome Expectation | 16, 17, 18, 19, 20 | 5 |
| | | Total | 20 |

### 2.3.4.1 SCORING PROCEDURE

The scoring of positive items of SE scale was done by giving a score 5, 4, 3, 2 or 1 for Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree respectively and negative items were scored as 1, 2, 3, 4 and 5 respectively. Scoring system of the scale is presented below in Table 2.34.

**TABLE 2.34**

**SCORING SYSTEM OF SELF EFFICACY SCALE**

| | **Strongly Agree** | **Agree** | **Neutral** | **Disagree** | **Strongly Disagree** |
|---|---|---|---|---|---|
| **Positive** | 5 | 4 | 3 | 2 | 1 |
| **Negative** | 1 | 2 | 3 | 4 | 5 |

Scores thus obtained were added together to yield total score. The details of negative and positive items with serial no of items are being provided in Table 2.35.

**TABLE 2.35**

**SCORING OF SELF EFFICACY SCALE**

| | |
|---|---|
| **Positive Items** | Item No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 14, 15, 16, 17, 19 and 20 |
| **Negative Items** | Item No. 4, 10, 12, and 18 |

### 2.3.4.2 VALIDITY

Self Efficacy Scale is highly valid. It is validated against the General Perceived Self efficacy Scale developed originally in German by Jerusalem and Schwarzer and adapted by Sud (1981) in Hindi. The concurrent validity of Self Efficacy Scale is found to be 0.92 which is highly significant.

### 2.3.4.3 RELIABILITY

Self Efficacy Scale is highly reliable. The test re-test reliability is found to be 0.80 and the split half reliability is found to be 0.74. All reliability coefficients are significant at .01 levels. Reliability coefficient of Self Efficacy Scale is given below in the Table 2.36.

**TABLE 2.36**

**RELIABILITY COEFFICIENTS OF SELF EFFICACY SCALE**

| Sr. No. | Reliability Method | (r) of SE |
|---|---|---|
| 1 | Test-Retest | 0.80 |
| 2 | Split half method | 0.74 |

### 2.3.4.4 NORMS

Percentile norms for males and females for Self Efficacy Scale are given in Table 2.37 and 2.38.

**TABLE 2.37**

**PERCENTILE OF MALES FOR SELF EFFICACY SCALE**

| Percentile | Score Point | Integral Score |
|---|---|---|
| $P_{95}$ | 92.47 | 93 |
| $P_{90}$ | 89.55 | 90 |
| $P_{80}$ | 86.22 | 87 |
| $P_{70}$ | 83.31 | 84 |
| $P_{60}$ | 80.33 | 81 |
| $P_{50}$ | 75.64 | 76 |
| $P_{40}$ | 73.54 | 74 |
| $P_{30}$ | 71.53 | 72 |
| $P_{20}$ | 69.17 | 70 |
| $P_{10}$ | 66.45 | 67 |

**TABLE 2.38**

**PERCENTILE OF FEMALES FOR SELF EFFICACY SCALE**

| Percentile | Score Point | Integral Score |
|---|---|---|
| $P_{95}$ | 93.51 | 94 |
| $P_{90}$ | 90 | 90 |
| $P_{80}$ | 86.27 | 87 |
| $P_{70}$ | 82.45 | 83 |
| $P_{60}$ | 78.72 | 79 |
| $P_{50}$ | 75.25 | 76 |
| $P_{40}$ | 73.03 | 74 |
| $P_{30}$ | 70.81 | 71 |
| $P_{20}$ | 68.67 | 69 |
| $P_{10}$ | 66.53 | 67 |

### 2.3.3.5 QUALITATIVE INTERPRETATION

The obtained scores on Self efficacy scale are qualitatively interpreted as under in the Table 2.39.

**TABLE 2.39**

**QUALITATIVE INTERPRETATION OF SELF EFFICACY SCALE**

| Scores | Interpretation |
|---|---|
| 85 and above | High Self efficacy |
| 74 to 84 | Average Self efficacy |
| 73 or less | Poor Self efficacy |

### 2.3.5 QUESTIONNAIRE FOR ASSESSING INITIATIVES TAKEN BY SCHOOL

In the present study for exploring the role of the schools in developing academic resilience in senior secondary students, qualitative data is collected by using self developed questionnaire. Questionnaire is a means of collecting information or facts about people's knowledge, beliefs, attitudes, behavior and experiences (Sapsford, 1999). Questionnaires generally consist of open- or closed-ended questions or items that measure facts, attitudes, or values. Both types of questions were included in this questionnaire.

#### 2.3.5.1 DEVELOPMENT AND CONSTRUCTION

Extensive review of literature is conducted relating to the role of schools in developing resilience in the students. After review of literature, extensive discussions have been done with school teachers and principals of various schools in Ludhiana districts. During this stage, it became apparent to construct a new tool to explore the initiatives taken by the schools. Through the literature review and discussion with school teachers several factors were identified which directly or indirectly affects the resilience among school students. Questions associated with each factor were compiled. In total eleven components were identified which includes: Support System, Physical Infrastructure, Medical Facility, Health &Recreation, Games & Sports, Psychological Counselling, Parent Teacher Association, Safety & Supervision Mechanism, Motivation/Feedback, Teacher development Programmes, and Effective Discipline & Less work Load. At the initial stage, 30 (fixed response) questions were developed related to eleven

factors of the questionnaire. These were shown to the ten experts from Education and Psychology department for ensuring the appropriateness of the questions to fulfill the objective of the study. On the suggestions given by the experts, some open ended questions were also included. Open-ended questions allow the respondent to provide a complete or more comprehensive response, often provide specific and meaningful information (Arhar et al., 2001). Some questions were deleted and some were modified on the bases of the expert opinion. After initial modification only 25 questions were retained.

#### 2.3.5.2 INSTRUCTIONS FOR FILLING QUESTIONNAIRE

Instructions for filling the Questionnaire were given on the first page. Respondents were requested to read each question carefully and give their response in right hand side of either in Yes or No form and if required they can give their responses in the space provided to the open ended questions.

#### 2.3.5.3 PILOT TESTING

Pilot study is used in social science research. It can refer to so-called feasibility studies which are small scale version(s), or trial run(s), done in preparation for the major study (Polit et al., 2001). Pilot study or testing improves the internal validity and reliability of a questionnaire (Peat et al., 2002). For ensuring the feasibility of the questionnaire, it is administered on few school teachers for checking the suitability of the questions. Instructions were given to the participants for filling information in the questionnaire. After pilot study, some changes were made in the arrangement of questions to improve the access. Accordingly final draft was finalized including 25 close and open ended questions.

### 2.4 PROCEDURE OF DATA COLLECTION

After the selection of the suitable tools to generate information about the selected variables of the target group, that is senior secondary school students of Punjab state, the next step was the collection of data. For this purpose, the permission was sought from the principals of the schools in the selected districts for collection of data on the different tools used in the study. The tools were

personally administered by the researcher by visiting the senior secondary schools. The researcher made personal discussions with a number of respondents for establishing rapport. This technique was found to be of immense value in giving clarity to the study. After, the collection of the data, the results was analyzed keeping in view the objectives of the study.

## 2.5 RESEARCH DESIGN OF THE STUDY

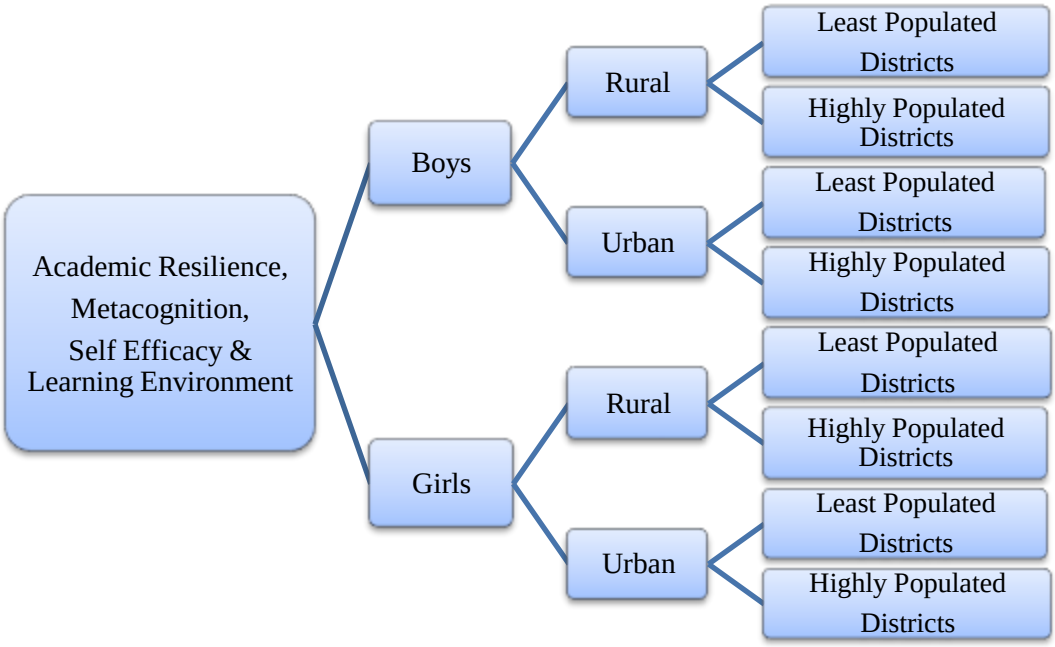
Three types of research designs i.e. **Three Way ANOVA (2×2×2) factorial design, Oneway ANOVA and Co-relational research design** have been employed to conduct the study. These research designs are further divided into following sequence:

1. Three Way ANOVA (2x2x2) factorial design is employed on the scores of Academic Resilience of senior secondary students wherein, gender, locality and population are studied and are used for the purpose of classification viz. boys and girls; rural and urban locality; & least populated districts and highly populated districts. Academic Resilience is studied as dependent variable. The same research design is applied on the scores of Metacognition, Self Efficacy and Learning Environment.

The schematic layout of the design is presented below in Figure 2.2.

**FIGURE 2.2**

**2 X 2 X 2 FACTORIAL ANOVA RESEARCH DESIGN ON ACADEMIC RESILIENCE, METACOGNITION, SELF EFFICACY & LEARNING ENVIRONMENT**




2. One way ANOVA research design is employed in order to find the significant difference in the academic resilience of senior secondary students with respect to metacognition, self efficacy, and learning environment.
3. Co-relational research design is applied for relationship between Academic resilience and Metacognition; Academic resilience and Self efficacy; and Academic resilience and Learning environment of senior secondary students.

## 2.6 STATISTICAL TECHNIQUES

Keeping in view the different objectives of the study, the obtained data was analyzed using different statistical techniques. After data collection, analysis

of the same has been done quantitatively with the help of both descriptive and inferential statistics. The descriptive statistical techniques like mean, standard deviation, percentage and inferential statistical techniques like t-test, one way ANOVA, three way ANOVA and correlation analysis have been used in data analysis.

1. To study the status of the senior secondary school students in four variables (i.e. academic resilience, metacognition, self efficacy and learning environment);
2. To find out the influence of gender, locality and population on academic resilience, metacognition, self efficacy and learning environment, Three Way ANOVA was applied.
3. To study the influence of Metacognition, Self efficacy and Learning Environment on Academic resilience of senior secondary school students, One Way ANOVA was applied.
4. To find out the relationship between academic resilience of senior secondary students with metacognition, self efficacy and learning environment**,** Pearson Product Moment Coefficient of Correlation was applied.
5. Lastly, to know the initiatives taken by the school personnel in developing resilience in students, Mean and Percentages were calculated.

# CHAPTER III

# ANALYSIS AND INTERPRETATION

In the preceding chapters, theoretical rationale of the study problem, review of related literature, objectives, hypotheses of the study, description of the relevant tools employed, sample, research design of the study, procedures followed to collect the required data and statistical techniques were discussed. The present chapter deals with the statistical analysis of the data and interpretation of the results with a view to arriving at empirical solution to the problem. The results of the study have been discussed in the light of the objectives.

The purpose of the study is to analyze metacognition, self efficacy and learning environment and their influence on academic resilience of senior secondary students in the state of Punjab. In order to achieve the aim of this study, standardized tools were used to collect the data. After data collection, analysis of the same has been done quantitatively with the help of both descriptive and inferential statistics. The descriptive statistical techniques like mean, median, standard deviation, percentage and inferential statistical techniques like t-test, one way ANOVA, three way ANOVA and correlation analysis have been used during data analysis.

The following acronyms have been used throughout the chapter.

| ACRONYM | DESCRIPTION |
|---|---|
| **ANOVA** | Analysis of Variance |
| **Df** | Degree of Freedom |
| **M** | Mean |
| **MSS** | Mean Sum of Square |
| **N** | Number of people |
| ***r*** | Coefficient of Correlation |
| **SOV** | Source of Variation |
| **SS** | Sum of Square |
| **σ** | Standard Deviation |
| **LPD** | Least Populated Districts |
| **HPD** | Highly Populated Districts |

A total of 1200 senior secondary students have been randomly selected from three regions of Punjab i.e. Malwa, Doaba and Majha. 600 boys and girls from rural and urban locality have been taken respectively. Gender and Locality wise distribution of the sample have been presented in the following Table 3.1.

**TABLE 3.1**

**LOCALITY WISE DISTRIBUTION OF SENIOR SECONDARY STUDENTS**

| Gender | Locality | Frequency | Percent |
|---|---|---|---|
| Boys | Rural | 600 | 50.0 |
| Girls | Urban | 600 | 50.0 |
| Total | | 1200 | 100.0 |

Two districts from each region have been taken on the basis of their population (one district with highest population and another district with lowest population). In total six districts have been taken from three regions namely: Ludhiana, Barnala, Amritsar, Tarntaran, Jalandhar, Nawanshahar. Distribution of the study sample on the basis of population and districts have been given in the following Table 3.2 and 3.3.

**TABLE 3.2**

**DISTRIBUTION OF SENIOR SECONDARY SCHOOL STUDENTS ON THE BASIS OF POPULATION**

| **Population** | **Frequency** | **Percent** |
|---|---|---|
| **Least Populated Districts** | **250** | **20.8** |
| **Highly Populated Districts** | **950** | **79.2** |
| **Total** | **1200** | **100.0** |

Thus, it is clear from table that, 20.8% students represented the Least Populated Districts and 79.2% students represented the Highly Populated Districts.

**TABLE 3.3**

**DISTRIBUTION OF SENIOR SECONDARY SCHOOL STUDENTS ON THE BASIS OF DISTRICTS**

| Districts | Frequency | Percent |
|---|---|---|
| **Ludhiana** | **600** | **50.0** |
| **Barnala** | **100** | **8.3** |
| **Jalandhar** | **200** | **16.7** |
| **Nawanshahr** | **100** | **8.3** |
| **Amritsar** | **150** | **12.5** |
| **Tarntaran** | **50** | **4.2** |
| **Total** | **1200** | **100.0** |

Similarly, it is clear from table 3.3, that 50%, 8.3%, 16.7%, 8.3%, 12.5% and 4.2% students' represented the Ludhiana, Barnala, Jalandhar, Nawanshahr, Amritsar and Tarntaran districts of Punjab respectively.

Further, the data has been analyzed and presentation of the results and their interpretation have been done objective wise which is presented following the below given sequence.

**3.1 Academic resilience, metacognition, self efficacy and learning environment of senior secondary students.**

3.1.1 Academic resilience of senior secondary school students

3.1.2 Metacognition of senior secondary school students

3.1.3 Self efficacy of senior secondary school students

3.1.4 Learning environment of senior secondary school students

**3.2 Influence of gender, locality and population on the Academic resilience, Metacognition, Self efficacy, and Learning Environment of senior secondary school students**

3.2.1 Influence of locality, gender and population on Academic Resilience

3.2.2 Influence of locality, gender and population on Metacognition

3.2.3 Influence of locality, gender and population on Self Efficacy

3.2.4 Influence of locality, gender and population on Learning Environment

**3.3 Relationship between academic resilience of senior secondary students with metacognition, self efficacy and learning environment.**

3.3.1 Correlation between academic resilience of senior secondary students with various dimensions of metacognition

3.3.2 Correlation between academic resilience of senior secondary students with various dimensions of self efficacy

3.3.3 Correlation between academic resilience of senior secondary students with various dimensions of learning environment

**3.4 Influence of Metacognition, Self efficacy and Learning Environment on Academic resilience of senior secondary school students**

3.4.1 Influence of Metacognition on Academic resilience of senior secondary school students

3.4.2 Influence of Self Efficacy on Academic resilience of senior secondary school students

3.4.3 Influence of Learning Environment on Academic resilience of senior secondary school students

**3.5 Initiatives taken by school personnel for developing academic resilience among senior secondary students.**

3.5.1 Results pertaining to the physical infrastructural facilities provided by schools to promote academic resilience among senior secondary school students

3.5.2 Results pertaining to the support system available in schools to develop academic resilience among senior secondary school students

3.5.3 Results pertaining to the medical facilities provided by schools to promote academic resilience among senior secondary school students

3.5.4 Results pertaining to the health and recreation facilities provided by schools to foster academic resilience among senior secondary school students

3.5.5 Results pertaining to the games and sport facilities provided by schools to promote academic resilience among senior secondary school students

3.5.6 Results pertaining to the psychological counseling facilities provided by schools to promote academic resilience among senior secondary school students

3.5.7 Results pertaining to the parent teacher association facilities provided by schools to promote academic resilience among senior secondary school students

3.5.8 Results pertaining to the safety and supervision mechanism provided by schools to promote academic resilience among senior secondary school students

3.5.9 Results pertaining to the motivation/feedback provided by schools to promote academic resilience among senior secondary school students

3.5.10 Results pertaining to the teacher development programmes provided by schools to promote academic resilience among senior secondary school students

3.5.11 Results pertaining to the effective discipline and less work load provided by schools to promote academic resilience among senior secondary school students

**3.1 Academic resilience, metacognition, self efficacy and learning environment of senior secondary students.**

This section deals with the data relating to the academic resilience, metacognition, self efficacy and learning environment of the senior secondary students which has been further divided as follow.

3.1.1 Academic resilience of senior secondary school students

3.1.2 Metacognition of senior secondary school students

3.1.3 Self efficacy of senior secondary school students

3.1.4 Learning environment of senior secondary school students

### 3.1.1 Academic resilience of senior secondary students

The objective 1 of the present study was to explore the level of academic resilience of the senior secondary school students. This section deals with the data relating to the academic resilience of the senior secondary school students based on gender, locality and population. Presentation of the data follows the below given in Table 3.4 and figure 3.1.

**TABLE 3.4**

**CLASSIFICATION OF SENIOR SECONDARY SCHOOL STUDENTS ON THEIR ACADEMIC RESILIENCE**

| Variable | | | Low | Below Average | Average | Above Average | High | Total |
|---|---|---|---|---|---|---|---|---|
| **Gender** | **Girls** | Number | 62 | 98 | 234 | 158 | 48 | 600 |
| | | % | 5.2% | 8.2% | 19.5% | 13.2% | 4.0% | 50.0% |
| | **Boys** | Number | 58 | 93 | 204 | 142 | 103 | 600 |
| | | % | 4.8% | 7.8% | 17.0% | 11.8% | 8.6% | 50.0% |
| **Locality** | **Rural** | Number | 63 | 108 | 210 | 146 | 73 | 600 |
| | | % | 5.3% | 9.0% | 17.5% | 12.2% | 6.1% | 50.0% |
| | **Urban** | Number | 57 | 83 | 228 | 154 | 78 | 600 |
| | | % | 4.8% | 6.9% | 19.0% | 12.8% | 6.5% | 50.0% |
| **Population** | **LPD** | Number | 24 | 28 | 68 | 85 | 45 | 250 |
| | | % | 2.0% | 2.3% | 5.7% | 7.1% | 3.8% | 20.8% |
| | **HPD** | Number | 96 | 163 | 370 | 215 | 106 | 950 |
| | | % | 8.0% | 13.6% | 30.8% | 17.9% | 8.8% | 79.2% |
| **Total** | | Number | 120 | 191 | 438 | 300 | 151 | 1200 |
| | | % | 10% | 15.9% | 36.5% | 25.0% | 12.6% | 100.0% |

**FIGURE 3.1**

**GRAPHICAL REPRESENTATION OF CLASSIFICATION OF SENIOR SECONDARY SCHOOL STUDENTS ON THEIR ACADEMIC RESILIENCE**

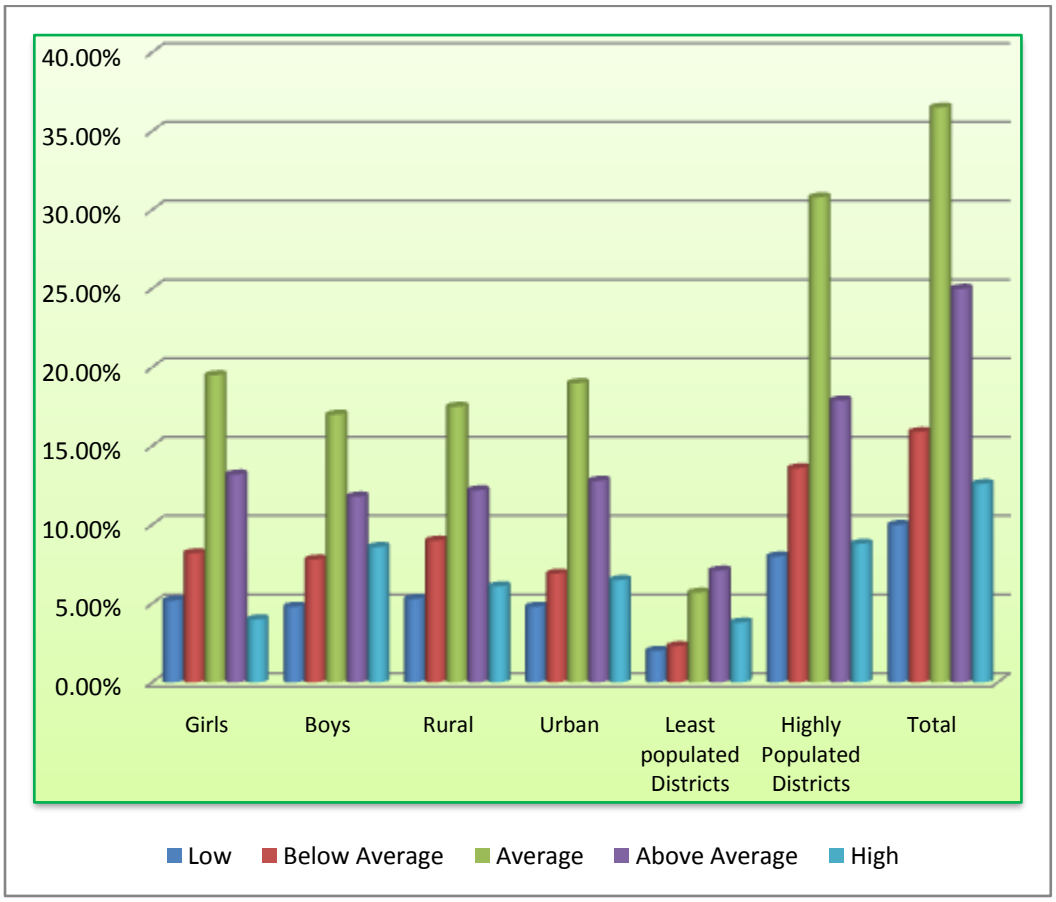



Table 3.4 shows the data relating to the percentage wise representation of senior secondary school students in different level of academic resilience. Table is preceded by showing the number and percentage of senior secondary students distributed in different levels of academic resilience in gender, locality and population category.

A look at the Table 3.4 shows the gender wise distribution of senior secondary students, 5.2% senior secondary girls and 4.8% senior secondary boys possess low level of academic resilience. Similarly 8.2% senior secondary girls and 7.8% senior secondary boys possess below average level of academic resilience. It is also observed that 19.5% senior secondary girls and 17% senior

secondary boys possess average level of academic resilience. 13.2% senior secondary girls and 11.8% senior secondary boys possess above average level of academic resilience. Only 4% senior secondary girls and 8.6% senior secondary boys possess high level of academic resilience.

Referring to the above Table 3.4, it shows locality wise distribution of senior secondary students, 5.3% rural senior secondary students and 4.8% urban senior secondary students fall under low level of academic resilience. In below average level, there are 9% senior secondary students from rural locality and 6.9% senior secondary students from urban locality fall under this level. Similarly, 17.5% senior secondary students from rural and 19% senior secondary students fall under average level of academic resilience. In above average level, there are 12.2% senior secondary students from rural and 12.8% senior secondary students from urban locality. 6.1% senior secondary students from rural and 6.5% senior secondary students from urban locality fall under high level of academic resilience.

The Table 3.4 also indicates the percentage wise distribution of senior secondary students from least and highly populated districts in different level of academic resilience. In least populated districts, 2% senior secondary students fall under low level, 2.3% senior secondary students fall under below average level, 5.7% to the average level, 7.1% to the above average and 3.8% to the high level of academic resilience. In highly populated districts 8% senior secondary students fall under low level, 13.6% to the below average level, 30.8% to the average level, 17.9% to the above average and 8.8% to the high level of academic resilience.

In total, 10% senior secondary students fall under low level of academic resilience, 15.91% to the below average level, 36.5% to the average level, 25% to the above average level and 12.58% to the high level of academic resilience. Most of the senior secondary students fall under the average level of academic resilience.

**DISCUSSION ON RESULTS**

It can be concluded that from gender point of view, majority of senior secondary boys and girls possess average level of academic resilience. In a same way, majority of senior secondary students from rural and urban localities fall under average level of academic resilience. From population point of view, majority of senior secondary school students from least populated districts possess above average level of academic resilience but senior secondary school students from highly populated districts possess average level of academic resilience. In total, majority of senior secondary school students fall under average level of academic resilience.

### 3.1.2 Metacognition of senior secondary school students

In the present study, Objective 2 was to identify the level of metacognition among senior secondary school students. This section deals with the data relating to the metacognition senior secondary school students based on gender, locality and population. Presentation of the data follows the below given in Table 3.5 and figure 3.2.

**TABLE 3.5**

**CLASSIFICATION OF SENIOR SECONDARY SCHOOL STUDENTS ON THEIR METACOGNITION**

| Variable | | | Low | Below Average | Average | Above Average | High | Total |
|---|---|---|---|---|---|---|---|---|
| Gender | Girls | Count | 3 | 5 | 29 | 342 | 221 | 600 |
| | | % | 0.3% | 0.4% | 2.4% | 28.5% | 18.4% | 50.0% |
| | Boys | Count | 2 | 17 | 47 | 358 | 176 | 600 |
| | | % | 0.2% | 1.4% | 3.9% | 29.8% | 14.6% | 50.0% |
| Locality | Rural | Count | 5 | 8 | 43 | 336 | 208 | 600 |
| | | % | 0.4% | 0.7% | 3.6% | 28.0% | 17.3% | 50.0% |
| | Urban | Count | 0 | 14 | 33 | 364 | 189 | 600 |
| | | % | 0.0% | 1.2% | 2.8% | 30.3% | 15.8% | 50.0% |
| Population | LPD | Count | 4 | 3 | 14 | 120 | 109 | 250 |
| | | % | 0.3% | 0.3% | 1.2% | 10.0% | 9.1% | 20.8% |
| | HPD | Count | 1 | 19 | 62 | 580 | 288 | 950 |
| | | % | 0.1% | 1.6% | 5.2% | 48.3% | 24.0% | 79.2% |
| Total | | Count | 5 | 22 | 76 | 700 | 397 | 1200 |
| | | % | 0.4% | 1.8% | 6.3% | 58.3% | 33.1% | 100.0% |

**FIGURE 3.2**

**GRAPHICAL REPRESENTATION OF CLASSIFICATION OF SENIOR SECONDARY SCHOOL STUDENTS ON THEIR METACOGNITION**

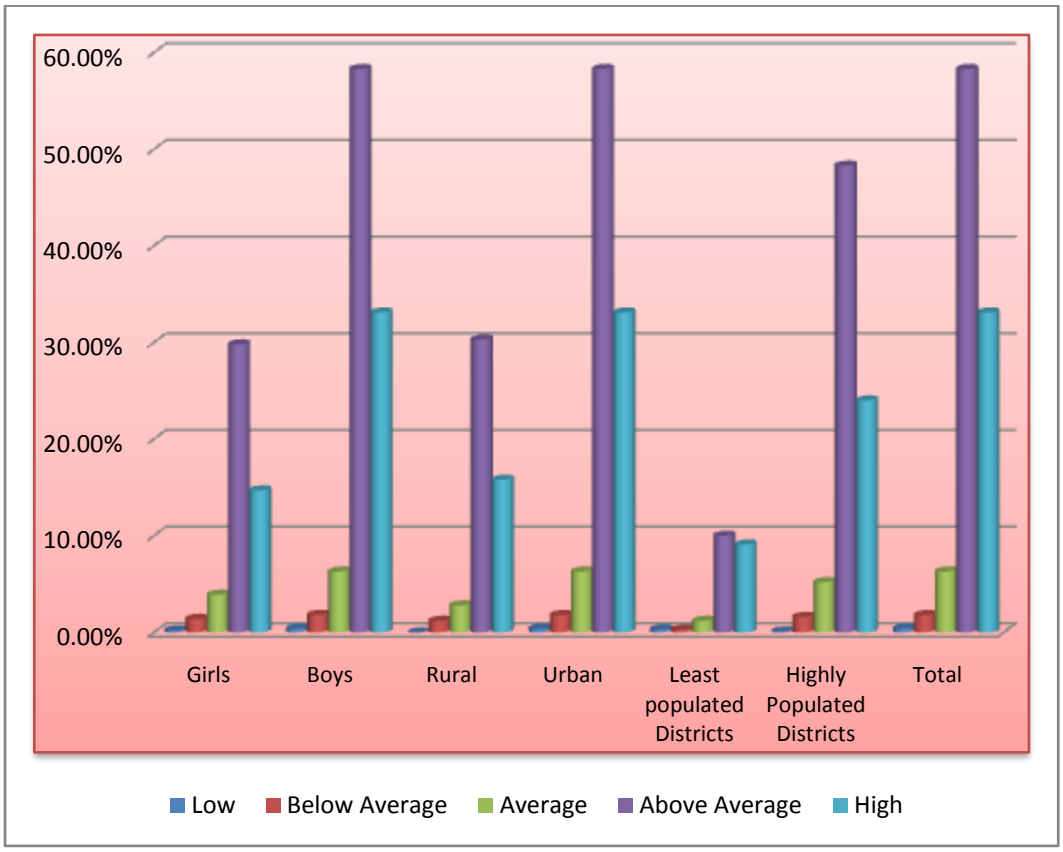



Table 3.5 shows the data relating to the percentage wise representation of senior secondary school students in academic resilience. Table is preceded by showing the percentage wise distribution of senior secondary students in different levels of academic resilience in gender, locality and population category.

A look at the Table 3.5 shows the gender wise distribution of senior secondary students, 0.3% senior secondary girls and 0.2% senior secondary boys possess low level of metacognition. Similarly 0.4% senior secondary girls and 1.4% senior secondary boys possess below average level of metacognition. It is also observed that 2.4% senior secondary girls and 3.9% senior secondary boys possess average level of metacognition. 28.5% senior secondary girls and 29.8% senior secondary boys possess above average level of metacognition. Only 18.4% senior secondary girls and 14.6% senior secondary boys possess high level of metacognition.

Referring to the above Table 3.5, it shows locality wise distribution of senior secondary students, 0.4% rural senior secondary students and no students from urban locality fall under low level of metacognition. In below average level, there are 0.7% senior secondary students from rural locality and 1.2% senior secondary students from urban locality fall under this level. Similarly, 3.6% senior secondary students from rural and 2.8% senior secondary students fall under average level of academic resilience. In above average level, there are 28% senior secondary students from rural and 30.3% senior secondary students from urban locality. 17.3% senior secondary students from rural and 15.8% senior secondary students from urban locality fall under high level of metacognition.

The Table 3.5 also indicates the percentage wise distribution of senior secondary students from least and highly populated districts in different levels of metacognition. In least populated districts, 0.3% senior secondary students fall under low level, 0.3% senior secondary students fall under below average level, 1.2% to the average level, 10% to the above average and 9.1% to the high level of metacognition. In highly populated districts 0.1% senior secondary students fall under low level, 1.6% to the below average level, 5.2% to the average level, 48.3% to the above average and 824% to the high level of metacognition.

In total, 0.4% senior secondary students fall under low level of metacognition, 1.8% to the below average level, 6.3% to the average level, 58.3% to the above average level and 33.1% to the high level of metacognition. Most of the senior secondary student falls under the above average level of metacognition.

**DISCUSSION ON RESULT**

It can be concluded that from gender point of view, majority of senior secondary boys and girls possess above average level of metacognition. In a same way, majority of senior secondary students from rural and urban localities fall under above average level of metacognition. Similarly from population point of view, majority of senior secondary school students from least populated districts and highly populated districts possess above average level of metacognition. So, in total, majority of senior secondary school students fall under above average level of metacognition.

### 3.1.3 Self efficacy of senior secondary school students

In the present study, Objective 2 was to identify the level of self-efficacy of senior secondary school students. This section deals with the data relating to the self –efficacy of the senior secondary school students based on gender, locality and population. Presentation of the data follows the below given in Table 3.6 and Figure 3.3.

**TABLE 3.6**

**CLASSIFICATION OF SENIOR SECONDARY SCHOOL STUDENTS ON THEIR SELF EFFICACY**

| Variable | | | Poor | Average | High | Total |
|---|---|---|---|---|---|---|
| Gender | Girls | Count | 124 | 277 | 199 | 600 |
| | | % | 10.30% | 23.10% | 16.60% | 50.00% |
| | Boys | Count | 124 | 280 | 196 | 600 |
| | | % | 10.30% | 23.30% | 16.30% | 50.00% |
| Locality | Rural | Count | 125 | 268 | 207 | 600 |
| | | % | 10.40% | 22.30% | 17.30% | 50.00% |
| | Urban | Count | 123 | 289 | 188 | 600 |
| | | % | 10.30% | 24.10% | 15.70% | 50.00% |
| Population | LPD | Count | 60 | 109 | 81 | 250 |
| | | % | 5.00% | 9.10% | 6.80% | 20.80% |
| | HPD | Count | 188 | 448 | 314 | 950 |
| | | % | 15.70% | 37.30% | 26.20% | 79.20% |
| Total | | Count | 248 | 557 | 395 | 1200 |
| | | % | 20.70% | 46.40% | 32.90% | 100.00% |

**FIGURE 3.3**

**GRAPHICAL REPRESENTATION OF CLASSIFICATION OF SENIOR SECONDARY SCHOOL STUDENTS ON THEIR SELF EFFICACY**

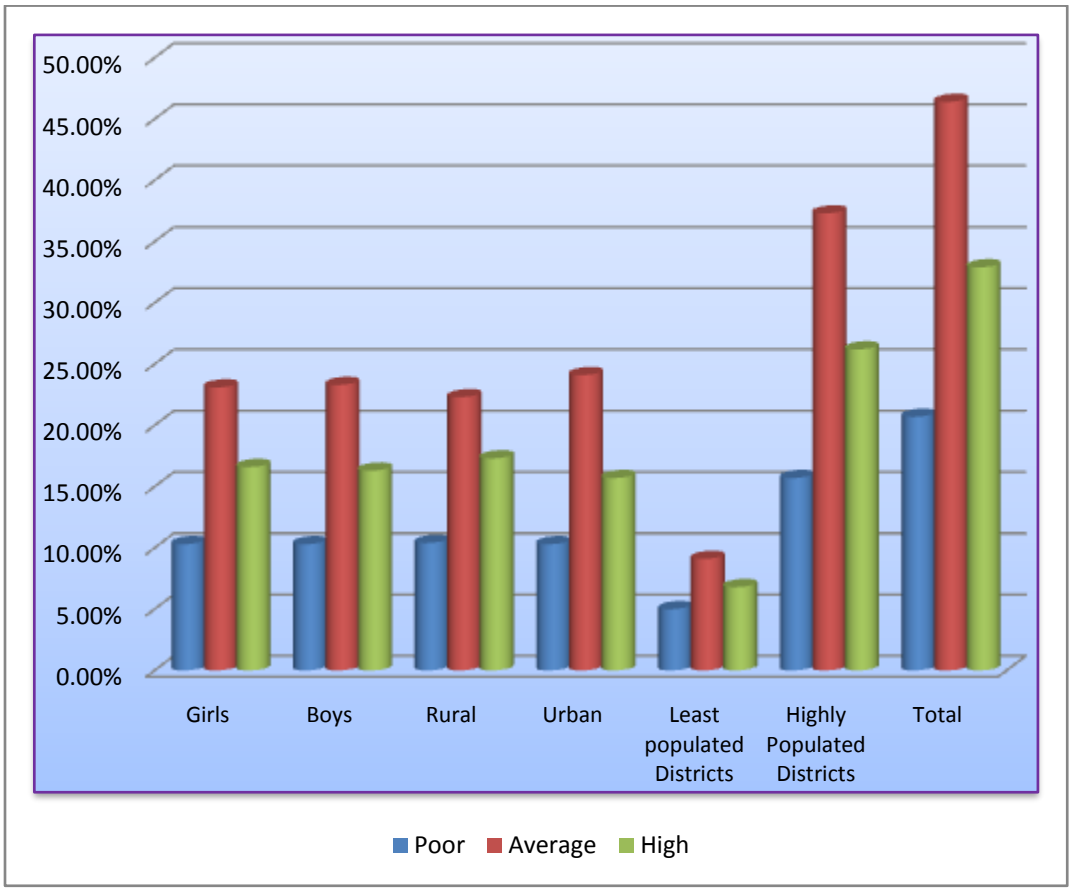



Table 3.6 shows the data relating to the percentage wise representation of senior secondary school students in self efficacy. Table is preceded by showing the percentage wise distribution of senior secondary students in different levels of self efficacy in gender, locality and population category.

A look at the Table 3.6 shows the gender wise distribution of senior secondary students, 10.3% senior secondary girls and similarly, 10.3% senior secondary boys possess poor level of self efficacy. It is also observed that 23.1% senior secondary girls and 23.3% senior secondary boys possess average level of self efficacy. In the same way, 16.6% senior secondary girls and 16.3% senior secondary boys possess high level of self efficacy.

Referring to the above Table 3.6, it shows locality wise distribution of senior secondary students, 10.4% rural senior secondary students and 10.3% urban senior secondary students fall under poor level of self efficacy. In average level, there are 22.3% senior secondary students from rural locality and 24.1% senior secondary students from urban locality fall under this level. Similarly, 17.3% senior secondary students from rural and 15.7% senior secondary students fall under high level of self efficacy.

The Table 3.6 also indicates the percentage wise distribution of senior secondary students from least and highly populated districts in different level of self efficacy. In least populated districts, 5% senior secondary students fall under poor level, 9.1% senior secondary students fall under average level, 6.8% to the high level of self efficacy. In highly populated districts 15.7% senior secondary students fall under poor level, 37.3% to the average level, 26.2% to the high level of self efficacy.

In total, 20.7% senior secondary students fall under poor level of self efficacy, 46.4% to the average level, 32.9% to the high level of self efficacy. Most of the senior secondary students fall under the average level of metacognition.

**DISCUSSION ON RESULT**

It can be concluded that from gender point of view, majority of senior secondary boys and girls possess average level of self efficacy. In a same way, majority of senior secondary students from rural and urban localities fall under average level of self efficacy. From population point of view, majority of senior secondary school students from least and highly populated districts possess average level of self efficacy. In total, majority of senior secondary school students fall under average level of self efficacy.

### 3.1.4 Learning Environment of senior secondary school students

One of the other part of Objective 2 was to identify the level of learning environment of senior secondary school students. This section deals with the data relating to the learning environment of the senior secondary school students based on gender, locality and population. Presentation of the data follows the below given in Table 3.7 and figure 3.4.

**TABLE 3.7**

**CLASSIFICATION OF SENIOR SECONDARY SCHOOL STUDENTS ON THEIR LEARNING ENVIRONMENT**

| Variable | | | Unfavourable | Moderate | Favourable | Total |
|---|---|---|---|---|---|---|
| Gender | Girls | Count | 70 | 421 | 109 | 600 |
| | | % | 5.80% | 35.08% | 9.08% | 50.00% |
| | Boys | Count | 105 | 395 | 100 | 600 |
| | | % | 8.80% | 32.91% | 8.33% | 50.00% |
| Locality | Rural | Count | 100 | 397 | 103 | 600 |
| | | % | 8.33% | 33.08% | 8.58% | 50.00% |
| | Urban | Count | 75 | 419 | 106 | 600 |
| | | % | 6.25% | 34.91% | 8.83% | 50.00% |
| Population | LPD | Count | 38 | 136 | 76 | 250 |
| | | % | 3.16% | 11.33% | 6.33% | 20.80% |
| | HPD | Count | 137 | 680 | 133 | 950 |
| | | % | 11.41% | 56.6% | 11.08% | 79.20% |
| Total | | Count | 175 | 816 | 209 | 1200 |
| | | % | 14.60% | 68.00% | 17.40% | 100.00% |

**FIGURE 3.4**

**GRAPHICAL REPRESENTATION OF CLASSIFICATION OF SENIOR SECONDARY SCHOOL STUDENTS ON THEIR LEARNING ENVIRONMENT**

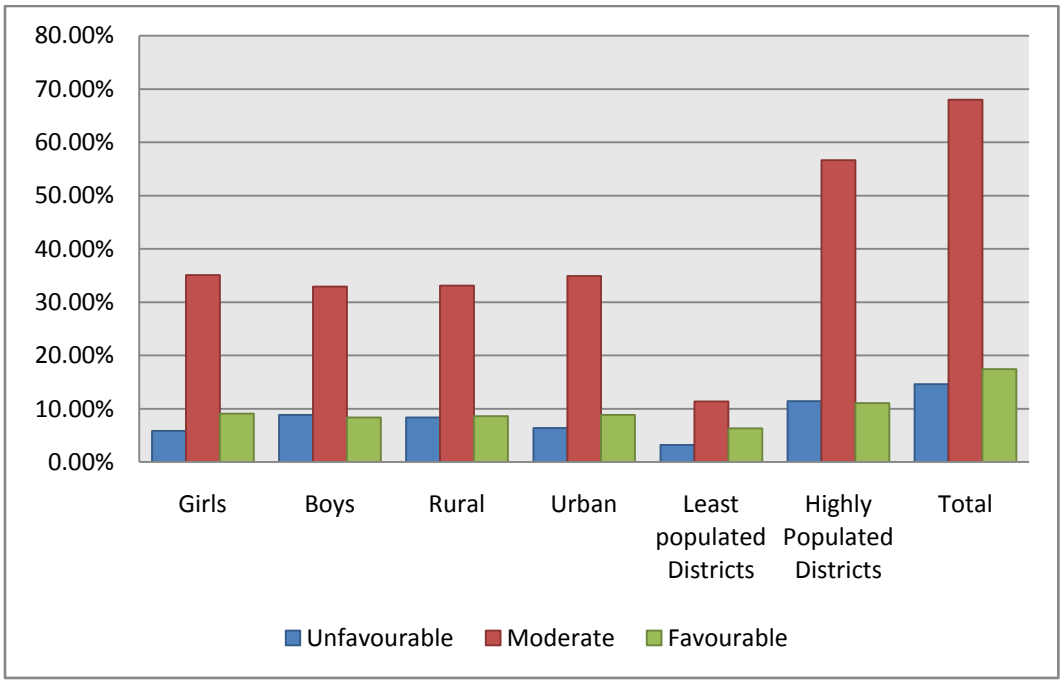


Table 3.7 shows the data relating to the percentage wise representation of senior secondary school students in different learning environment. Table is preceded by showing the percentage wise distribution of senior secondary students in different levels of learning environment in gender, locality and population category.

A look at the Table 3.7 shows the gender wise distribution of senior secondary students. 5.8% senior secondary girls and 8.8% senior secondary boys perceive their learning environment as unfavourable. Similarly, 35.08% senior secondary girls and 32.91% senior secondary boys perceived learning environment as moderate. It is also observed that 9.08% senior secondary girls and 8.33% senior secondary boys perceived learning environment as favourable.

Referring to the above Table 3.7, it shows locality wise distribution of senior secondary students, 8.3% rural senior secondary students and 6.25% urban senior secondary students fall under unfavourable learning environment. In moderate learning environment, there are 33.08% senior secondary students from rural locality and 34.91% senior secondary students from urban locality. Similarly, 8.58% senior secondary students from rural and 8.83% senior secondary students fall under favourable learning environment.

The Table 3.7 also indicates the percentage wise distribution of senior secondary students from least and highly populated districts in different learning environment. In least populated districts, 3.16% senior secondary students fall under unfavourable, 11.33% senior secondary students fall under moderate, 6.33% to the favourable learning environment. In highly populated districts 11.41% senior secondary students fall under unfavourable, 56.6% to the moderate, 17.08% to the favourable learning environment.

In total, 14.6% senior secondary students fall under unfavourable learning environment, 68% senior secondary students fall under moderate, and 17.4% to the favourable learning environment. Most of the senior secondary students fall under the moderate learning environment.

**DISCUSSION ON RESULT**

It can be concluded that from gender point of view, majority of senior secondary boys and girls perceive moderate learning environment. Similarly, from locality point of view, majority of senior secondary students from both rural and urban localities fall under moderate learning environment. From population point of view also, majority of senior secondary school students from least and highly populated districts possess moderate learning environment. In total, majority of senior secondary school students fall under moderate learning environment.

## 3.2 Influence of gender, locality and population on the Academic Resilience, Metacognition, Self Efficacy and Learning Environment of senior secondary school students

To study the significant differences on the scores of academic resilience, metacognition, self efficacy and learning environment, three way ANOVA (2x2x2 factorial design i.e. Locality viz. rural and urban, Gender viz. boys and girls and Population viz. least populated districts and highly populated districts) has been applied. The data has been analysed using univariate analysis of variance under following headings.

3.2.1 Influence of locality, gender and population on Academic Resilience

3.2.2 Influence of locality, gender and population on Metacognition

3.2.3 Influence of locality, gender and population on Self efficacy

3.2.4 Influence of locality, gender and population on Learning Environment

### 3.2.1 Influence of locality, gender and population on Academic Resilience

The analysis has been done using independent variables i.e. locality, gender and population on the Academic Resilience. The distribution of sample w.r.t locality, gender and population are presented below in Table 3.8.

**TABLE 3.8**

**DISTRIBUTION OF STUDENTS w.r.t LOCALITY, GENDER AND POPULATION**

| Variable | Value Label | N |
|---|---|---|
| Locality | Rural | 600 |
| | Urban | 600 |
| Gender | Girls | 600 |
| | Boys | 600 |
| Population | Least populated Districts | 250 |
| | Highly Populated Districts | 950 |

To study the academic resilience of the boys and girls senior secondary school students from rural and urban localities of least and highly populated districts, means and standard deviations were calculated for different dimensions and the total score of academic resilience is presented below in the Table 3.9.

**TABLE 3.9**

**MEANS, N AND SDs OF VARIOUS DIMENSIONS AND TOTAL ACADEMIC RESILIENCE w.r.t. LOCALITY, GENDER AND POPULATION**

| ACADEMIC RESILIENCE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Locality** | **Gender** | **Population** | | **AC** | **SW** | **MA** | **RP** | **ER** | **AR Total** |
| Rural | Girls | LPD | M= | 31.08 | 40.56 | 39.76 | 39.69 | 53.06 | 204.16 |
| | | N= 62 | **σ**= | 2.62 | 4.135 | 4.67 | 4.738 | 6.663 | 18.387 |
| | | HPD | M= | 31.25 | 39.06 | 37.91 | 37.19 | 52.3 | 197.7 |
| | | N= 237 | **σ**= | 2.7 | 5.047 | 7.21 | 6.066 | 6.379 | 15.701 |
| | | TOTAL | M= | 31.21 | 39.37 | 38.29 | 37.71 | 52.45 | 199.04 |
| | | N= 299 | **σ**= | 2.68 | 4.904 | 6.801 | 5.897 | 6.435 | 16.472 |
| | Boys | LPD | M= | 31.21 | 40.4 | 40.35 | 38.49 | 54.25 | 204.7 |
| | | N= 63 | **σ**= | 3.21 | 4.25 | 5.98 | 5.149 | 7.048 | 21.602 |
| | | HPD | M= | 31.07 | 38.74 | 39.53 | 37.69 | 52.67 | 199.7 |
| | | N= 238 | **σ**= | 3.45 | 5.638 | 5.98 | 5.923 | 7.397 | 19.137 |
| | | TOTAL | M= | 31.16 | 39.08 | 39.7 | 37.86 | 53 | 200.75 |
| | | N= 301 | **σ**= | 3.065 | 5.414 | 5.986 | 5.771 | 7.343 | 19.746 |
| | Total | LPD | M= | 31.14 | 40.48 | 40.06 | 39.09 | 53.66 | 204.43 |
| | | N=125 | **σ**= | 2.926 | 4.179 | 5.363 | 4.966 | 6.858 | 19.993 |
| | | HPD | M= | 31.16 | 38.9 | 38.72 | 37.44 | 52.48 | 198.7 |
| | | N=475 | **σ**= | 3.104 | 5.348 | 6.671 | 5.994 | 6.903 | 17.517 |
| | | TOTAL | M= | 31.16 | 39.23 | 39 | 37.78 | 52.73 | 199.9 |
| | | N=600 | **σ**= | 3.065 | 5.16 | 6.439 | 5.82 | 6.905 | 18.19 |
| **ACADEMIC RESILIENCE** | | | | | | | | | |
| **Locality** | **Gender** | **Population** | | **AC** | **SW** | **MA** | **RP** | **ER** | **AR Total** |
| Urban | Girls | LPD | M= | 31.76 | 41.02 | 41.51 | 38.75 | 54.37 | 207.4 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | N= 63 | **σ**= | 2.8 | 3.61 | 3.53 | 5.006 | 5.507 | 14.991 |
| | | HPD | M= | 30.82 | 40.08 | 38.33 | 36.02 | 53.22 | 198.47 |
| | | N= 238 | **σ**= | 3.41 | 4.65 | 5.79 | 6.408 | 6.378 | 16.63 |
| | | TOTAL | M= | 31.01 | 40.28 | 39 | 36.59 | 53.46 | 200.34 |
| | | N= 301 | **σ**= | 3.317 | 4.469 | 5.547 | 6.233 | 6.215 | 16.678 |
| | Boys | LPD | M= | 31.48 | 40 | 40.11 | 37.69 | 52.23 | 201.52 |
| | | N= 63 | **σ**= | 3.49 | 4.58 | 3.926 | 5.104 | 6.713 | 18.891 |
| | | HPD | M= | 31.78 | 40.64 | 40.35 | 38.05 | 53.04 | 203.86 |
| | | N= 237 | **σ**= | 3.48 | 4.705 | 4.56 | 5.074 | 6.21 | 18.664 |
| | | TOTAL | M= | 31.72 | 40.51 | 40.3 | 37.98 | 52.87 | 203.38 |
| | | N= 299 | **σ**= | 3.48 | 4.68 | 4.433 | 5.074 | 6.315 | 18.704 |
| | Total | LPD | M= | 31.62 | 40.51 | 40.82 | 38.22 | 53.3 | 204.48 |
| | | N=125 | **σ**= | 3.154 | 4.14 | 3.783 | 5.062 | 6.204 | 17.223 |
| | | HPD | M= | 31.3 | 40.36 | 39.34 | 37.04 | 53.13 | 201.16 |
| | | N=475 | **σ**= | 3.483 | 4.684 | 5.308 | 5.864 | 6.289 | 17.861 |
| | | TOTAL | M= | 31.37 | 40.39 | 39.65 | 37.28 | 53.17 | 201.85 |
| | | N=600 | **σ**= | 3.417 | 4.573 | 5.061 | 5.723 | 6.266 | 17.767 |
| Total | Girls | LPD | M= | 31.42 | 40.79 | 40.64 | 39.22 | 53.72 | 205.79 |
| | | N=125 | **σ**= | 2.728 | 3.874 | 4.217 | 4.878 | 6.118 | 16.772 |
| | | HPD | M= | 31.03 | 39.57 | 38.12 | 36.6 | 52.76 | 198.09 |
| | | N=475 | **σ**= | 3.087 | 4.877 | 6.537 | 6.26 | 6.388 | 16.161 |
| | | TOTAL | M= | 31.11 | 39.83 | 38.64 | 37.15 | 52.96 | 199.69 |
| | | N=600 | **σ**= | 3.018 | 4.708 | 6.209 | 6.088 | 6.34 | 16.575 |
| | Boys | LPD | M= | 31.34 | 40.2 | 40.23 | 38.1 | 53.25 | 203.12 |
| | | N=125 | **σ**= | 3.344 | 4.407 | 5.05 | 5.122 | 6.931 | 20.284 |
| | | HPD | M= | 31.43 | 39.68 | 39.94 | 37.87 | 52.85 | 201.78 |
| | | N=475 | **σ**= | 3.488 | 5.275 | 5.335 | 5.513 | 6.826 | 18.997 |
| | | TOTAL | M= | 31.41 | 39.79 | 40 | 37.92 | 52.94 | 19.26 |
| | | N=600 | **σ**= | 3.456 | 5.107 | 5.274 | 5.43 | 6.844 | 202.06 |
| | Total | LPD | M= | 31.38 | 40.5 | 40.44 | 38.66 | 53.48 | 204.46 |
| | | N=250 | **σ**= | 3.045 | 4.15 | 4.64 | 5.02 | 6.52 | 18.62 |
| | | HPD | M= | 31.23 | 39.63 | 39.03 | 37.24 | 52.81 | 199.93 |
| | | N=950 | **σ**= | 3.29 | 5.07 | 6.03 | 5.93 | 6.6 | 17.72 |
| | | TOTAL | M= | 31.26 | 39.81 | 39.32 | 37.53 | 52.95 | 200.87 |
| | | N=1200 | **σ**= | 3.24 | 4.91 | 5.79 | 5.77 | 6.59 | 18 |

**AC**=Academic Confidence, **SW**=Sense of Wellbeing, **MA**=Motivation and Ability to get goals, **RP**=Relationship with peers and adults, **ER**=Emotional Regulation and Physical Health, **AR TOTAL**=Academic Resilience Total

**FIGURE 3.5**

**GRAPHICAL REPRESENTATION OF VARIOUS DIMENSIONS OF ACADEMIC RESILIENCE WITH RESPECT TO LOCALITY, GENDER AND POPULATION**

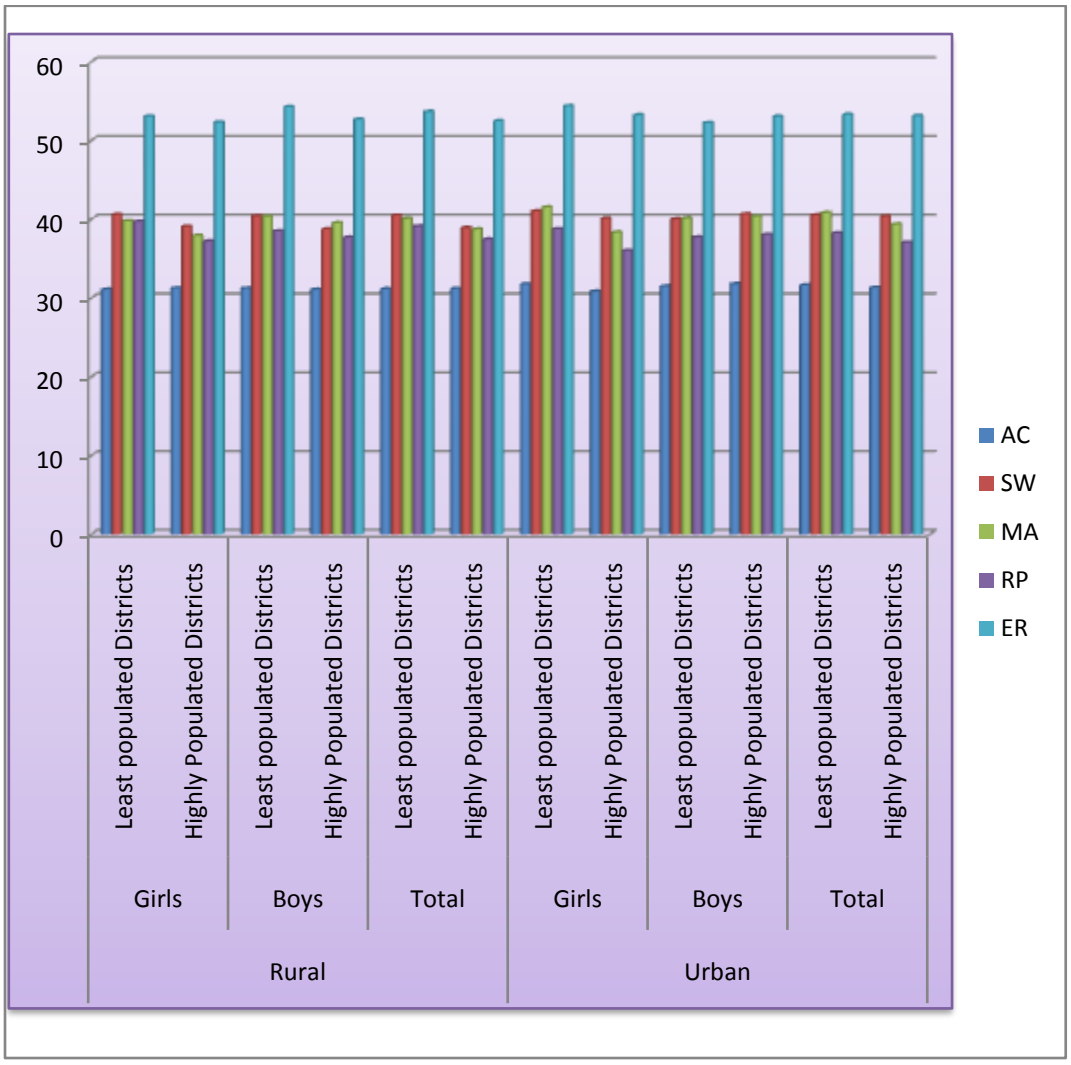
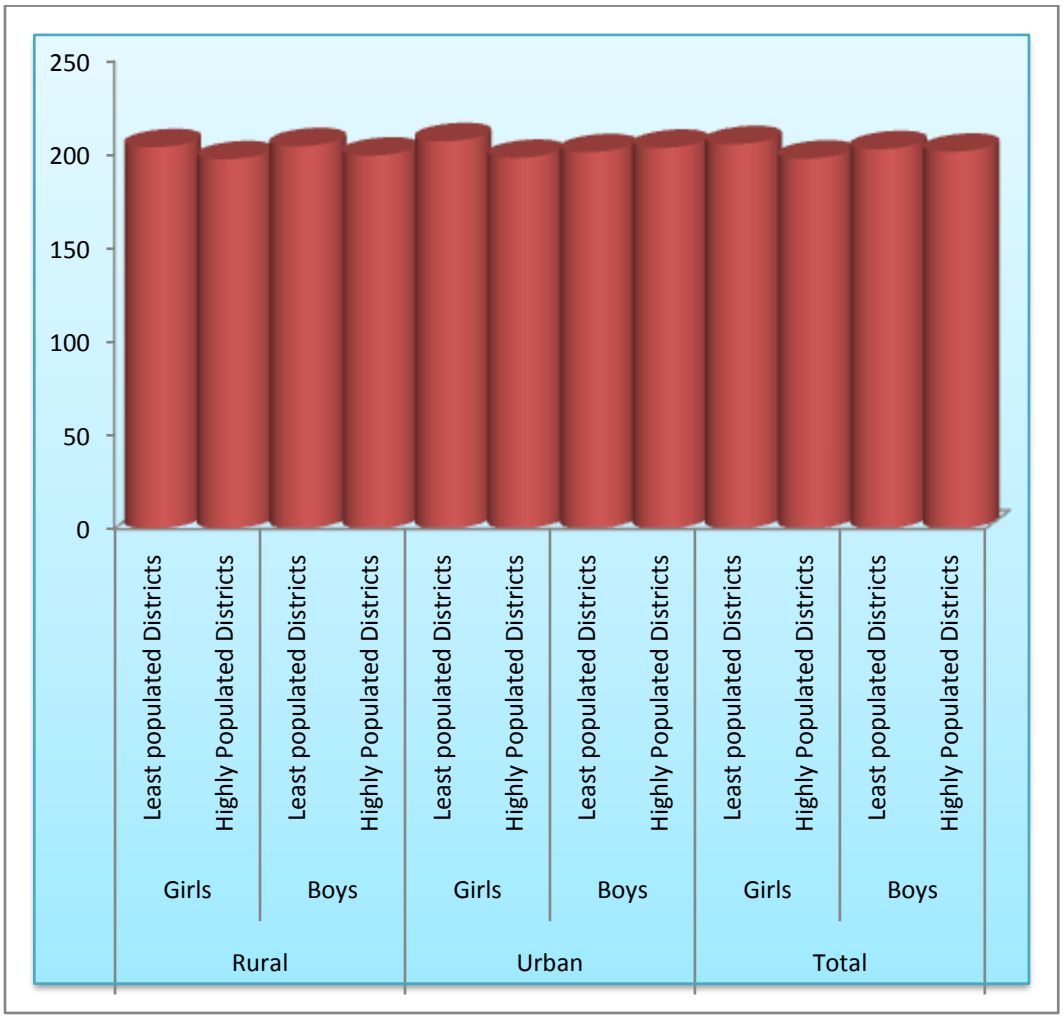


**FIGURE 3.6**

**GRAPHICAL REPRESENTATION OF ACADEMIC RESILIENCE TOTAL WITH RESPECT TO LOCALITY, GENDER AND POPULATION**




In order to analyze the variance of various dimensions and total score of academic resilience of the boys and girls of senior secondary school from rural and urban localities of least and highly populated districts, the obtained scores were subjected to ANOVA and the results have been presented in the Table 3.10.

**TABLE 3.10**

**SUMMARY OF 2X2X2 DESIGN WITH RESPECT TO VARIOUS DIMENSIONS AND TOTAL ACADEMIC RESILIENCE IN RELATION TO LOCALITY, GENDER AND POPULATION**

| | | Academic Confidence | | | Sense of Well Being | | | Motivation &Ability to get goals | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Source** | **df** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** |
| **L** | 1 | 18.839 | 18.839 | 1.798 | 109.63 | 109.63 | 4.64* | 93.877 | 93.877 | 2.875 |
| **G** | 1 | 4.997 | 4.997 | 0.477 | 11.363 | 11.363 | 0.481 | 99.823 | 99.823 | 3.058 |
| **P** | 1 | 4.704 | 4.704 | 0.449 | 147.862 | 147.862 | 6.258* | 388.615 | 388.615 | 11.903** |
| **L*G** | 1 | 6.76 | 6.76 | 0.645 | 0.013 | 0.013 | 0.001 | 31.441 | 31.441 | 0.963 |
| **L*P** | 1 | 5.777 | 5.777 | 0.551 | 101.745 | 101.745 | 4.306* | 0.917 | 0.917 | 0.028 |
| **G*P** | 1 | 10.936 | 10.936 | 1.043 | 24.545 | 24.545 | 1.039 | 244.787 | 244.787 | 7.498** |
| **L*G*P** | 1 | 29.591 | 29.591 | 2.824 | 36.989 | 36.989 | 1.565 | 69.947 | 69.947 | 2.143 |
| **Error** | 1192 | 12492.38 | 10.48 | | 28164.79 | 23.628 | | 38915.54 | 32.647 | |
| **Total** | 1200 | 1185321 | | | 1930706 | | | 1895892 | | |
| | | **Relationship with Peers and Adults** | | | **Emotional Regulation and Physical Health** | | | **Academic Resilience Total** | | |
| **Source** | **df** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** |
| **L** | 1 | 80.374 | 80.374 | 2.459 | 4.014 | 4.014 | 0.092 | 307.588 | 307.588 | 0.97 |
| **G** | 1 | 1.022 | 1.022 | 0.031 | 7.021 | 7.021 | 0.162 | 52.087 | 52.087 | 0.164 |
| **P** | 1 | 397.711 | 397.711 | 12.168** | 89.189 | 89.189 | 2.055 | 4023.201 | 4023.201 | 12.687** |
| **L*G** | 1 | 34.712 | 34.712 | 1.062 | 185.992 | 185.992 | 4.286* | 113.162 | 113.162 | 0.357 |
| **L*P** | 1 | 10.998 | 10.998 | 0.336 | 50.714 | 50.714 | 1.169 | 294.59 | 294.59 | 0.929 |
| **G*P** | 1 | 284.444 | 284.444 | 8.702** | 16.251 | 16.251 | 0.374 | 2007.363 | 2007.363 | 6.33* |
| **L*G*P** | 1 | 23.461 | 23.461 | 0.718 | 95.575 | 95.575 | 2.202 | 1190.59 | 1190.59 | 3.755 |
| **Error** | 1192 | 38961.66 | 32.686 | | 51731.44 | 43.399 | | 377986.7 | 317.103 | |
| **Total** | 1200 | 1730548 | | | 3416263 | | | 48809412 | | |

*** Significant at 0.05 level of Confidence; ** Significant at 0.01 level of Confidence;**
**F value at (1, 1192) df: 3.85 (0.05 level); 6.66 (0.01 level)**

**MAIN EFFECTS**

**Locality**

It has been observed from the Table 3.10 that F-ratio for the differences in 'Sense of Well Being' dimension of academic resilience of senior secondary students from rural and urban areas has been found to be 4.640, which is found to be significant at the 0.01 level of confidence. This indicates that two groups of secondary school students differ significantly on their scores of sense of wellbeing dimension of academic resilience. Thus data provide sufficient evidence to reject the hypothesis 1, "There exists no significant difference between rural and urban senior secondary students in their academic resilience" for sense of well being dimension of academic resilience. From reviewing the corresponding means in the Table 3.9, it is found that senior secondary school students from urban areas (40.39) had scored more on sense of wellbeing dimension of academic resilience than senior secondary school students from rural areas (39.23). This means that urban students have positive state of mind that enables them to function effectively and have positive relationship with peers and teachers and they are better in their academic self concept, attentiveness in the class and positive self attitude in adverse conditions as compared to their rural counterparts.

However, F ratio for the differences in 'Academic Confidence', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults', 'Emotional Regulation and Physical Health' dimensions of academic resilience and total score of academic resilience of rural and urban senior secondary students are not found to be significant even at the 0.05 level of confidence. This indicates that two groups rural and urban senior secondary students do not differ significantly on their scores on 'Academic Confidence', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults', 'Emotional Regulation and Physical Health' dimensions of Academic Resilience and total score of Academic resilience. Thus the data did not provide sufficient evidence to reject the hypothesis 1, "There exists no significant difference between rural and urban senior secondary students in their academic resilience" for 'Academic

Confidence', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults', 'Emotional Regulation and Physical Health' dimensions of academic resilience. Meaning thereby that students from rural and urban areas do not differ in their abilities to achieve their goals or aims even in challenging or difficult conditions. Even they do not differ in their motivation to achieve their targets. They equally maintain positive relationship with teachers and peers in those situations. They do not differ in understanding and balancing their emotions in order to stay effective under pressure.

**Gender**

It has been observed from the Table 3.10 that F-ratio for the differences in 'Academic Confidence', 'Sense of Well Being', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults', 'Emotional Regulation and Physical Health' dimensions of academic resilience and total score of academic resilience of boys and girls senior secondary students are found to be 0.477, 0.481, 3.058, 0.031, 0.162 and 0.164,which are not found to be significant even at the 0.05 level of confidence. This indicates that senior secondary boys and girls do not differ significantly on the scores on 'Academic Confidence', 'Sense of Well Being', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults', 'Emotional Regulation and Physical Health' dimensions of Academic Resilience and total score of Academic resilience of rural and urban senior secondary students. Thus data did not provide sufficient evidence to reject the hypothesis 2, "There exists no significant difference between senior secondary boys and girls in their academic resilience" for 'Academic Confidence', 'Sense of Well Being', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults', 'Emotional Regulation and Physical Health' dimensions of Academic Resilience and total score of Academic resilience. Meaning thereby that senior secondary boys and girls does not differ in their academic resilience.

**Population**

It has been observed from the Table 3.10 that F-ratio for the differences in 'Sense of Well Being', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults' dimensions of academic resilience and total score of academic

resilience of senior secondary students are found to be 6.25, 11.90, 12.16, and 12.68, which are found to be significant either at 0.01 and 0.05 level of confidence. This indicates that senior secondary students from two groups of least and highly populated districts differ significantly on their scores of 'Sense of Well Being', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults' dimensions of academic resilience and total score of academic resilience. Thus, the data provides sufficient evidence to reject the hypothesis 3, "There exists no significant difference between senior secondary students from least and highly populated districts" for 'Sense of Well Being', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults' dimensions of academic resilience and total score of academic resilience. From reviewing the corresponding means in the Table 3.9, it is found that senior secondary school students from least populated districts (40.51) had scored more on sense of wellbeing dimension of academic resilience than senior secondary school students from highly populated districts (39.63). This means that senior secondary school students from least populated districts are having positive state of mind that enables them to function effectively and have positive relationship with peers and teachers and they are better in their academic self concept, attentiveness in the class and positive self attitude in adverse conditions. They have better internal psychological drive to work with diligence in challenging situations. They maintain strong relationship with teachers and peers to remain secure in the school environment than the senior secondary school students from highly populated districts.

From reviewing the corresponding means in the Table 3.9, it is found that senior secondary school students from least populated districts (40.44) had scored more on 'Motivation and Ability to get goals' dimension of academic resilience than senior secondary school students from highly populated districts (39.03). This means that senior secondary students from least populated districts are having better internal psychological drive to work with diligence in challenging situations than senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.9, it is found that senior secondary school students from least populated districts (38.66) had scored more on 'Relationship with peers and adults' dimension of academic resilience than senior secondary school students from highly populated districts (37.24). This means that senior secondary students from least populated districts are good in maintaining strong and positive relationship with teachers and peers to remain secure in the school environment as compared to senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.9, it is found that senior secondary school students from least populated districts (204.46) had scored more in total 'Academic Resilience' than senior secondary school students from highly populated districts (199.93). This means that senior secondary students from least populated districts are more academically confident, having better sense of well being, motivation & ability to get goals, good in maintaining relationships with peers and adults, physically sound and better in balancing their emotions in challenging situations as compared to senior secondary students from highly populated districts.

However, F ratio for the differences in 'Academic Confidence', 'Emotional Regulation and Physical Health' dimensions of academic resilience of senior secondary students are not found to be significant even at the 0.05 level of confidence. This indicates that two groups i.e. senior secondary students from least populated and highly populated districts do not differ significantly on their scores on 'Academic Confidence', and 'Emotional Regulation and Physical Health' dimensions of Academic Resilience. Thus data did not provide sufficient evidence to reject the hypothesis 3, "There exists no significant difference between senior secondary students from least and highly populated districts" for 'Academic Confidence', 'Emotional Regulation and Physical Health' dimensions of academic resilience. Meaning thereby that senior secondary students from least and highly populated districts do not differ in their academic confidence, physical health and emotional regulation.

## TWO ORDER INTERACTION

### Gender X Locality

It has been observed from the Table 3.10, that F-ratio for the interaction between gender and locality of senior secondary school students on 'Emotional regulation and physical health' dimension of academic resilience is found to be 4.29, which is significant at the 0.05 level of confidence.

To further analyze the significant difference between various sub groups, t-test have been applied on the 'Emotional regulation and physical health' dimension of academic resilience and obtained results are presented in the Table 3.11.

**TABLE 3.11**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'EMOTIONAL REGULATION AND PHYSICAL HEALTH' DIMENSION OF ACADEMIC RESILIENCE**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Urban Boys | M=52.87 | Rural Boys | M=53 | |
| | SD=6.31 | | SD=7.34 | |
| | N=299 | | N=301 | 0.23 |
| Urban Boys | M=52.87 | Urban Girls | M=53.46 | 1.15 |
| | SD=6.31 | | SD=6.21 | |
| | N=299 | | N=301 | |
| Urban Boys | M=52.87 | Rural Girls | M=52.45 | 0.8 |
| | SD=6.31 | | SD=6.43 | |
| | N=299 | | N=299 | |
| Rural Boys | M=53 | Urban Girls | M=53.46 | 0.83 |
| | SD=7.34 | | SD=6.21 | |
| | N=301 | | N=301 | |
| Rural Boys | M=53 | Rural Girls | M=52.45 | 0.97 |
| | SD=7.34 | | SD=6.43 | |
| | N=301 | | N=299 | |
| Urban Girls | M=53.46 | Rural Girls | M=52.45 | 1.96* |
| | SD=6.21 | | SD=6.43 | |
| | N=301 | | N=299 | |

*Significant at 0.05 level of confidence

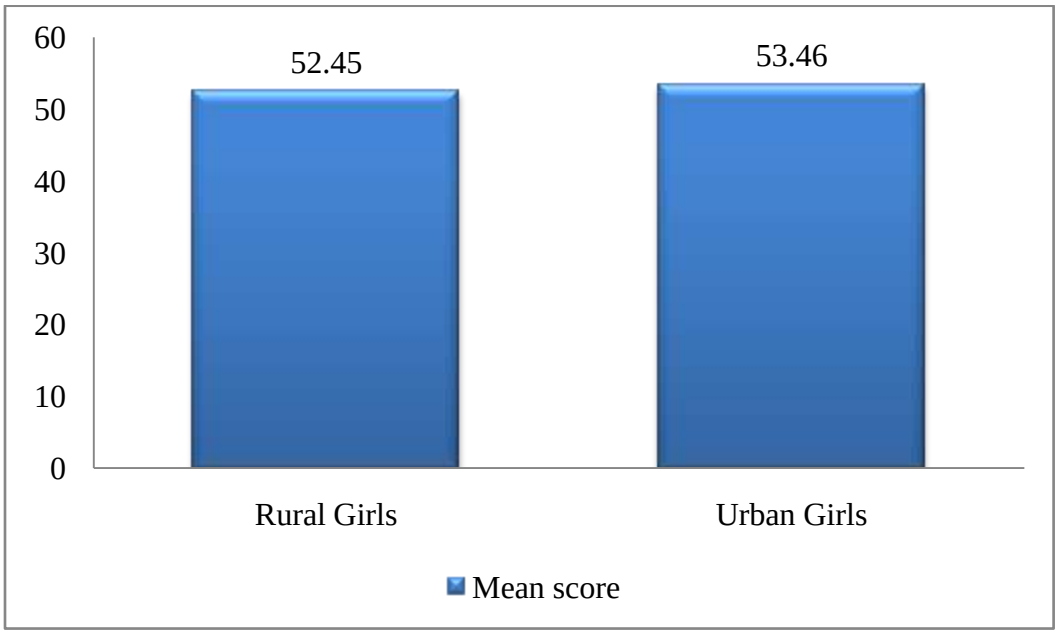
** Significant at 0.01 level of confidence

It has been observed from the Table 3.11 that the t value for one sub groups have been found to be significant at the 0.05 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 4, "There is no interaction effect of gender and locality on the scores of academic resilience of senior secondary students" for 'Emotional regulation and physical health' dimension of academic resilience.

It is clear from the mean analysis that senior secondary girl students from urban locality have scored (53.46) higher than senior secondary girls students from rural locality (52.45) on 'Emotional Regulation and Physical Health' dimension of academic resilience. Meaning thereby that senior secondary urban girl students are good in understanding and balancing their emotions to stay effective under pressure and they are more physically fit and sound than the senior secondary rural girl students. Mean scoreson the 'Emotional Regulation and Physical Health' dimension of academic resilience is shown in below given Figure 3.7.

**FIGURE 3.7**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'EMOTIONAL REGULATION AND PHYSICAL HEALTH' DIMENSION OF ACADEMIC RESILIENCE**



However, F-ratios for the interaction between gender and locality for 'Academic confidence', 'Sense of well being', 'Motivation and ability to get goals', 'Relationship with peers and adults' and total score of academic resilience is found to be not significant even at 0.05 level of confidence. This indicates that sub groups of senior secondary school students as a result of interaction of gender and locality do not differ significantly. Thus, the data did not provide sufficient evidence to reject the hypothesis 4, "There is no interaction effect of gender and locality on the scores of academic resilience of senior secondary students" for 'Academic confidence', 'Sense of well being', 'Motivation and ability to get goals', 'Relationship with peers and adults' and total score of academic resilience.

**Locality X Population**

It has been observed from the Table 3.10, that F-ratio for the interaction between locality and population of senior secondary school students on 'Sense of well being' dimension of academic resilience is found to be 4.306, which is significant at the 0.05 level of confidence.

To further analyze the significant difference between various groups, t-test has been applied on the 'Sense of well being' dimension of academic resilience and obtained results are presented in the Table 3.12.

**TABLE 3.12**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'SENSE OF WELL BEING' DIMENSION OF ACADEMIC RESILIENCE**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M= 40.48<br>SD= 4.17<br>N= 125 | Urban least populated districts | M= 40.51<br>SD= 4.14<br>N= 125 | 0.06 |
| Rural least populated districts | M= 40.48<br>SD= 4.17<br>N= 125 | Rural highly populated districts | M= 38.9<br>SD= 5.34<br>N=475 | 3.54 |
| Rural least populated districts | M= 40.48<br>SD= 4.17<br>N= 125 | Urban highly populated districts | M= 40.36<br>SD= 4.68<br>N= 475 | 0.28 |

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Urban least populated districts | M= 40.51<br>M= 4.14<br>N= 125 | Rural highly populated districts | M= 38.9<br>SD= 5.34<br>N=475 | 3.63 |
| Urban least populated districts | M= 40.51<br>M= 4.14<br>N= 125 | Urban highly populated districts | M= 40.36<br>SD= 4.68<br>N= 475 | 0.35 |
| Rural highly populated districts | M= 38.9<br>SD= 5.34<br>N=475 | Urban highly populated districts | M= 40.36<br>SD= 4.68<br>N= 475 | 4.48** |

*Significant at 0.05 level of confidence

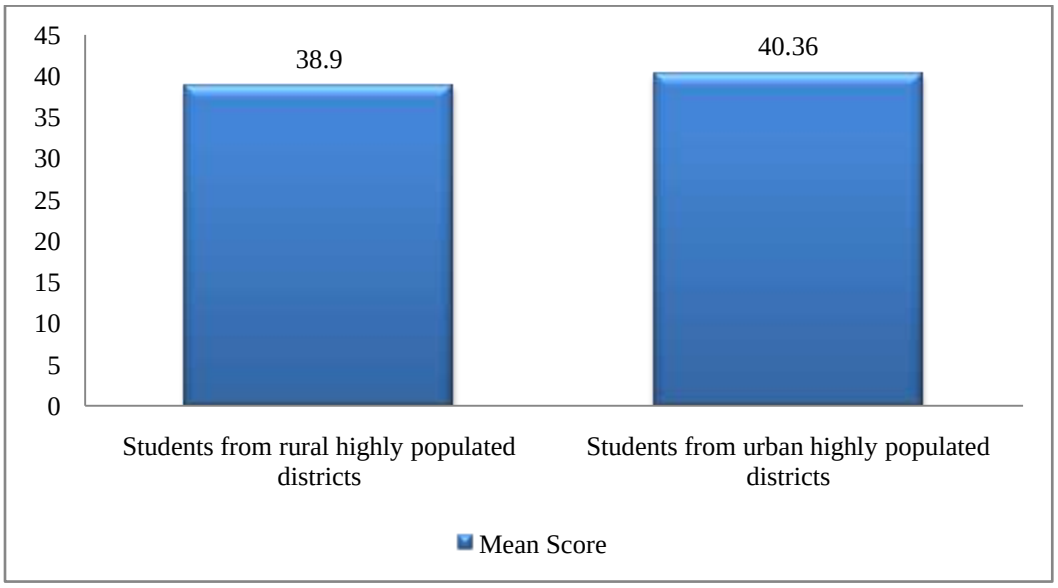
** Significant at 0.01 level of confidence

It has been observed from the Table 3.12 that the t value for one of the sub group have been found to be significant at the 0.01 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 5, "There is no interaction effect of locality and population on the scores of academic resilience of senior secondary students" for 'Sense of well being' dimension of academic resilience.

It is clear from the mean analysis that senior secondary students from urban highly populated districts have scored (40.36) higher than senior secondary students from rural highly populated districts (38.9) on 'Sense of well being' dimension of academic resilience. Meaning thereby that senior secondary school students from urban highly populated district are having positive state of mind that enables them to function effectively and have positive relationship with peers and teachers and they are better in their academic self concept, attentiveness in the class and positive self attitude in adverse conditions than the students from rural highly populated districts. Mean scoreson the 'Sense of Well Being' dimension of academic resilience is shown in below given Figure 3.8.

**FIGURE 3.8**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'SENSE OF WELL BEING'DIMENSION OF ACADEMIC RESILIENCE**




However, F-ratios for the interaction between locality and population for 'Academic confidence', 'Motivation and ability to get goals', 'Relationship with peers and adults', 'Emotional regulation and physical health' dimension and total score of academic resilience is found to be not significant even at 0.05 level of confidence. This indicates that sub groups of senior secondary school students as a result of interaction of locality and population for Academic confidence', 'Motivation and ability to get goals', 'Relationship with peers and adults', 'Emotional regulation and physical health' dimension and total score of academic resilience do not differ significantly. Thus, the data did not provide sufficient evidence to reject the hypothesis 5, "There is no interaction effect of locality and population on the scores of academic resilience of senior secondary students" for 'Academic confidence', 'Motivation and ability to get goals', 'Relationship with peers and adults', 'Emotional regulation and physical health' dimension and total score of academic resilience.

**Gender X Population**

It has been observed from the Table 3.10, that F-ratio for the interaction between gender and population of senior secondary school students on

'Motivation and Ability to get goals', 'Relationship with peers and adults' dimensions of academic resilience and total score of academic resilience is found to be 7.49, 8.70 and 6.33, which is significant at the 0.01 level of confidence.

To further analyze the significant difference between various groups, t-test has been applied on 'Motivation and Ability to get goals', 'Relationship with peers and adults' dimensions of academic resilience and total score of academic resilience and obtained results are presented in the Table 3.13, 3.14, 3.15.

**TABLE 3.13**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'MOTIVATION AND ABILITY TO GET GOALS' DIMENSION OF ACADEMIC RESILIENCE**

| **Groups** | **Parameter** | **Groups** | **Parameter** | **t value** |
|---|---|---|---|---|
| Girls from Least populated districts | M= 40.64<br>SD= 4.21<br>N= 125 | Girls from highly populated districts | M= 38.12<br>SD= 6.53<br>N= 475 | 5.24** |
| Girls from Least populated districts | M= 40.64<br>SD= 4.21<br>N= 125 | Boys from least populated districts | M= 40.23<br>SD= 5.05<br>N= 125 | 0.7 |
| Girls from Least populated districts | M= 40.64<br>SD= 4.21<br>N= 125 | Boys from Highly populated districts | M= 39.94<br>SD= 5.33<br>N= 475 | 1.56 |
| Girls from highly populated districts | M= 38.12<br>SD= 6.53<br>N= 475 | Boys from least populated districts | M= 40.23<br>SD= 5.05<br>N= 125 | 3.89** |
| Girls from highly populated districts | M= 38.12<br>SD= 6.53<br>N= 475 | Boys from Highly populated districts | M= 39.94<br>SD= 5.33<br>N= 475 | 4.71** |
| Boys from least populated districts | M= 40.23<br>SD= 5.05<br>N= 125 | Boys from Highly populated districts | M= 39.94<br>SD= 5.33<br>N= 475 | 0.56 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.13 that the t value for 3 sub groups was found to be significant at 0.01 level of confidence. It is clear that girls from least populated districts (40.64) have scored more than girls from highly populated districts (38.12) on 'Motivation and ability to get goals' dimension of academic resilience. Meaning thereby, that senior secondary girls from least populated districts has better internal psychological drive to work with diligence, in challenging and difficult tasks than the senior secondary girl students from highly populated districts.

From means analysis, in the Table 3.13, it is also clear that boys from least populated districts (40.23) and highly populated districts (39.94) have scored more than girls from highly populated districts (38.12) on 'Motivation and ability to get goals' dimension of academic resilience. Meaning thereby, that senior secondary boy students from least and highly populated districts are better in their internal psychological drive to work with diligence, in challenging and difficult tasks than the senior secondary girl students from highly populated districts. Mean scoreson the 'Motivation and Ability to get goals' dimension of academic resilience is shown in below given Figure 3.9.

**FIGURE 3.9**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'MOTIVATION AND ABILITY TO GET GOALS'DIMENSION OF ACADEMIC RESILIENCE**

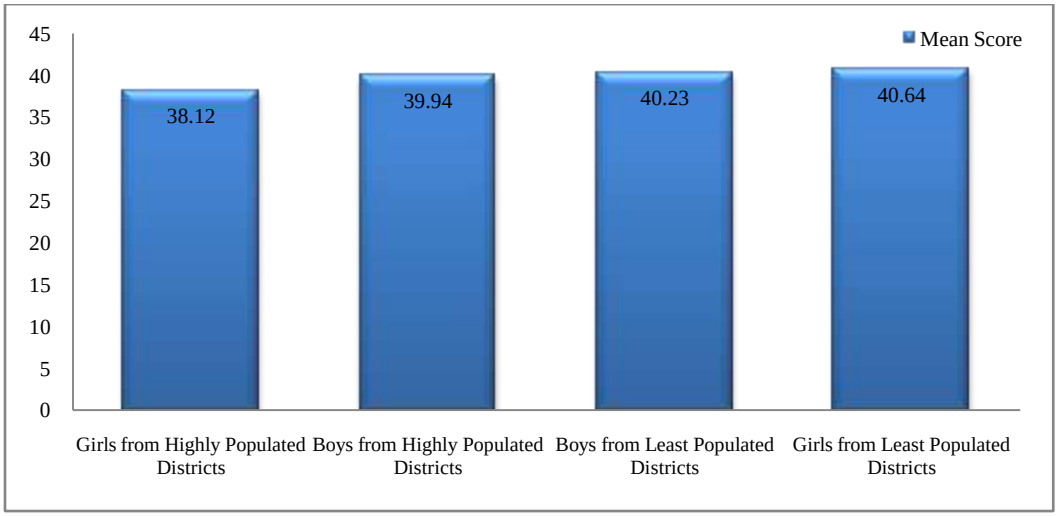


**TABLE 3.14**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'RELATIONSHIP WITH PEERS AND ADULTS' DIMENSION OF ACADEMIC RESILIENCE**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Girls from Least populated districts | M= 39.22<br>SD= 4.87<br>N= 125 | Girls from highly populated districts | M= 36.6<br>SD= 6.26<br>N= 475 | 5.02** |
| Girls from Least populated districts | M= 39.22<br>SD= 4.87<br>N= 125 | Boys from least populated districts | M= 38.1<br>SD= 5.12<br>N= 125 | 1.77 |
| Girls from Least populated districts | M= 39.22<br>SD= 4.87<br>N= 125 | Boys from Highly populated districts | M= 37.87<br>SD= 5.51<br>N= 475 | 2.68** |
| Girls from highly populated districts | M= 36.6<br>SD= 6.26<br>N= 475 | Boys from least populated districts | M= 38.1<br>SD= 5.12<br>N= 125 | 2.77** |
| Girls from highly populated districts | M= 36.6<br>SD= 6.26<br>N= 475 | Boys from Highly populated districts | M= 37.87<br>SD= 5.51<br>N= 475 | 3.32** |
| Boys from least populated districts | M= 38.1<br>SD= 5.12<br>N= 125 | Boys from Highly populated districts | M= 37.87<br>SD= 5.51<br>N= 475 | 0.44 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.14 that the t value for 4 sub groups were found to be significant at 0.01 level of confidence. From means analysis, in the TABLE 3.25, it is clear that girls from least populated districts (39.22) have scored more than girls (36.6) and boys from highly populated districts (37.87) on 'Relationship with peers and adults' dimension of academic resilience. Meaning

thereby, that senior secondary girl students from least populated districts are good in maintaining strong and positive relationship with teachers and peers to remain secure in the school environment than senior secondary girls and boys student from highly populated districts.

From means analysis, in the Table 3.14, it is clear that boys from least populated districts (38.1) and highly populated districts (37.87) have scored more than girls from highly populated districts (36.6) on 'Relationship with peers and adults' dimension of academic resilience. Meaning thereby, that senior secondary boys from least and highly populated districts are good in maintaining strong and positive relationship with teachers and peers to remain secure in the school environment than the senior secondary girls from highly populated districts. Mean scoreson the 'Relationship with Peer and Adults' dimension of academic resilience is shown in below given Figure 3.10

**FIGURE 3.10**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'RELATIONSHIP WITH PEER AND ADULTS' DIMENSION OF ACADEMIC RESILIENCE**

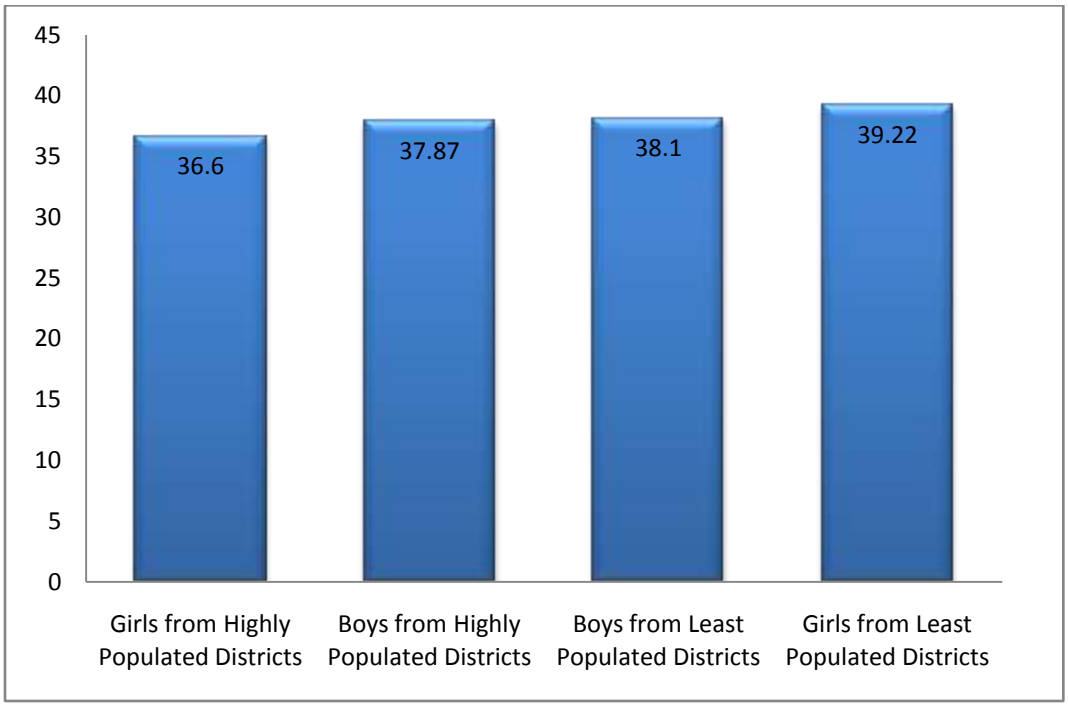


**TABLE 3.15**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT TO TOTAL SCORE OF ACADEMIC RESILIENCE**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Girls from Least populated districts | M= 205.79<br>SD= 16.77<br>N= 125 | Girls from highly populated districts | M= 198.09<br>SD= 16.16<br>N= 475 | 4.6** |
| Girls from Least populated districts | M= 205.79<br>SD= 16.77<br>N= 125 | Boys from least populated districts | M= 203.12<br>SD= 20.28<br>N= 125 | 1.13 |
| Girls from Least populated districts | M= 205.79<br>SD= 16.77<br>N= 125 | Boys from highly populated districts | M= 201.78<br>SD= 18.99<br>N= 475 | 2.31* |
| Girls from highly populated districts | M= 198.09<br>SD= 16.16<br>N= 475 | Boys from least populated districts | M= 203.12<br>SD= 20.28<br>N= 125 | 2.57* |
| Girls from highly populated districts | M= 198.09<br>SD= 16.16<br>N= 475 | Boys from highly populated districts | M= 201.78<br>SD= 18.99<br>N= 475 | 3.23** |
| Boys from least populated districts | M= 203.12<br>SD= 20.28<br>N= 125 | Boys from highly populated districts | M= 201.78<br>SD= 18.99<br>N= 475 | 0.67 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

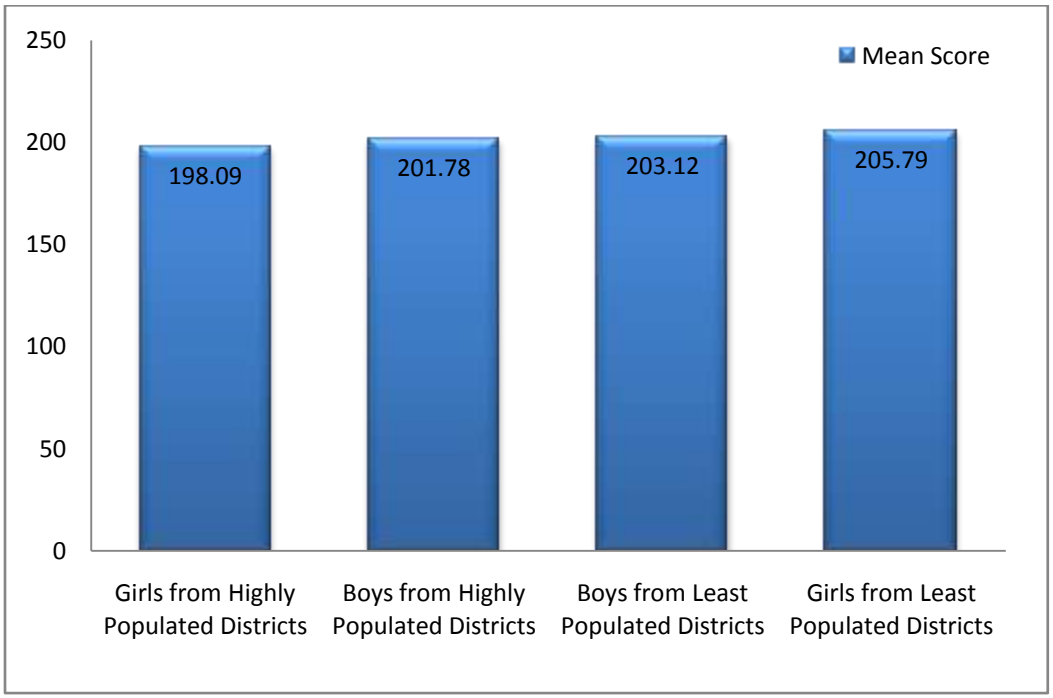
It has been observed from the Table 3.15 that the t value for 4 sub groups were found to be significant at the 0.05 and at the 0.01 level of confidence. From means analysis, in the Table 3.15, it is clear that girls from least populated districts (205.79) have scored more than girls (198.09) and boys from highly populated districts (201.78)on total score of academic resilience. Meaning thereby, that senior secondary girls from least populated districts are more

academically confident, having better sense of well being, motivation & ability to get goals, good in maintaining relationships with peers and adults, physically sound and better in balancing their emotions in challenging situations than the senior secondary girls and boys from highly populated districts.

From means analysis, in the Table 3.15, it is clear that boys from least populated districts (203.12) and boys from highly populated districts (201.78) have scored more than girls from highly populated districts (198.09) on total score of academic resilience. Meaning thereby, that senior secondary boys student from least and highly populated districts are more academically confident, having better sense of well being, motivation & ability to get goals, good in maintaining relationships with peers and adults, physically sound and better in balancing their emotions in challenging situations than the senior secondary girl students from highly populated districts. Mean scoreson the total score of academic resilience is shown in below given Figure 3.11

**FIGURE 3.11**

**GRAPHICAL REPRESENTATION OF MEANS SCORES OF ACADEMIC RESILIENCE**



## THREE ORDER INTERACTION

### Locality X Gender X Population

It has been observed from the Table 3.10 that F-ratios for the interaction between locality, gender and population for 'Academic Confidence', 'Sense of Well being', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults', 'Emotional Regulation and Physical Health' dimensions of academic resilience and total score of academic resilience are found to be 2.82, 1.56, 2.14, 0.71, 2.20 and 3.75, which are not found to be significant even at the 0.05 level of confidence. This indicates that senior secondary school students on the scores of 'Academic Confidence', 'Sense of Well being', 'Motivation and Ability to get goals', 'Relationship with Peers and Adults', 'Emotional Regulation and Physical Health' dimensions of academic resilience and total score of academic resilience as a result of interaction of locality, gender and population for different sub groups do not differ significantly. Thus, the data does not provide sufficient evidence to reject the hypothesis 7, "There is no interaction effect of locality, gender and population on the scores of academic resilience of senior secondary school students". Meaning thereby that sub group of senior secondary school students as a result of interaction of locality, gender and population do not differ significantly in their academic resilience.

## DISCUSSION ON RESULTS

Firstly it has been found that locality has influence on the 'Sense of well being' dimension of academic resilience in the senior secondary school student which means that senior secondary school students from urban localities have positive state of mind that enables them to function effectively and have positive relationship with peers and teachers and they are better in their academic self concept, attentiveness in the class and positive self attitude in adverse conditions than rural students. Also this has been found true in the case of urban students belonging to highly populated districts than rural students from highly populated districts. This result is similar with other studies such as Lee (2009) & Vasimalairaja and Gowri (2016) who conducted study on B.Ed trainee students and at risk high school students concluded that urban students were slightly more

resilient than their rural counterparts. One study conducted by Oguz (2013) had contradictory results who explored the connection between personal well being and place and reported that sense of well being is higher to average in rural areas than in urban areas and in the least deprived and least populated areas compared to most deprived and most populated areas. Reason may be that there are more green spaces and less air pollution in rural areas as compare to urban areas. Similar findings are reported by Ferreira et al.(2013), White et al.(2013) and Douglas (2014) those found a significant relationship between access to green spaces or pollution and personal well-being.

Secondly, findings of the present study revealed that gender doesn't have influence on the academic resilience of senior secondary school students which means that both girls and boys do not differ in their academic resilient abilities. This result is evident by some studies conducted by Frydenberg and Lewis (1993) & Hampel and Petermann (2005) who reported that girls cope with daily stressors by seeking social support and utilizing social resources in contrast, boys who use physical recreation such as sport to cope with adversity. However previous researchers had reported contradictory findings which reported that boys are more resilient than girls at secondary level at Pakistan (Sarwar et al., 2010). But in the present study, results have been found significant specifically, in the highly populated districts, boys are found more academically resilient than girls. Further, this has also been found that boys from least populated districts are found more academically resilient than girls from highly populated districts for 'Motivation and Ability to get goals' and 'Relationship with peers and adults' dimension of academic resilience.

Thirdly, present study revealed that population has influence on the academic resilience of senior secondary students which means that students from least populated districts are more academically resilient than students from highly populated districts. Cummins et al. (2007) reported that there is reciprocal relationship between place and people. The place may contribute or undermine the physical and psychological health of the people who are living there. So, living place may have an effect on the overall health of the people (Macintyre et

al., 2002). Specifically, the students from least populated districts are having better sense of well being, motivation and ability to get goals and are having good relationship with peers and adults as compare to students from highly populated districts.

Fourthly, it is found that senior secondary girl students from urban locality are good in understanding and balancing their emotions to stay effective under pressure and they are more physically fit and sound than senior secondary school students from rural localities. Positive emotions help them to come out from that difficult situation. Similar results are also reported by Fredrickson and Branigan (2005), Ong et al. (2006) and Luther (2015) who concluded that positive emotions are critical trait of resilience. Positive emotions during stressful experiences help to overcome stressful situations. The causating factor lies in the societal mind set in the state of Punjab towards girl child.

Fifthly, study findings revealed that senior secondary girls from least populated districts are more academically resilient than boys and girls from highly populated districts. This is also specifically found true for 'Relationship with peers and adults' dimension of academic resilience. It has also been found that boys from least populated districts are better in their motivation and ability to get goals than girls from highly populated districts. These results are consonant with the recent study done by Bremner et al. (2015) who reported that people who are living in highly populated areas will get less resources ultimately lead to poor health conditions, lesser number of school enrolment, less empowering girls etc. it will directly or indirectly affect the resilience abilities of the people.

### 3.2.2 Influence of locality, gender and population on Metacognition

To study the metacognition of the boys and girls senior secondary school students from rural and urban localities of least and highly populated districts, means and standard deviations have been calculated for different dimensions and the total score of metacognition and are presented below in the Table 3.16.

**TABLE 3.16**

**MEANS, N AND SDs OF VARIOUS DIMENSIONS AND TOTAL METACOGNITION w.r.t. LOCALITY, GENDER AND POPULATION**

| Locality | Gender | Population | | DK | PK | CK | PL | IMS | CM | DS | EV | MC Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rural | Girls | LPD | M= | 6.95 | 3.39 | 4.34 | 6.15 | 8.5 | 6.06 | 3.1 | 5.27 | 43.76 |
| | | N=62 | Σ= | 1.58 | 0.94 | 1.02 | 1.32 | 1.61 | 1.03 | 1.2 | 0.97 | 7.29 |
| | | HPD | M= | 6.78 | 3.33 | 4.37 | 6.08 | 8.3 | 5.91 | 3.2 | 5.16 | 43.17 |
| | | N=237 | Σ= | 1.32 | 0.78 | 0.82 | 1.24 | 1.53 | 1.14 | 0.8 | 1.09 | 6.28 |
| | | Total | M= | 6.81 | 3.34 | 4.36 | 6.09 | 8.34 | 5.94 | 3.2 | 5.19 | 43.29 |
| | | N=299 | Σ= | 1.38 | 0.82 | 0.86 | 1.26 | 1.55 | 1.12 | 0.9 | 1.06 | 6.49 |
| | Boys | LPD | M= | 6.3 | 3.13 | 4.16 | 5.71 | 7.76 | 5.54 | 3 | 4.65 | 40.24 |
| | | N=63 | Σ= | 1.71 | 1.03 | 0.97 | 1.49 | 1.85 | 1.44 | 1 | 1.35 | 8.08 |
| | | HPD | M= | 6.72 | 3.06 | 4.11 | 6.01 | 7.94 | 5.89 | 3.1 | 5 | 41.81 |
| | | N=238 | Σ= | 1.31 | 1.05 | 0.99 | 1.21 | 1.75 | 1.16 | 1.1 | 1.22 | 6.67 |
| | | Total | M= | 6.63 | 3.07 | 4.12 | 5.95 | 7.9 | 5.82 | 3.1 | 4.92 | 41.48 |
| | | N=301 | Σ= | 1.41 | 1.04 | 0.98 | 1.28 | 1.77 | 1.23 | 1.1 | 1.25 | 7 |
| | Total | LPD | M= | 6.62 | 3.26 | 4.25 | 5.93 | 8.13 | 5.8 | 3.0 | 4.96 | 41.98 |
| | | N=125 | Σ= | 1.67 | 0.99 | 0.99 | 1.42 | 1.77 | 1.28 | 1.1 | 1.22 | 7.86 |
| | | HPD | M= | 6.75 | 3.2 | 4.24 | 6.04 | 8.12 | 5.9 | 3.16 | 5.08 | 42.49 |
| | | N= 475 | Σ= | 1.31 | 0.94 | 0.91 | 1.22 | 1.65 | 1.15 | 0.96 | 1.15 | 6.5 |
| | | Total | M= | 6.72 | 3.21 | 4.24 | 6.02 | 8.12 | 5.88 | 3.14 | 5.05 | 42.38 |
| | | N= 600 | Σ= | 1.39 | 0.95 | 0.93 | 1.27 | 1.68 | 1.18 | 0.99 | 1.17 | 6.81 |
| Urban | Girls | LPD | M= | 7.16 | 3.41 | 4.49 | 6.3 | 8.79 | 6.22 | 3.1 | 5.32 | 44.83 |
| | | N=63 | Σ= | 1.11 | 0.83 | 0.8 | 0.94 | 1.35 | 1.08 | 1.1 | 1.02 | 5.87 |
| | | HPD | M= | 6.89 | 3.07 | 4.23 | 5.99 | 8.55 | 5.83 | 3.3 | 5.11 | 42.93 |
| | | N=238 | Σ= | 1.25 | 0.93 | 0.95 | 1.24 | 1.49 | 1.2 | 0.9 | 1.15 | 6.03 |
| | | Total | M= | 6.94 | 3.14 | 4.28 | 6.06 | 8.6 | 5.91 | 3.2 | 5.15 | 43.33 |
| | | N=301 | Σ= | 1.22 | 0.92 | 0.92 | 1.19 | 1.47 | 1.19 | 0.9 | 1.12 | 6.043 |
| | Boys | LPD | M= | 6.97 | 3.29 | 4.26 | 6.06 | 7.98 | 6.08 | 3.2 | 5.4 | 43.21 |
| | | N=62 | Σ= | 1.34 | 0.85 | 1.05 | 1.26 | 1.7 | 1.13 | 0.9 | 0.89 | 6.72 |

| Locality | Gender | Population | | DK | PK | CK | PL | IMS | CM | DS | EV | MC Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HPD | M= | 6.46 | 3.07 | 4.04 | 5.7 | 7.89 | 5.6 | 3.2 | 4.86 | 40.8 |
| | | N=237 | Σ= | 1.37 | 0.97 | 1.02 | 1.36 | 1.56 | 1.35 | 0.9 | 1.28 | 6.63 |
| | | Total | M= | 6.56 | 3.11 | 4.08 | 5.78 | 7.91 | 5.7 | 3.2 | 4.97 | 41.3 |
| | | N=299 | Σ= | 1.38 | 0.95 | 1.03 | 1.35 | 1.59 | 1.32 | 0.9 | 1.23 | 6.71 |
| | | LPD | M= | 7.06 | 3.35 | 4.38 | 6.18 | 8.39 | 6.15 | 3.14 | 5.36 | 44.02 |
| | | N= 125 | Σ= | 1.23 | 0.84 | 0.93 | 1.11 | 1.58 | 1.1 | 0.99 | 0.96 | 6.34 |
| | Total | HPD | M= | 6.67 | 3.07 | 4.13 | 5.81 | 8.22 | 5.72 | 3.23 | 4.98 | 41.87 |
| | | N= 475 | Σ= | 1.33 | 0.95 | 0.99 | 1.31 | 1.56 | 1.28 | 0.89 | 1.22 | 6.42 |
| | | Total | M= | 6.75 | 3.13 | 4.18 | 5.92 | 8.26 | 5.81 | 3.21 | 5.06 | 42.32 |
| | | N= 600 | Σ= | 1.32 | 0.93 | 0.98 | 1.28 | 1.57 | 1.26 | 0.92 | 1.18 | 6.46 |
| | | LPD | M= | 7.06 | 3.4 | 4.42 | 6.22 | 8.65 | 6.14 | 3.11 | 5.3 | 44.3 |
| | | N= 125 | Σ= | 1.36 | 0.88 | 0.91 | 1.14 | 1.49 | 1.06 | 1.11 | 1 | 6.61 |
| | Girls | HPD | M= | 6.83 | 3.2 | 4.3 | 6.04 | 8.43 | 5.87 | 3.25 | 3.15 | 43.05 |
| | | N= 475 | Σ= | 1.28 | 0.87 | 0.89 | 1.24 | 1.52 | 1.17 | 0.85 | 1.12 | 6.15 |
| | | Total | M= | 6.88 | 3.24 | 4.32 | 6.07 | 8.47 | 5.93 | 3.22 | 5.17 | 43.31 |
| | | N= 600 | Σ= | 1.3 | 0.87 | 0.89 | 1.22 | 1.51 | 1.15 | 0.91 | 1.09 | 6.26 |
| | | LPD | M= | 6.63 | 3.21 | 4.21 | 5.89 | 7.87 | 5.81 | 3.07 | 5.02 | 41.71 |
| | | N= 125 | Σ= | 1.56 | 0.95 | 1.01 | 1.39 | 1.77 | 1.32 | 0.98 | 1.2 | 7.55 |
| Total | Boys | HPD | M= | 6.59 | 3.06 | 4.07 | 5.85 | 7.92 | 5.75 | 3.14 | 4.93 | 41.31 |
| | | N= 475 | Σ= | 1.35 | 1.01 | 1.00 | 1.29 | 1.66 | 1.27 | 1.00 | 1.25 | 6.66 |
| | | Total | M= | 6.6 | 3.09 | 4.1 | 5.86 | 7.91 | 5.76 | 3.12 | 4.95 | 41.39 |
| | | N= 600 | Σ= | 1.39 | 1.00 | 1.00 | 1.31 | 1.68 | 1.28 | 0.99 | 1.24 | 6.85 |
| | | LPD | M= | 6.84 | 3.3 | 4.31 | 6.06 | 8.26 | 5.98 | 3.09 | 5.16 | 43 |
| | | N= 250 | Σ= | 1.48 | 0.92 | 0.96 | 1.28 | 1.68 | 1.2 | 1.05 | 1.11 | 7.2 |
| | Total | HPD | M= | 6.71 | 3.13 | 4.18 | 5.95 | 8.17 | 5.81 | 3.2 | 5.03 | 42.18 |
| | | N= 950 | Σ= | 1.32 | 0.94 | 0.95 | 1.27 | 1.61 | 1.22 | 0.93 | 1.19 | 6.47 |
| | | Total | M= | 6.74 | 3.17 | 4.21 | 5.97 | 8.19 | 5.84 | 3.17 | 5.06 | 42.35 |
| | | N= 1200 | Σ= | 1.35 | 0.94 | 0.96 | 1.27 | 1.62 | 1.22 | 0.95 | 1.17 | 6.63 |

**DK**=Declarative Knowledge, **PK**=Procedural Knowledge, **CK**=Conditional Knowledge, **PL**=Planning, **IMS**=Information Monitoring Strategies, **CM**=Comprehension Monitoring, **DS**=Debugging Strategies, **EV**=Evaluation, **MC TOTAL**=Metacognition Total

**FIGURE 3.12**

**GRAPHICAL REPRESENTATION OF VARIOUS DIMENSIONS OF METACOGNITION WITH RESPECT TO LOCALITY, GENDER AND POPULATION**

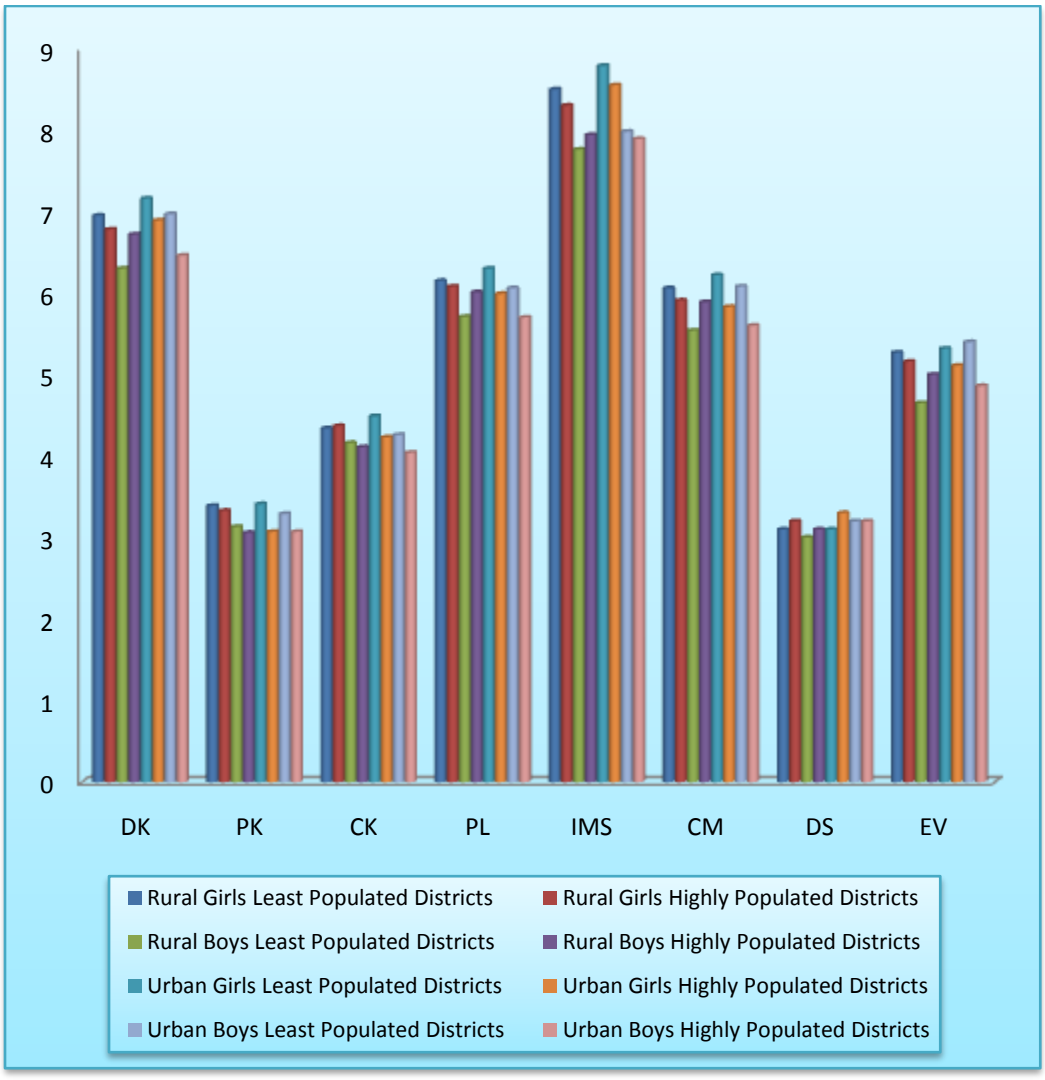
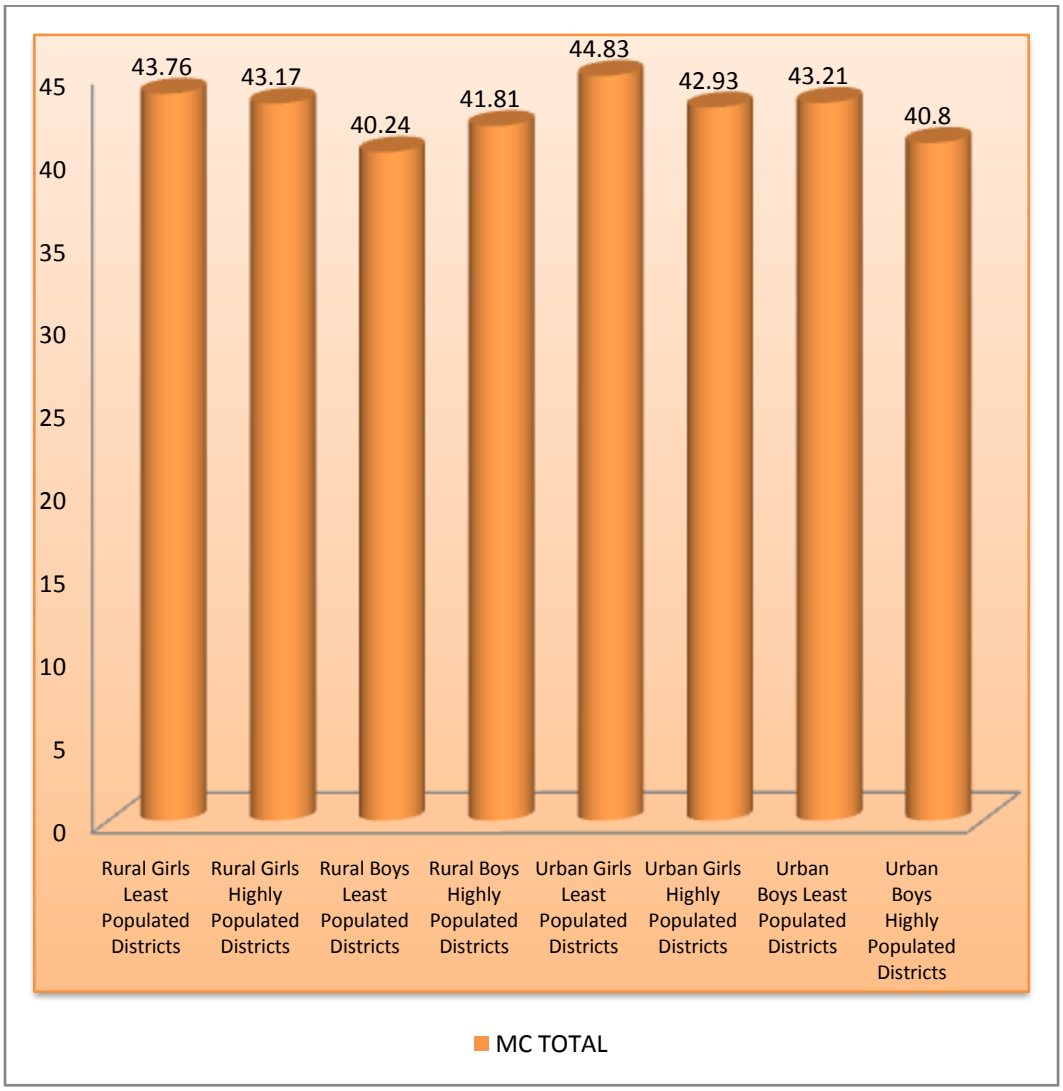


**FIGURE 3.13**

**GRAPHICAL REPRESENTATION OF METACOGNITION TOTAL WITH RESPECT TO LOCALITY, GENDER AND POPULATION**




In order to analyze the variance of various dimensions and total score of metacognition of the boys and girls senior secondary school students from rural and urban localities of least and highly populated districts, the obtained scores were subjected to ANOVA and the results have been presented in the Table 3.17.

## TABLE 3.17

## SUMMARY OF 2X2X2 DESIGN WITH RESPECT TO VARIOUS DIMENSIONS AND TOTAL METACOGNITION IN RELATION TO LOCALITY, GENDER AND POPULATION

| | | Declarative Knowledge | | | Procedural Knowledge | | | Conditional Knowledge | | | Planning | | | Information Management Strategies | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Source** | **df** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** |
| **L** | 1 | 6.349 | 6.349 | 3.501 | 0.051 | 0.051 | 0.058 | 0.026 | 0.026 | 0.028 | 0.15 | 0.15 | 0.93 | 6.48 | 6.48 | 2.52 |
| **G** | 1 | 21.73 | 21.73 | 11.98** | 5.4 | 5.4 | 6.14* | 9.25 | 9.25 | 10.15** | 13.14 | 13.14 | 8.16** | 81.46 | 81.46 | 31.7** |
| **P** | 1 | 3.58 | 3.58 | 1.97 | 5.82 | 5.82 | 6.61* | 3.22 | 3.22 | 3.54 | 2.44 | 2.44 | 1.52 | 1.58 | 1.58 | 0.61 |
| **L*G** | 1 | 0.083 | 0.083 | 0.046 | 2.06 | 2.06 | 2.34 | 0.005 | 0.005 | 0.005 | 0.008 | 0.008 | 0.005 | 1.8 | 1.8 | 0.7 |
| **L*P** | 1 | 13.12 | 13.12 | 7.23** | 2.41 | 2.41 | 2.75 | 2.61 | 2.61 | 2.87 | 10.09 | 10.09 | 6.26* | 1.16 | 1.16 | 0.45 |
| **G*P** | 1 | 1.57 | 1.57 | 0.86 | 0.13 | 0.13 | 0.15 | 0.017 | 0.017 | 0.19 | 1.15 | 1.15 | 0.71 | 3.46 | 3.46 | 1.34 |
| **L*G*P** | 1 | 8.64 | 8.64 | 4.76* | 0.21 | 0.21 | 0.24 | 0.2 | 0.2 | 0.22 | 2.11 | 2.11 | 1.31 | 0.7 | 0.7 | 0.27 |
| **Error** | 1192 | 2162.04 | 1.81 | | 1048.28 | 0.87 | | 1085.76 | 0.91 | | 1918.73 | 1.61 | | 3062.66 | 2.56 | |
| **Total** | 1200 | 56702 | | | 13116 | | | 22385 | | | 44698 | | | 83651 | | |

| | | Comprehension Monitoring | | | Debugging Strategies | | | Evaluation | | | Metacognition Total | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Source** | **df** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | | | |
| **L** | 1 | 1.39 | 1.39 | 0.94 | 1.37 | 1.37 | 1.5 | 4.4 | 4.4 | 3.23 | 96.82 | 96.82 | 2.26 | | | |
| **G** | 1 | 10.27 | 10.27 | 6.97** | 1.21 | 1.21 | 1.33 | 11.27 | 11.27 | 8.28** | 920.96 | 920.96 | 21.49** | | | |
| **P** | 1 | 5.61 | 5.61 | 3.81 | 2.12 | 2.12 | 2.31 | 3.39 | 3.39 | 2.49 | 136.44 | 136.44 | 3.18 | | | |
| **L*G** | 1 | 0.36 | 0.36 | 0.24 | 0.67 | 0.67 | 0.73 | 4.9 | 4.9 | 3.6 | 15.94 | 15.94 | 0.37 | | | |
| **L*P** | 1 | 13.93 | 13.93 | 9.45** | 0.082 | 0.082 | 0.09 | 12.23 | 12.23 | 8.98** | 344.82 | 344.82 | 8.04** | | | |
| **G*P** | 1 | 2.19 | 2.19 | 1.49 | 0.3 | 0.3 | 0.33 | 0.17 | 0.17 | 0.13 | 33.37 | 33.37 | 0.77 | | | |
| **L*G*P** | 1 | 4.38 | 4.38 | 2.97 | 0.04 | 0.04 | 0.05 | 7.69 | 7.69 | 5.65* | 88.39 | 88.39 | 2.06 | | | |
| **Error** | 1192 | 1755.99 | 1.47 | | 1090.67 | 0.91 | | 1622.3 | 1.36 | | 51073.11 | 42.84 | | | | |
| **Total** | 1200 | 42766 | | | 13189 | | | 32355 | | | 246723 | | | | | |

*** Significant at 0.05 level of Confidence**
**** Significant at 0.01 level of Confidence**
**F value at (1, 1192) df: 3.85 (0.05 level); 6.66 (0.01 level)**

**MAIN EFFECTS**

**Locality**

It has been observed from the Table 3.17 that F-ratios for the 'Declarative knowledge', 'Procedural knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring', 'Debugging strategies' and 'Evaluation' dimensions of metacognition and total of metacognition has been found to be 3.50, 0.058, 0.028, 0.93, 2.52, 0.94, 1.5, 3.23 and 2.26 which are not found to be significant even at the 0.05 level of confidence. This indicates that two groups of rural and urban senior secondary school students do not differ significantly on their scores on various dimensions of metacognition. Thus, the data does not provide sufficient evidence to reject the hypothesis 8,"There exists no significant difference between rural and urban senior secondary students in their metacognition". Meaning thereby, that rural and urban senior secondary school students does not differ in their metacognitive abilities.

**Gender**

It has been observed from the Table 3.17 that F-ratios for the differences in 'Declarative knowledge', 'Procedural knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring' and 'Evaluation' dimensions of metacognition and total of metacognition has been found to be11.98, 6.14, 10.15, 8.16, 31.7, 6.97, 8.28 and 21.49 which are significant either at 0.01 and 0.05 level of confidence. This indicates that two groups of girls and boys senior secondary school students differ significantly on their scores of 'Declarative knowledge', 'Procedural knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring' and 'Evaluation' dimensions of metacognition and total of metacognition. Thus data provide sufficient evidence to reject the hypothesis 9, "There exists no significant difference between senior secondary boys and girls in their metacognition" for 'Declarative knowledge', 'Procedural knowledge', 'Conditional knowledge', 'Planning' and 'Information Management

Strategies', 'Comprehension monitoring' and 'Evaluation' dimensions of metacognition and metacognition total.

From the means Table 3.16, the means analysis suggests that senior secondary girl students (6.88) have scored higher on 'Declarative knowledge' dimension of metacognition than senior secondary boy students (6.6). Meaning thereby that senior secondary girls are good in their factual knowledge than senior secondary boys.

From the means Table 3.16, the means analysis suggests that senior secondary girl students (3.24) have scored higher on 'Procedural knowledge' dimension of metacognition than senior secondary boy students (3.09). Meaning thereby that senior secondary girl students are better in applying their knowledge for the purposes of completing a task/ assignment efficiently as compared to senior secondary school boys.

From the means Table 3.16, the means analysis suggests that senior secondary girl students (4.32) have scored higher on 'Conditional knowledge' dimension of metacognition than senior secondary boy students (4.10). Meaning thereby that senior secondary girl studentsare good in applying declarative and procedural knowledge in certain conditions than the senior secondary boys.

From the means Table 3.16, the means analysis suggests that senior secondary girl students (6.07) have scored higher on 'Planning' dimension of metacognition than senior secondary boy students (5.86). This means that senior secondary girl students are good in setting goals, and allocating resources prior to learning than senior secondary boy students.

From the means Table 3.16, the means analysis suggests that senior secondary girl students (8.47) have scored higher on 'Information Management Strategies' dimension of metacognition than senior secondary boy students (7.91). Meaning thereby that senior secondary girl students are good in using skills and strategies to process information more efficiently by organizing and summarizing the information than senior secondary boys.

From the means Table 3.16, the means analysis suggests that senior secondary girl students (5.93) have scored higher on 'Comprehension monitoring'

dimension of metacognition than senior secondary boy students (5.76). Meaning thereby that senior secondary girls has better skills for checking their work for ensuring accuracy and good in supervising their work than senior secondary boys than senior secondary boys.

From the means Table 3.16, the means analysis suggests that senior secondary girl students (5.17) have scored higher on 'Evaluation' dimension of metacognition than senior secondary boy students (4.95). Meaning thereby that senior secondary girls are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing task than the senior secondary boys.

From reviewing the corresponding means in the Table 3.16, senior secondary girl students with high metacognitive abilities (43.31) had scored more on metacognition than senior secondary boys (41.39). This means thatsenior secondary girl students are more aware of their own cognitive abilities and their application for learning than senior secondary boys.

**Population**

It has also been observed from the Table 3.17 that F-ratios for the differences in 'Procedural knowledge', has been found to be 6.61 which are significant either at 0.01 and 0.05 level of confidence. This indicates that two groups senior secondary school students from least and highly populated districtsdiffer significantly on their scores of 'Procedural knowledge'. Thus data provide sufficient evidence to reject the hypothesis 10, "There exists no significant difference between senior secondary students from least and highly populated districts in their metacognition" for 'Procedural knowledge' dimension of Metacognition.

From the means Table 3.16, the means analysis suggests that senior secondary students from least populated districts have scored (3.3) higher on 'Procedural knowledge' dimension of metacognition than senior secondary students from highly populated districts (3.1). Meaning thereby that senior secondary school students from least populated districts are good in applying their

knowledge for the purposes of completing a task/ assignment efficiently than students from highly populated districts.

However, it has been observed from the Table 3.17 that F-ratios for the differences in 'Declarative knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring', 'Debugging strategies' and 'Evaluation' dimensions of metacognition and total of metacognition has been found to be 1.97, 3.54, 1.52, 0.61, 3.81, 2.31, 2.49, and 3.18 which are not found to be significant at either the 0.05 or the 0.01 level of confidence. This indicates that two groups of least and highly populated districts senior secondary school students do not differ significantly on their scores on 'Declarative knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring', 'Debugging strategies' and 'Evaluation' dimensions of metacognition and total of metacognition. Thus, the data does not provide sufficient evidence to reject the hypothesis 10, "There exists no significant difference between senior secondary students from least and highly populated districts in their metacognition" for 'Declarative knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring', 'Debugging strategies' and 'Evaluation' dimensions of metacognition and total of metacognition. Meaning thereby that senior secondary students from least and highly populated districts do not differ in their metacognitive abilities.

**TWO ORDER INTERACTION**

**Gender X Locality**

It has been observed from the Table 3.17 that F-ratios for the interaction between gender and locality of the senior secondary school students on the scores of 'Declarative knowledge', 'Procedural knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring', 'Debugging strategies' and 'Evaluation' dimensions of metacognition and total of metacognition has been found to be 0.046, 2.34, 0.005, 0.005, 0.7, 0.24, 0.73, 3.6 and 0.37 which are not found to be significant even at the 0.05 level of confidence. This indicates that two groups of senior secondary

school students as a result of interaction of gender and locality do not differ significantly on their scores of 'Declarative knowledge', 'Procedural knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring', 'Debugging strategies' and 'Evaluation' dimensions of metacognition and total of metacognition. Thus, the data does not provide sufficient evidence to reject the hypothesis 11, "There is no interaction effect of gender and locality on the scores of metacognition of senior secondary students" for Declarative knowledge', 'Procedural knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring', 'Debugging strategies' and 'Evaluation' dimensions of metacognition and total of metacognition. Meaning thereby, that senior secondary boys and girls from urban and rural localities does not differ in their metacognitive abilities. There is no effect of gender and locality on their metacognitive abilities.

**Locality X Population**

It has been observed from the Table 3.17 that F-ratios for the interaction between locality and population of the senior secondary school students on the scores of 'Declarative knowledge', 'Planning', 'Comprehension monitoring', 'Evaluation' dimensions of metacognition and total of metacognition has been found to be 7.23, 6.26, 9.45, 8.98 and 8.04 which are found to be significant even at the 0.01 level of confidence.

To further analyze the significant difference between various groups as a result of interaction between locality and population of senior secondary school students on 'Declarative knowledge', 'Planning', 'Comprehension monitoring', 'Evaluation' dimensions of metacognition and total of metacognition, t-values for the various subgroups were calculated and the sub groups for which the t value is found significant are presented in the Table 3.18, 3.19, 3.20, 3.21 and 3.22.

**TABLE 3.18**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'DECLARATIVE KNOWLEDGE' DIMENSION OF METACOGNITION**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M= 6.62<br>SD= 1.67<br>N= 125 | Urban least populated districts | M= 7.06<br>SD= 1.23<br>N= 125 | 2.37* |
| Rural least populated districts | M= 6.62<br>SD= 1.67<br>N= 125 | Rural highly populated districts | M= 6.75<br>SD= 1.31<br>N= 475 | 0.81 |
| Rural least populated districts | M= 6.62<br>SD= 1.67<br>N= 125 | Urban highly populated districts | M= 6.67<br>SD= 1.33<br>N= 475 | 0.31 |
| Urban least populated districts | M= 7.06<br>SD= 1.23<br>N= 125 | Rural highly populated districts | M= 6.75<br>SD= 1.31<br>N= 475 | 2.47* |
| Urban least populated districts | M= 7.06<br>SD= 1.23<br>N= 125 | Urban highly populated districts | M= 6.67<br>SD= 1.33<br>N= 475 | 3.1** |
| Rural highly populated districts | M= 6.75<br>SD= 1.31<br>N= 475 | Urban highly populated districts | M= 6.67<br>SD= 1.33<br>N= 475 | 0.93 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.18 that the t value for 3 sub groups were found to be significant either at the 0.05 or the 0.01 level of confidence. From means analysis, in the Table 3.18, it is clear that urban least populated districts (7.06) have scored more than rural least populated districts(6.62) on 'Declarative knowledge' dimension of metacognition. Meaning thereby, that senior secondary school students who live in urban least populated district are

good in their factual knowledge than the senior secondary students from rural least populated district.

From means analysis, in the Table 3.18, it is clear that students from urban least populated districts (7.06)have scored more than students from rural highly populated districts (6.75) and students from urban highly populated districts (6.67) on 'Declarative knowledge' dimension of metacognition. Meaning thereby, that senior secondary students from urban least populated districts are good in their factual knowledge than senior secondary school students from rural and urban highly populated districts. Mean scoreson the 'Declarative Knowledge' dimension of Metacognition is shown in below given Figure 3.14.

**FIGURE 3.14**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'DECLARATIVE KNOWLEDGE'DIMENSION OF METACOGNITION**

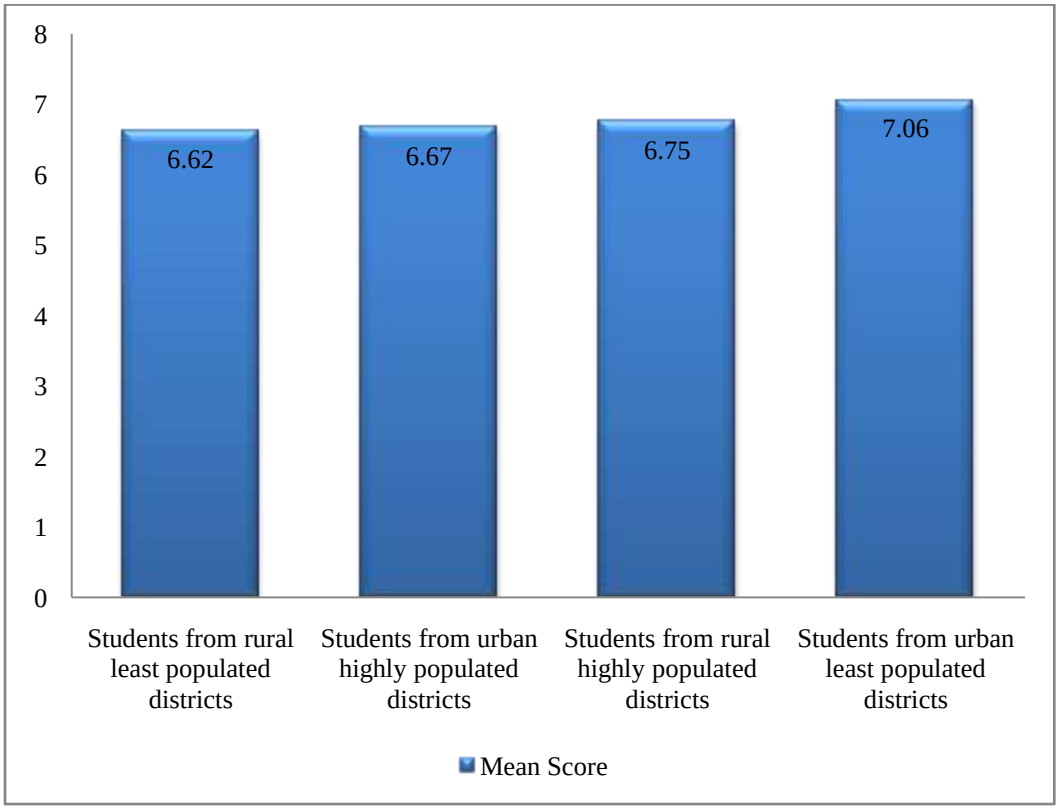


**TABLE 3.19**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'PLANNING' DIMENSION OF METACOGNITION**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M= 5.93 | Urban least populated districts | M=6.18 | 1.55 |
| | SD= 1.42 | | SD=1.11 | |
| | N= 125 | | N=125 | |
| Rural least populated districts | M= 5.93 | Rural highly populated districts | M=6.04 | 0.79 |
| | SD= 1.42 | | SD=1.22 | |
| | N= 125 | | N=475 | |
| Rural least populated districts | M= 5.93 | Urban highly populated districts | M=5.81 | 0.85 |
| | SD= 1.42 | | SD=1.31 | |
| | N= 125 | | N=475 | |
| Urban least populated districts | M=6.18 | Rural highly populated districts | M=6.04 | 1.23 |
| | SD=1.11 | | SD=1.22 | |
| | N=125 | | N=475 | |
| Urban least populated districts | M=6.18 | Urban highly populated districts | M=5.81 | 3.18** |
| | SD=1.11 | | SD=1.31 | |
| | N=125 | | N=475 | |
| Rural highly populated districts | M=6.04 | Urban highly populated districts | M=5.81 | 2.8** |
| | SD=1.22 | | SD=1.31 | |
| | N=475 | | N=475 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.19 that the t value for 2 sub groups was found to be significant at the 0.01 level of confidence. From means analysis, in the Table 3.19, it is clear that students from urban least populated districts (6.18) and students from rural highly populated districts (6.04) have scored more than urban highly populated districts (5.81) on 'Planning' dimension of metacognition. Meaning thereby, that senior secondary school students from urban least and rural highly populated districts are good in setting goals, and allocating resources prior to learning than the senior secondary school students from urban highly populated districts. Mean scoreson the 'Planning' dimension of Metacognition is shown in below given Figure 3.15.

**FIGURE 3.15**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'PLANNING'DIMENSION OF METACOGNITION**

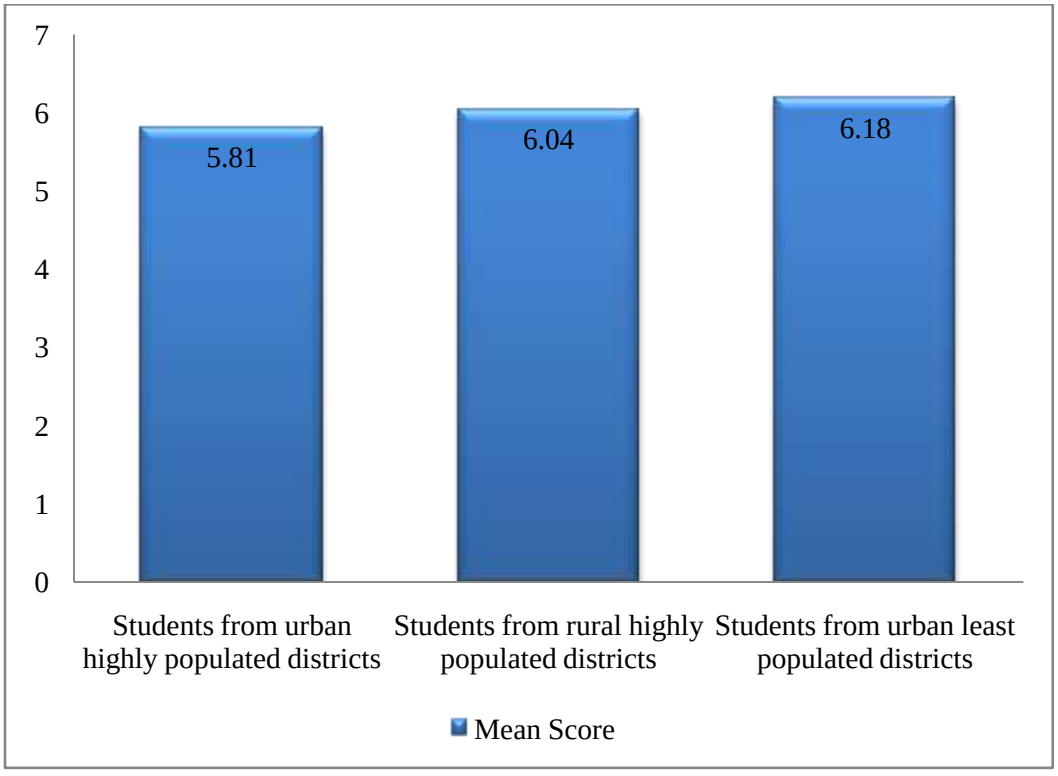


**TABLE 3.20**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'COMPREHENSION MONITORING' DIMENSION OF METACOGNITION**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M=5.8<br>SD=1.28<br>N=125 | Urban least populated districts | M=6.15<br>SD=1.1<br>N=125 | 2.31* |
| Rural least populated districts | M=5.8<br>SD=1.28<br>N=125 | Rural highly populated districts | M=5.9<br>SD=1.15<br>N=475 | 0.79 |
| Rural least populated districts | M=5.8<br>SD=1.28<br>N=125 | Urban highly populated districts | M=5.72<br>SD=1.28<br>N=475 | 0.62 |
| Urban least populated districts | M=6.15<br>SD=1.1<br>N=125 | Rural highly populated districts | M=5.9<br>SD=1.15<br>N=475 | 2.24* |
| Urban least populated districts | M=6.15<br>SD=1.1<br>N=125 | Urban highly populated districts | M=5.72<br>SD=1.28<br>N=475 | 3.75** |
| Rural highly populated districts | M=5.9<br>SD=1.15<br>N=475 | Urban highly populated districts | M=5.72<br>SD=1.28<br>N=475 | 2.28* |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.20 that the t value for 4 sub groups were found to be significant either at the 0.05 or the 0.01 level of confidence. From means analysis, in the Table 3.20, it is clear that students from urban least populated districts (6.15) have scored more than students from rural least populated districts (5.8) on 'Comprehension monitoring' dimension of metacognition. Meaning thereby, that senior secondary school students from urban least populated districts has better skills for checking their work for

ensuring accuracy and good in supervising their work than senior secondary school students from rural least populated districts.

From means analysis, in the Table3.20, it is clear that students from urban least populated districts (6.15) have scored more than students from rural highly populated districts (5.9) and students from urban highly populated districts (5.72) on 'Comprehension monitoring' dimension of metacognition. Meaning thereby, that senior secondary school students from urban least populated districts has better skills for checking their work for ensuring accuracy and good in supervising their work than the senior secondary school students from rural and urban highly populated districts.

From means analysis, in the Table3.20, it is clear that students from rural highly populated districts (5.90) have scored more than students from urban highly populated districts (5.72) on 'Comprehension monitoring' dimension of metacognition. Meaning thereby, that senior secondary school students from rural highly populated districts has better skills for checking their work for ensuring accuracy and good in supervising their work than senior secondary school students from urban highly populated districts. Mean scoreson the 'Comprehension Monitoring' dimension of Metacognition is shown in below given Figure 3.16.

**FIGURE 3.16**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'COMPREHENSION MONITORING'DIMENSION OF METACOGNITION**

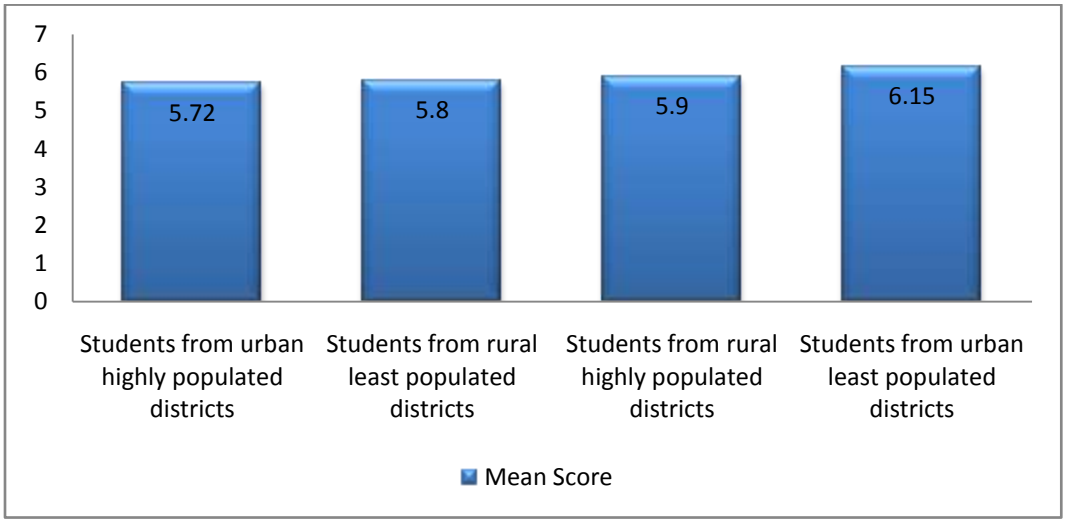


**TABLE 3.21**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'EVALUATION' DIMENSION OF METACOGNITION**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M=4.96<br>SD=1.22<br>N=125 | Urban least populated districts | M=5.36<br>SD=0.96<br>N=125 | 2.88** |
| Rural least populated districts | M=4.96<br>SD=1.22<br>N=125 | Rural highly populated districts | M=5.08<br>SD=1.15<br>N=475 | 1.0 |
| Rural least populated districts | M=4.96<br>SD=1.22<br>N=125 | Urban highly populated districts | M=4.98<br>SD=1.22<br>N=475 | 0.16 |
| Urban least populated districts | M=5.36<br>SD=0.96<br>N=125 | Rural highly populated districts | M=5.08<br>SD=1.15<br>N=475 | 2.78** |
| Urban least populated districts | M=5.36<br>SD=0.96<br>N=125 | Urban highly populated districts | M=4.98<br>SD=1.22<br>N=475 | 3.7** |
| Rural highly populated districts | M=5.08<br>SD=1.15<br>N=475 | Urban highly populated districts | M=4.98<br>SD=1.22<br>N=475 | 1.3 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.21 that the t value for 3 sub groups was found to be significant at the 0.01 level of confidence. From means analysis, in the Table 3.21, it is clear that students from urban least populated districts (5.36) have scored more than students from rural least populated districts (4.96) on 'Evaluation' dimension of metacognition. Meaning thereby, that senior secondary school students from urban least populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness

of the strategies used in completing task than the senior secondary school students from rural least populated districts.

From means analysis, in the Table3.21, it is clear that students from urban least populated districts (5.36) have scored more than students from rural highly populated districts (5.08) and students from urban highly populated districts (4.98) on 'Evaluation' dimension of metacognition. Meaning thereby, that senior secondary school students from urban least populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing task than the senior secondary school students from rural and urban highly populated districts. Mean scoreson the 'Evaluation' dimension of Metacognition is shown in below given Figure 3.17.

**FIGURE 3.17**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'EVALUATION'DIMENSION OF METACOGNITION**

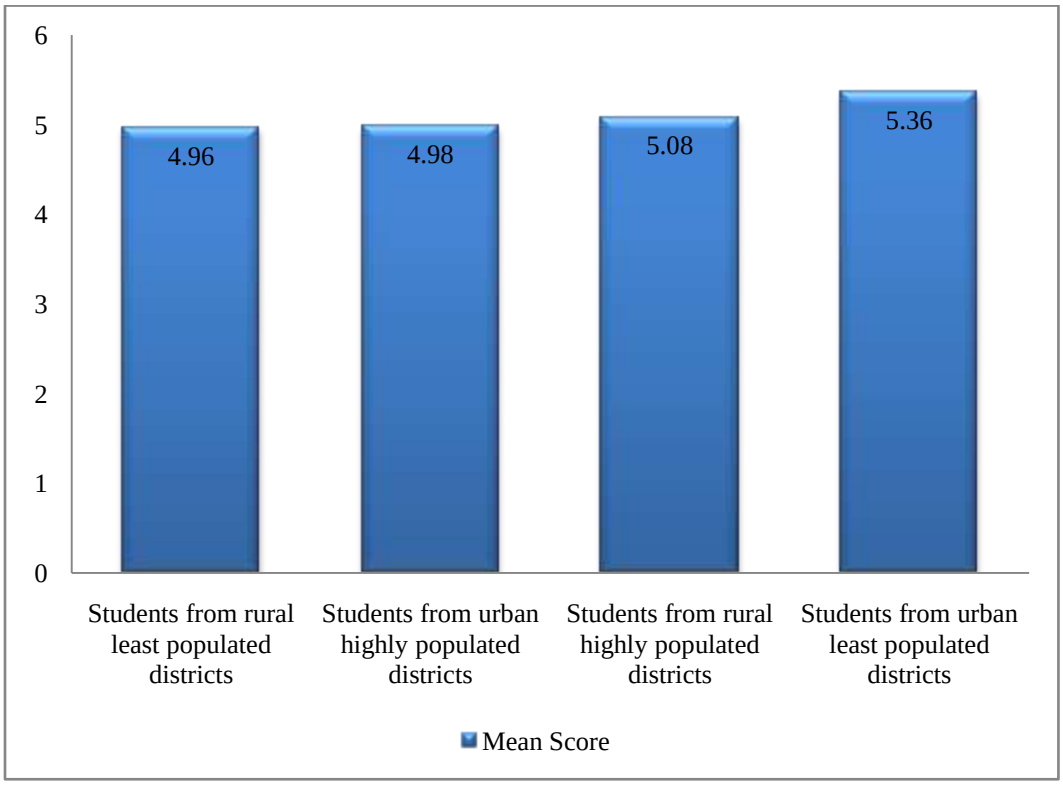


**TABLE 3.22**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF TOTAL SCORE OF METACOGNITION**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M=41.98<br>SD=7.86<br>N=125 | Urban least populated districts | M=44.02<br>SD=6.34<br>N=125 | 2.26* |
| Rural least populated districts | M=41.98<br>SD=7.86<br>N=125 | Rural highly populated districts | M=42.49<br>SD=6.5<br>N=475 | 0.67 |
| Rural least populated districts | M=41.98<br>SD=7.86<br>N=125 | Urban highly populated districts | M=41.87<br>SD=6.42<br>N=475 | 0.14 |
| Urban least populated districts | M=44.02<br>SD=6.34<br>N=125 | Rural highly populated districts | M=42.49<br>SD=6.5<br>N=475 | 2.39* |
| Urban least populated districts | M=44.02<br>SD=6.34<br>N=125 | Urban highly populated districts | M=41.87<br>SD=6.42<br>N=475 | 3.36** |
| Rural highly populated districts | M=42.49<br>SD=6.5<br>N=475 | Urban highly populated districts | M=41.87<br>SD=6.42<br>N=475 | 1.48 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

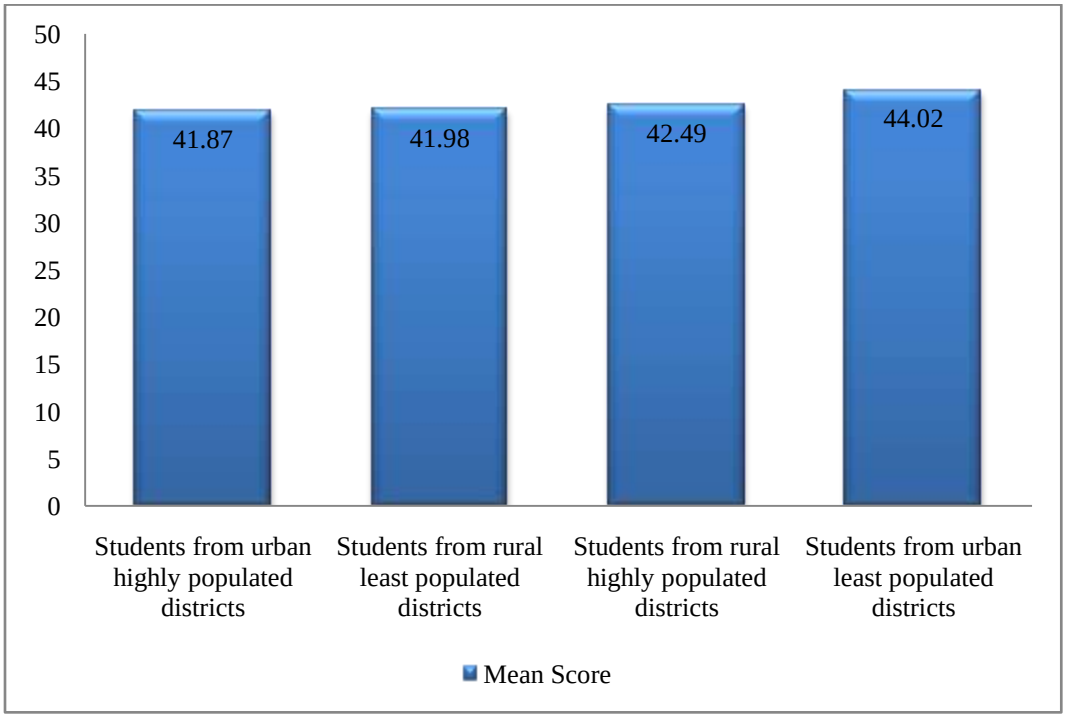
It has been observed from the Table 3.22 that the t value for 3 sub groups were found to be significant either at the 0.05 or the 0.01 level of confidence. From means analysis, in the Table 3.22, it is clear that students from urban least populated districts (44.02) have scored more than students from rural least populated districts (41.98) on total score of metacognition. Meaning thereby, that senior secondary school student from urban least populated districts are more

aware of their own cognitive abilities and their application for learning than the senior secondary school students from rural least populated districts.

From means analysis, in the Table3.22, it is clear that students from urban least populated districts (44.02) have scored more than students from rural highly populated districts (42.29) and students from urban highly populated districts (41.87) on total score of metacognition. Meaning thereby, that senior secondary school students from urban least populated districts are more aware of their own cognitive abilities and their application for learning than the senior secondary school students from rural and urban highly populated districts. Mean scoreson the total scores of Metacognition is shown in below given Figure 3.18.

**FIGURE 3.18**

**GRAPHICAL REPRESENTATION OF MEANS ON THE TOTAL SCORES OF METACOGNITION**




**Gender X Population**

It has been observed from the Table 3.17, that F-ratios for the interaction between gender and population of senior secondary school students on 'Declarative knowledge', 'Procedural knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension

monitoring', 'Debugging strategies' and 'Evaluation' dimensions of metacognition and total of metacognition are found to be 0.86, 0.15, 0.19, 0.71, 1.34, 1.49, 0.33, 0.13 and 0.77 which are not found to be significant even at the 0.05 level of confidence. This indicates that perception of senior secondary school students on various dimensions of metacognition and total score of metacognition as a result of interaction of gender and population for different sub groups do not differ significantly. Thus, the data does not provide sufficient evidence to reject the hypothesis 13, "There is no interaction effect of gender and population on the scores of metacognition of senior secondary students" for 'Declarative knowledge', 'Procedural knowledge', 'Conditional knowledge', 'Planning' and 'Information Management Strategies', 'Comprehension monitoring', 'Debugging strategies' and 'Evaluation' dimensions of metacognition and total of metacognition. Meaning thereby that senior secondary students as an interaction of gender and population does not differ significantly in their metacognition.

**THREE ORDER INTERACTION**

**Locality X Gender X Population**

It has been observed from the Table 3.17, that F-ratio for the interaction between locality, gender and population of senior secondary school students on 'Declarative knowledge', 'Evaluation' dimension of metacognition is found to be 4.76 and 5.65 which is significant at the 0.05 level of confidence. This indicates that senior secondary school students on 'Declarative knowledge', 'Evaluation' dimension of metacognition as a result of interaction of locality, gender and population for different sub groups differ significantly. Thus, the data provides sufficient evidence to reject the hypothesis 14, "There is no interaction effect of locality, gender and population on the scores of metacognition of senior secondary students" for 'Declarative knowledge', 'Evaluation' dimension of metacognition. To further analyze the significant difference between various groups, t-values for the various sub groups have been calculated and are presented in the Table 3.23.

**TABLE 3.23**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'DECLARATIVE KNOWLEDGE' DIMENSION OF METACOGNITION**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M= 6.3<br>SD= 1.71<br>N= 63 | Boys from urban least populated districts | M=6.97<br>SD=1.34<br>N=62 | 2.44* |
| Boys from rural least populated districts | M= 6.3<br>SD= 1.71<br>N= 63 | Girls from rural least populated districts | M=6.95<br>SD=1.58<br>N=62 | 2.21* |
| Boys from rural least populated districts | M= 6.3<br>SD= 1.71<br>N= 63 | Girls from rural highly populated districts | M=6.78<br>SD=1.32<br>N=237 | 2.07* |
| Boys from rural least populated districts | M= 6.3<br>SD= 1.71<br>N= 63 | Girls from urban least populated districts | M=7.16<br>SD=1.11<br>N=63 | 3.35** |
| Boys from rural least populated districts | M= 6.3<br>SD= 1.71<br>N= 63 | Girls from urban highly populated districts | M=6.89<br>SD=1.25<br>N=238 | 2.56* |
| Boys from rural highly populated districts | M= 6.72<br>SD=1.31<br>N=238 | Boys from urban highly populated districts | M=6.46<br>SD=1.37<br>N=237 | 2.11* |
| Boys from rural highly populated districts | M= 6.72<br>SD=1.31<br>N=238 | Girls from urban least populated districts | M=7.16<br>SD=1.11<br>N=63 | 2.69** |
| Boys from urban least populated | M=6.97<br>SD=1.34<br>N=62 | Boys from urban highly populated districts | M=6.46<br>SD=1.37<br>N=237 | 2.66** |

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| districts | | | | |
| Boys from urban highly populated districts | M=6.46<br>SD=1.37<br>N=237 | Girls from rural least populated districts | M=6.95<br>SD=1.58<br>N=62 | 2.23* |
| Boys from urban highly populated districts | M=6.46<br>SD=1.37<br>N=237 | Girls from rural highly populated districts | M=6.78<br>SD=1.32<br>N=237 | 2.59* |
| Boys from urban highly populated districts | M=6.46<br>SD=1.37<br>N=237 | Girls from urban least populated districts | M=7.16<br>SD=1.11<br>N=63 | 4.22** |
| Boys from urban highly populated districts | M=6.46<br>SD=1.37<br>N=237 | Girls from urban highly populated districts | M=6.89<br>SD=1.25<br>N=238 | 3.57** |
| Girls from rural highly populated districts | M= 6.78<br>SD=1.32<br>N=237 | Girls from urban least populated districts | M=7.16<br>SD=1.11<br>N=63 | 2.32* |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.23 that the t value for 13 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provide sufficient evidence to reject the hypothesis 14, “There is no interaction effect of locality, gender and population on the scores of metacognition of senior secondary students” for the ‘Declarative knowledge’ dimension of metacognition.

It is clear from the Table 3.23 that boys from urban least populated districts (6.97) have scored more than the boys from rural least populated districts (6.30) on 'Declarative knowledge' dimension of metacognition. Meaning thereby that senior secondary boy students from urban less populated districts are good in are good in their factual knowledge than the boys from rural least populated districts. Reason may be that in rural areas, activities that facilitate learning have not been provided to them at school.

Similarly, it is clear from the Table 3.23 that girls from rural least populated districts (6.95) have scored higher than boys from rural least populated districts (6.30) on 'Declarative knowledge' dimension of metacognition. Meaning thereby that senior secondary rural girl students from least populated districts are good in their factual knowledge than the boy students from rural less populated districts.

It is clear from Table 3.23 that girls from rural highly populated districts (6.78) have scored more than the boys from rural least populated districts (6.30) on 'Declarative knowledge' dimension of metacognition. Meaning thereby that senior secondary girl students from rural highly populated districts are good in their factual knowledge than boy from rural less populated districts.

It is clear from Table 3.23 that girls from urban least populated districts (7.16) have scored more than boys from rural least populated districts (6.30) on 'Declarative knowledge' dimension of metacognition. Meaning thereby that senior secondary girls from urban less populated districts are good in their factual knowledge than senior secondary boys from rural less populated districts.

It is clear from Table 3.23 that girls from urban highly populated districts (6.89) have scored more than the boys from rural least populated districts (6.30) on 'Declarative knowledge' dimension of metacognition. Meaning thereby that senior secondary girl students from urban highly populated districts are good in their factual knowledge than the senior secondary boys from rural least populated districts.

It is clear from Table 3.23 that boys from rural highly populated districts (6.72) have scored more than the boys from urban highly populated districts

(6.46) on ‘Declarative knowledge’ dimension of metacognition. Meaning thereby that senior secondary boy from rural highly populated districts are good in their factual knowledge than senior secondary boys from urban highly populated districts.

It is clear from Table 3.23 that girls from urban least populated districts (7.16) have scored more than the boys from rural highly populated districts (6.72) on ‘Declarative knowledge’ dimension of metacognition. Meaning thereby that senior secondary urban girls from less populated districts are good in their factual knowledge than rural boys from highly populate districts.

It is clear from Table 3.23 that boys from urban least populated districts (6.97) have scored more than the boys from urban highly populated districts (6.46) on ‘Declarative knowledge’ dimension of metacognition. Meaning thereby that senior secondary urban boys from less populated districts are good in their factual knowledge than urban boys from highly populated districts.

It is clear from Table 3.23 that girls from rural least populated districts (6.95) have scored more than the boys from urban highly populated districts (6.46) on ‘Declarative knowledge’ dimension of metacognition. Meaning thereby that senior secondary rural girls from less populated districts are good in their factual knowledge than urban boys from highly populated districts.

It is clear from Table 3.23 that girls from rural highly populated districts (6.78) have scored more than the boys from urban highly populated districts (6.46) on ‘Declarative knowledge’ dimension of metacognition. Meaning thereby that senior secondary rural girls from highly populated districts are good in their factual knowledge than urban boys from highly populated districts.

It is clear from Table 3.23 that girls from urban least populated districts (7.16) have scored more than the boys from urban highly populated districts (6.46) on ‘Declarative knowledge’ dimension of metacognition. Meaning thereby that senior secondary urban girls from least populated districts are good in their factual knowledge than urban boys from highly populated districts.

It is clear from Table 3.23 that girls from urban highly populated districts (6.89) have scored more than the boys from urban highly populated districts

(6.46) on 'Declarative knowledge' dimension of metacognition. Meaning thereby that senior secondary urban girls from highly populated districts are good in their factual knowledge than urban boys from highly populated districts.

It is clear from Table 3.23 that girls from urban highly populated districts (7.16) have scored more than the girls from rural highly populated districts (6.78) on 'Declarative knowledge' dimension of metacognition. Meaning thereby that senior secondary urban girls from highly populated districts are good in their factual knowledge than the senior secondary rural girls from highly populated districts.

**TABLE 3.24**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'EVALUATION' DIMENSION OF METACOGNITION**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M=4.65 | Boys from urban least populated districts | M=5.4 | 3.67** |
| | SD=1.35 | | SD=0.89 | |
| | N=63 | | N=62 | |
| Boys from rural least populated districts | M=4.65 | Girls from rural least populated districts | M=5.27 | 2.95** |
| | SD=1.35 | | SD=0.97 | |
| | N=63 | | N=62 | |
| Boys from rural least populated districts | M=4.65 | Girls from rural highly populated districts | M=5.16 | 2.76** |
| | SD=1.35 | | SD=1.09 | |
| | N=63 | | N=237 | |
| Boys from rural least populated districts | M=4.65 | Girls from urban least populated districts | M=5.32 | 3.14** |
| | SD=1.35 | | SD=1.02 | |
| | N=63 | | N=63 | |
| Boys from rural least populated districts | M=4.65 | Girls from urban highly populated districts | M=5.11 | 2.47* |
| | SD=1.35 | | SD=1.15 | |
| | N=63 | | N=238 | |
| Boys from rural highly populated districts | M=5 | Boys from urban least populated districts | M=5.4 | 2.90** |
| | SD=1.22 | | SD=0.89 | |
| | N=238 | | N=62 | |

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural highly populated districts | M=5 | Girls from urban least populated districts | M=5.32 | 2.12* |
| | SD=1.22 | | SD=1.02 | |
| | N=238 | | N=63 | |
| Boys from urban least populated districts | M=5.4 | Boys from urban highly populated districts | M=4.86 | 3.84** |
| | SD=0.89 | | SD=1.28 | |
| | N=62 | | N=237 | |
| Boys from urban least populated districts | M=5.4 | Girls from urban highly populated districts | M=5.11 | 2.14* |
| | SD=0.89 | | SD=1.15 | |
| | N=62 | | N=238 | |
| Boys from urban highly populated districts | M=4.86 | Girls from rural least populated districts | M=5.27 | 2.75* |
| | SD=1.28 | | SD=0.97 | |
| | N=237 | | N=62 | |
| Boys from urban highly populated districts | M=4.86 | Girls from rural highly populated districts | M=5.16 | 2.75* |
| | SD=1.28 | | SD=1.09 | |
| | N=237 | | N=237 | |
| Boys from urban highly populated districts | M=4.86 | Girls from urban least populated districts | M=5.32 | 3.00** |
| | SD=1.28 | | SD=1.02 | |
| | N=237 | | N=63 | |
| Boys from urban highly populated districts | M=4.86 | Girls from urban highly populated districts | M=5.11 | 2.24* |
| | SD=1.28 | | SD=1.15 | |
| | N=237 | | N=238 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.24 that the t value for 13 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 14, “There is no interaction effect of locality, gender and population on the scores of metacognition of senior secondary students” for the ‘Evaluation’ dimension of metacognition.

It is clear from the Table3.24 that boys from urban least populated districts (5.40) have scored more than the boys from rural least populated districts (4.65) on 'Evaluation' dimension of metacognition. Meaning thereby that senior secondary urban boys from less populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing task than the senior secondary rural boys from least populated districts.

Similarly, it is clear from the Table 3.24 that girls from rural least populated districts (5.27) have scored higher than boys from rural least populated districts (4.65) on 'Evaluation' dimension of metacognition. Meaning thereby that senior secondary rural girls from least populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing taskthan senior secondary rural boys from least populated districts.

It is clear from Table 3.24 that girls from rural highly populated districts (5.16) have scored more than the boys from rural least populated districts (4.65) on 'Evaluation' of metacognition. Meaning thereby that senior secondary rural girls from highly populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing taskthan senior secondary rural boys from least populated districts.

It is clear from Table 3.24 that girls from urban least populated districts (5.32) have scored more than the boys from rural least populated districts (4.65) on 'Evaluation' dimension of metacognition. Meaning thereby that senior secondary urban girls from less populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing taskthan senior secondary rural boys from least populated districts.

It is clear from Table 3.24 that girls from urban highly populated districts (5.11) have scored more than the boys from rural least populated districts (4.65) on 'Evaluation' dimension of metacognition. Meaning thereby that senior secondary urban girls from highly populated district are more aware about their

own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing task than the senior secondary rural boys from least populated district.

It is clear from Table 3.24 that boys from urban least populated districts (5.40) have scored more than the boys from rural highly populated districts (5.00) on 'Evaluation' dimension of metacognition. Meaning thereby that urban boys from least populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing taskthan senior secondary rural boys from highly populated districts.

It is clear from Table 3.24 that girls from urban least populated districts (5.32) have scored more than the boys from rural highly populated districts (5.00) on 'Evaluation' dimension of metacognition. Meaning thereby that senior secondary urban girls are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing taskthan senior secondary rural boys from highly populated districts.

It is clear from Table 3.24 that boys from urban least populated districts (5.40) have scored more than the boys (4.86) and girls from urban highly populated districts (5.11) on 'Evaluation' dimension of metacognition. Meaning thereby that urban boys from least populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing taskthan senior secondary urban girls and boys from highly populated districts.

It is clear from Table 3.24 that girls from rural least populated districts (5.27) have scored more than the boys from urban highly populated districts (4.86) on 'Evaluation' dimension of metacognition. Meaning thereby that senior secondary rural girls from least populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing task than the senior secondary urban boys from highly populated districts.

It is clear from Table 3.24 that girls from rural highly populated districts (5.16) have scored more than the boys from urban highly populated districts

(4.86) on ‘Evaluation’ dimension of metacognition. Meaning thereby that senior secondary rural girls from highly populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing taskthan senior secondary urban boys from highly populated districts.

It is clear from Table 3.24 that girls from urban least populated districts (5.32) have scored more than the boys from urban highly populated districts (4.86) on ‘Evaluation’ dimension of metacognition. Meaning thereby that senior secondary urban girls from least populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing taskthan the senior secondary urban boys form highly populated districts.

It is clear from Table 3.24 that girls from urban highly populated districts (5.11) have scored more than the boys from urban highly populated districts (4.86) on ‘Evaluation’ dimension of metacognition. Meaning thereby that senior secondary urban girls from highly populated districts are more aware about their own strengths and weaknesses and good in judging the effectiveness of the strategies used in completing taskthan senior secondary urban boys from highly populated districts.

**DISCUSSION ON RESULTS**

Firstly, study results revealed that locality has no influence on the metacognition of senior secondary students which means that senior secondary students from rural and urban areas do not differ in their metacognitive abilities. Similar results were revealed by Jaleel and Premachandran (2016) on secondary school students and found that no significant difference in metacognitive awareness of rural and urban secondary students. A study of Fayyaz and Kamal (2014) & Jagadeeswari and Chandrasekaran (2014) also revealed that locality has no significant impact on the metacognition of secondary school students which is consonance with the present study results.

Secondly, it has been found that gender has influence on metacognition of senior secondary students. The results suggest that senior secondary girl students are more aware of their own cognitive abilities and their application for learning than senior secondary boys. This is found true specifically for 'Declarative Knowledge', 'Procedural Knowledge', 'Conditional Knowledge', 'Planning', 'Information Management Strategies', 'Comprehension Monitoring', and 'Evaluation' dimensions of metacognition. These results are consistent with the study of Peklaj and Pecjak (2002) who concluded that girls know more about cognition related to self-regulation and they employ more metacognitive strategies than boys and use more strategies for controlling effort in learning situations. Sharei et al. (2012); Singh and Kumar (2015) & Amutha and Sudha (2016) represent meaningful difference between males and females in metacognitive capabilities and problem solving abilities.

Thirdly, study findings revealed that senior secondary students from least populated districts are better in applying their procedural knowledge i. e. for the purposes of completing a task/ assignment efficiently than students from highly populated districts. It has also been found that urban students from least populated districts are better in their metacognitive abilities than students from urban highly populated districts

Fourthly, it has been revealed that an interaction of locality, gender and population has influence on the 'Declarative knowledge' and 'Evaluation' dimension of metacognition of senior secondary students. These results are consistent with the study of Vaijayanthi (2012) & Sabna and Hameed (2016) who found that there is interaction effect of locality and gender on the metacognitive abilities of the students.

### 3.2.3 Influence of locality, gender and population on Self Efficacy

To study the self efficacy of the boys and girls senior secondary school students from rural and urban localities of least and highly populated districts, means and standard deviations have been calculated for different dimensions and the total score of self efficacy and are presented below in the Table 3.25.

**TABLE 3.25**

**MEANS, N AND SDs OF VARIOUS DIMENSIONS AND TOTAL SELF EFFICACY w.r.t. LOCALITY, GENDER AND POPULATION**

| Locality | Gender | Population | | SC | EE | PA | OE | SE TOTAL |
|---|---|---|---|---|---|---|---|---|
| Rural | Girls | LPD | M= | 20.74 | 17.94 | 16.92 | 19.65 | 75.24 |
| | | N=62 | **Σ**= | 3.01 | 4.22 | 4.32 | 3.83 | 10.39 |
| | | HPD | M= | 20.47 | 20.6 | 19.26 | 21.29 | 81.61 |
| | | N=237 | **Σ**= | 2.65 | 2.67 | 2.75 | 3.09 | 8.85 |
| | | Total | M= | 20.53 | 20.05 | 18.77 | 20.95 | 80.29 |
| | | N=299 | **Σ**= | 2.73 | 3.23 | 3.27 | 3.32 | 9.53 |
| | Boys | LPD | M= | 19.79 | 19.52 | 19.33 | 20.33 | 78.98 |
| | | N=63 | **Σ**= | 2.36 | 2.84 | 2.96 | 2.78 | 8.85 |
| | | HPD | M= | 20.07 | 19.67 | 18.96 | 20.81 | 79.51 |
| | | N=238 | **Σ**= | 2.86 | 3.3 | 2.94 | 3.26 | 10.01 |
| | | Total | M= | 20.01 | 19.64 | 19.04 | 20.71 | 79.4 |
| | | N=301 | **Σ**= | 2.76 | 3.2 | 2.94 | 3.17 | 9.77 |
| | Total | LPD | M= | 20.26 | 18.74 | 18.14 | 19.99 | 77.13 |
| | | N= 125 | **Σ** = | 2.73 | 3.66 | 3.88 | 3.34 | 9.79 |
| | | HPD | M= | 20.27 | 20.13 | 19.11 | 21.05 | 80.56 |
| | | N= 475 | **Σ**= | 2.76 | 3.03 | 2.85 | 3.18 | 9.5 |
| | | Total | M= | 20.27 | 19.84 | 18.91 | 20.83 | 79.85 |
| | | N=600 | **Σ**= | 2.75 | 3.22 | 3.11 | 3.24 | 9.65 |
| Urban | Girls | LPD | M= | 21.02 | 19.54 | 20.75 | 20.03 | 81.33 |
| | | N=63 | **Σ**= | 2.5 | 2.35 | 2.17 | 3.74 | 7.49 |
| | | HPD | M= | 20 | 19.64 | 19.5 | 20.07 | 79.21 |
| | | N=238 | **Σ**= | 2.6 | 3.23 | 2.72 | 3.02 | 9.01 |
| | | Total | M= | 20.22 | 19.62 | 19.76 | 20.06 | 79.66 |
| | | N=301 | **Σ**= | 2.61 | 3.06 | 2.66 | 3.17 | 8.74 |
| | Boys | LPD | M= | 21.52 | 20.69 | 19.63 | 22.05 | 83.89 |
| | | N=62 | **Σ**= | 2.61 | 2.73 | 2.69 | 2.53 | 8.3 |
| | | HPD | M= | 20.22 | 20.19 | 19.32 | 20.54 | 80.27 |
| | | N=237 | **Σ**= | 2.65 | 2.79 | 2.79 | 3.02 | 8.62 |

| Locality | Gender | Population | | SC | EE | PA | OE | SE TOTAL |
|---|---|---|---|---|---|---|---|---|
| | | Total | M= | 20.49 | 20.29 | 19.39 | 20.85 | 81.02 |
| | | N=299 | **Σ**= | 2.69 | 2.78 | 2.77 | 2.98 | 8.66 |
| | Total | LPD | M= | 21.26 | 20.11 | 20.19 | 21.03 | 82.6 |
| | | N=125 | **Σ**= | 2.55 | 2.6 | 2.5 | 3.34 | 7.97 |
| | | HPD | M= | 20.11 | 19.91 | 19.41 | 20.3 | 79.74 |
| | | N=475 | **Σ**= | 2.63 | 3.03 | 2.75 | 3.02 | 8.82 |
| | | Total | M= | 20.35 | 19.95 | 19.58 | 20.45 | 80.34 |
| | | N=600 | **Σ**= | 2.65 | 2.94 | 2.72 | 3.1 | 8.72 |
| Total | Girls | LPD | M= | 20.88 | 18.74 | 18.85 | 19.84 | 78.31 |
| | | N=125 | **Σ**= | 2.76 | 3.49 | 3.9 | 3.77 | 9.51 |
| | | HPD | M= | 20.24 | 20.12 | 19.38 | 20.68 | 80.41 |
| | | N=475 | **Σ**= | 2.63 | 3 | 2.73 | 3.11 | 9 |
| | | Total | M= | 20.37 | 19.83 | 19.27 | 20.5 | 79.97 |
| | | N=600 | **Σ**= | 2.67 | 3.15 | 3.02 | 3.27 | 9.14 |
| | Boys | LPD | M= | 20.65 | 20.1 | 19.48 | 21.18 | 81.42 |
| | | N=125 | **Σ**= | 2.62 | 2.84 | 2.83 | 2.78 | 8.89 |
| | | HPD | M= | 20.15 | 19.93 | 19.14 | 20.67 | 79.89 |
| | | N=475 | **Σ**= | 2.75 | 3.06 | 2.87 | 3.14 | 9.34 |
| | | Total | M= | 20.25 | 19.97 | 19.21 | 20.78 | 80.21 |
| | | N=600 | **Σ**= | 2.73 | 3.01 | 2.86 | 3.07 | 9.26 |
| | Total | LPD | M= | 20.76 | 19.42 | 19.16 | 20.51 | 79.86 |
| | | N=250 | **Σ**= | 2.69 | 3.24 | 3.41 | 3.38 | 9.32 |
| | | HPD | M= | 20.19 | 20.02 | 19.26 | 20.68 | 80.15 |
| | | N=950 | **Σ**= | 2.69 | 3.03 | 2.8 | 3.12 | 9.17 |
| | | Total | M= | 20.31 | 19.9 | 19.24 | 20.64 | 80.09 |
| | | N=1200 | **Σ**= | 2.7 | 3.08 | 2.94 | 3.18 | 9.2 |

**SC**=Self Confidence**, EE**=Efficacy Expectation**, PA**=Positive Attitude, **OE**=Outcome Expectation, **SE TOTAL=**Self Efficacy Total

**FIGURE 3.19**

**GRAPHICAL REPRESENTATION OF VARIOUS DIMENSIONS OF SELF EFFICACY WITH RESPECT TO LOCALITY, GENDER AND POPULATION**

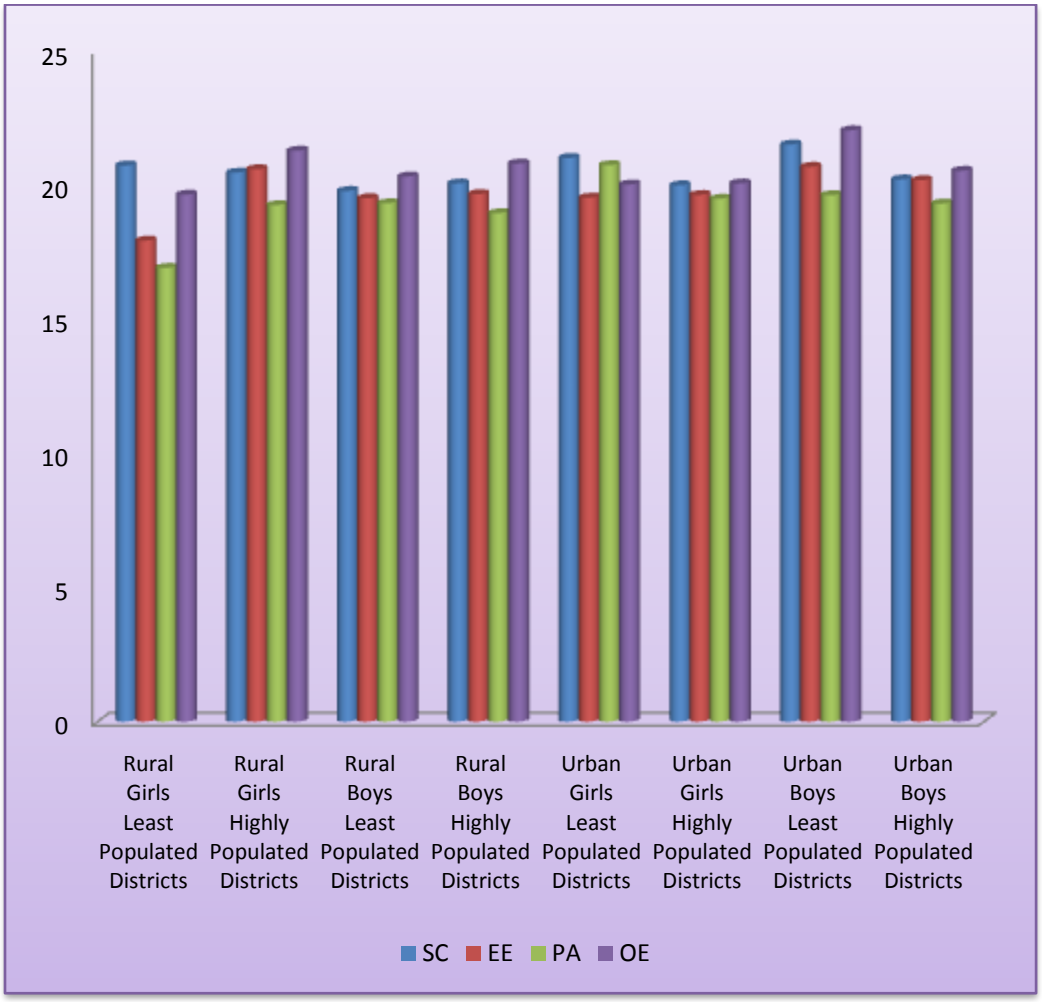
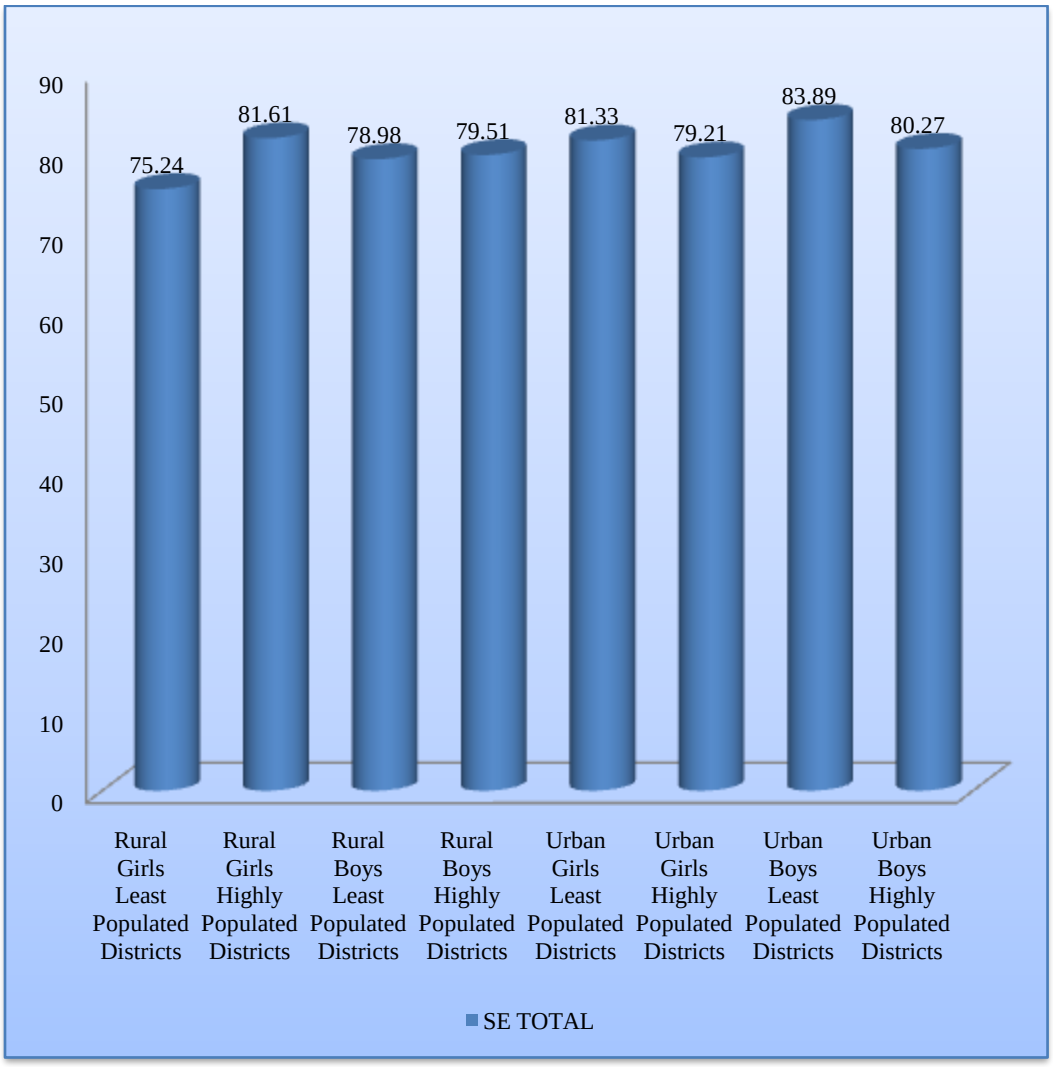


**FIGURE 3.20**

**GRAPHICAL REPRESENTATION OF SELF EFFICACY TOTAL WITH RESPECT TO LOCALITY, GENDER AND POPULATION**




In order to analyze the variance of various dimensions and total score of self efficacy of the boys and girls senior secondary school students from rural and urban localities of least and highly populated districts, the obtained scores were subjected to ANOVA and the results have been presented in the Table 3.26.

**TABLE 3.26**

**SUMMARY OF 2X2X2 DESIGN WITH RESPECT TO VARIOUS DIMENSIONS OF SELF EFFICACY IN RELATION TO LOCALITY, GENDER AND POPULATION**

| **SELF EFFICACY** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Self Confidence** | | | **Efficacy Expectation** | | | **Positive Attitude** | | |
| **Source** | **df** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** |
| **L** | 1 | 34.92 | 34.92 | 4.84* | 67.45 | 67.45 | 7.32** | 276.46 | 276.5 | 33.41** |
| **G** | 1 | 4.9 | 4.9 | 0.68 | 69.02 | 69.02 | 7.49** | 8.45 | 8.45 | 1.02 |
| **P** | 1 | 65.67 | 65.67 | 9.11** | 71.43 | 71.43 | 7.75** | 2.14 | 2.14 | 0.26 |
| **L*G** | 1 | 52.52 | 52.52 | 7.28** | 13.58 | 13.58 | 1.47 | 143.9 | 143.9 | 17.39** |
| **L*P** | 1 | 66.15 | 66.15 | 9.18** | 127.66 | 127.7 | 13.86** | 153.002 | 153 | 18.49** |
| **G*P** | 1 | 0.87 | 0.87 | 0.12 | 120.56 | 120.6 | 13.08** | 38.63 | 38.63 | 4.66* |
| **L*G*P** | 1 | 8.65 | 8.65 | 1.2 | 45.44 | 45.44 | 4.93* | 164.88 | 164.9 | 19.92** |
| **Error** | 1192 | 8589.04 | 7.2 | | 10979.36 | 9.21 | | 9862.44 | 8.27 | |
| **Total** | 1200 | 503778 | | | 486572 | | | 454637 | | |
| | | **Outcome Expectation** | | | **Self Efficacy Total** | | | | | |
| **Source** | **df** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | | | |
| **L** | 1 | 4.61 | 4.61 | 0.46 | 1082.33 | 1082 | 13.14** | | | |
| **G** | 1 | 89.72 | 89.72 | 9.1** | 341.25 | 341.3 | 4.14* | | | |
| **P** | 1 | 5.17 | 5.17 | 0.52 | 16.7 | 16.7 | 0.2 | | | |
| **L*G** | 1 | 63.67 | 63.67 | 6.46* | 47.83 | 47.83 | 0.58 | | | |
| **L*P** | 1 | 159.6 | 159.6 | 16.19** | 1974.4 | 1974 | 23.97** | | | |
| **G*P** | 1 | 91.26 | 91.26 | 9.26** | 666.28 | 666.3 | 8.09** | | | |
| **L*G*P** | 1 | 1.86 | 1.86 | 0.18 | 233.34 | 233.3 | 2.83 | | | |
| **Error** | 1192 | 11744.7 | 9.85 | | 98175.1 | 82.36 | | | | |
| **Total** | 1200 | 523438 | | | 7798969 | | | | | |

*** Significant at 0.05 level of Confidence**
**** Significant at 0.01 level of Confidence**
**F value at (1, 1192) df: 3.85 (0.05 level); 6.66 (0.01 level)**

**MAIN EFFECTS**

**Locality**

It has been observed from the Table3.26 that F-ratios for the differences in 'Self confidence', 'Efficacy expectation', 'Positive attitude' dimensions of self efficacy and total score of self efficacy between senior secondary school students from rural and urban background are found to be 4.84, 7.32, 33.41 and 13.14 which are found to be significant either at the 0.01 or 0.05 level of confidence. This indicates that two groups of rural and urban senior secondary school students differ significantly on their scores of 'Self confidence', 'Efficacy expectation', 'Positive attitude' dimensions of self efficacy and total score of self efficacy. Thus, the data provide sufficient evidence to reject the hypothesis 15, "There exists no significant difference between rural and urban senior secondary students in their self efficacy" for 'Self confidence', 'Efficacy expectation', 'Positive attitude' dimensions of self efficacy and total score of self efficacy.

From reviewing the corresponding means in the Table 3.25, it is found that senior secondary students from urban locality (20.35) had scored more on 'Self confidence' dimension of self efficacy than senior secondary students from rural locality (20.27). This means that urban senior secondary students are more self confident in their own abilities to perform a task or to reach at a certain than the rural senior secondary students.

From reviewing the corresponding means in the Table 3.25, it is found that senior secondary students from urban locality (19.95) had scored more on 'Efficacy expectation' dimension of self efficacy than senior secondary students from rural locality (19.84). This means thatsenior secondary students from urban locality are more convicted to produce the behavior required to generate the particular outcome than rural senior secondary students.

From reviewing the corresponding means in the Table 3.25, it is found that senior secondary students from urban locality (19.58) had scored more on 'Positive attitude' dimension of self efficacy than senior secondary students from rural locality (18.91). This means that senior secondary students from urban locality are having more positive attitude and tend to look good to overcome

problems to find the opportunities in every situation as compare to rural senior secondary students.

From reviewing the corresponding means in the Table 3.25, it is found that senior secondary students from urban locality (80.34) had scored more on the total score of self efficacy than senior secondary students from rural locality (79.85). This means that urban senior secondary school students are more confident about their abilities to perform a task, reaching a goal and overcome an obstacle than students from rural locality.

It has been observed from the Table 3.26 that F-ratio for the differences in 'Outcome expectation' dimension of self efficacy between senior secondary students from rural and urban locality is found to be 0.46, which is not found to be significant even at the 0.05 level of confidence. This indicates that two groups of senior secondary students i.e. students from rural and urban locality do not differ significantly on their scores of 'Outcome expectation' dimension of self efficacy. Thus, the data did not provide sufficient evidence to reject the hypothesis 15, "There exists no significant difference between rural and urban senior secondary students in their self efficacy" for 'Outcome expectation' dimension of self efficacy. Meaning thereby, that both rural and urban senior secondary school students do not differ in their abilities in reaching at desired outcomes.

**Gender**

It has been observed from the Table 3.26 that F-ratios for the differences in 'Efficacy expectation', 'Outcome Expectation' dimensions of self efficacy and total scores of self efficacy between senior secondary school boys and girls students found to be 7.49, 9.1 and 4.14 which are found to be significant at the 0.01 level of confidence. This indicates that two groups of senior secondary school students i.e. senior secondary boys and girls differ significantly on their scores of 'Efficacy expectation', 'Outcome expectation' dimensions of self efficacy and total score of self efficacy. Thus, the data provides sufficient evidence to reject the hypothesis 16, "There exists no significant difference between senior secondary boys and girls in their self efficacy" for 'Efficacy

expectation', 'Outcome Expectation' dimensions of self efficacy and total score of self efficacy.

From reviewing the corresponding means in the Table 3.25, it is found that senior secondary student boys (19.97) had scored more on 'Efficacy expectation' dimension of self efficacy than senior secondary girls (19.83). This means thatsenior secondary boy students are more convicted to produce the behavior required to generate the particular outcome as compared to senior secondary girl students.

From reviewing the corresponding means in the Table 3.25, it is found that senior secondary boy students (20.78) had scored more on 'Outcome expectation' dimension of self efficacy than senior secondary girls (20.50). This means that senior secondary boy students are more abilities in reaching out at particular outcome than senior secondary girl students.

From reviewing the corresponding means in the Table 3.25, it is found that senior secondary boy students (80.21) had scored more on total self efficacy than senior secondary girls (79.97). This means that senior secondary boy students are more confident about their abilities to perform a task, reaching a goal and overcome an obstacle than senior secondary girl students.

It has been observed from the Table 3.25 that F-ratio for the differences in 'Self Confidence' and 'Positive Attitude' dimension of self efficacy between senior secondary boys and girls students is found to be 0.68 and 1.02, which is not found to be significant even at the 0.05 level of confidence. This indicates that two groups of senior secondary boy and girl students do not differ significantly on their scores of 'Self Confidence' and 'Positive Attitude' dimension of self efficacy. Thus, the data did not provide sufficient evidence to reject the hypothesis 16, "There exists no significant difference between senior secondary boys and girls in their self efficacy" for 'Self Confidence' and 'Positive Attitude' dimension of self efficacy. Meaning thereby, that senior secondary both girls and boys do not differ in their self confidence and positive attitude

**Population**

It has been observed from the Table 3.26 that F-ratios for the differences in 'Self Confidence' and 'Efficacy expectation' dimensions of self efficacy between senior secondary school students from least populated and highly populated districts found to be 9.11 and 7.75 which are found to be significant at the 0.01 level of confidence. This indicates that two groups of senior secondary school students i.e. senior secondary students from least and highly populated districts differ significantly on their scores of 'Self Confidence' and 'Efficacy expectation' dimensions of self efficacy. Thus, the data provide sufficient evidence to reject the hypothesis 17, "There exists no significant difference between senior secondary students from least and highly populated districts in their self efficacy" for 'Self Confidence' and 'Efficacy expectation' dimensions of self efficacy.

From reviewing the corresponding means in the Table 3.25, it is found that senior secondary students from least populated districts (20.76) had scored more on 'Self Confidence' dimension of self efficacy than senior secondary students from highly populated districts (20.19). This means that senior secondary students from least populated districts are more self confident in their own abilities to perform a task or to reach at certain than senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.25, it is found that senior secondary students from highly populated districts (20.02) had scored more on 'Efficacy Expectation' dimension of self efficacy than senior secondary students from least populated districts (19.83). This means that senior secondary students from highly populated districtsare more convicted to produce the behavior required to generate the particular outcome than senior secondary students from least populated districts.

It has been observed from the Table 3.26 that F-ratio for the differences in 'Positive Attitude', 'Outcome Expectation' dimensions of self efficacy and total score of self efficacy between senior secondary students from least and highly populated districts is found to be 0.26, 0.52 and 0.20, which is not found to be

significant even at the 0.05 level of confidence. This indicates that two groups of senior secondary students from least and highly populated districts do not differ significantly on their scores of 'Positive Attitude', 'Outcome Expectation' dimensions of self efficacy and total score of self efficacy. Thus, the data did not provide sufficient evidence to reject the hypothesis 17, "There exists no significant difference between senior secondary students from least and highly populated districts in their self efficacy" for 'Positive Attitude', 'Outcome Expectation' dimensions of self efficacy. Meaning thereby, that senior secondary school students from least and highly populated districts do not differ in their positive attitude and outcome expectation.

**TWO ORDER INTERACTION**

**Gender X Locality**

It has been observed from the Table 3.26, that F-ratio for the interaction between gender and locality of senior secondary school students on 'Self Confidence', 'Positive Attitude' and 'Outcome Expectation' dimension of self efficacy is found to be 7.28, 17.39 and 6.46 which is significant at the 0.01 level of confidence. This indicates that senior secondary school students on 'Self Confidence', 'Positive Attitude' and 'Outcome Expectation' dimension of self efficacy as a result of interaction of gender and locality for different sub groups differ significantly. Thus, the data provides sufficient evidence to reject the hypothesis 18, "There is no interaction effect of gender and locality on the scores of self efficacy of senior secondary students" for 'Self Confidence', 'Positive Attitude' and 'Outcome Expectation' dimension of self efficacy. To further analyze the significant difference between various groups, t-values for the various sub groups have been calculated and are presented in the Table 3.27, 3.28 and 3.29.

**TABLE 3.27**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'SELF CONFIDENCE' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Urban Boys | M= 20.49 | Rural Boys | M= 20.01 | 2.16* |
| | SD= 2.69 | | SD= 2.76 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 20.49 | Urban Girls | M= 20.22 | 1.25 |
| | SD= 2.69 | | SD= 2.61 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 20.49 | Rural Girls | M= 20.53 | 0.18 |
| | SD= 2.69 | | SD= 2.73 | |
| | N= 299 | | N= 299 | |
| Rural Boys | M= 20.01 | Urban Girls | M= 20.22 | 0.96 |
| | SD= 2.76 | | SD= 2.61 | |
| | N= 301 | | N= 301 | |
| Rural Boys | M= 20.01 | Rural Girls | M= 20.53 | 2.32* |
| | SD= 2.76 | | SD= 2.73 | |
| | N= 301 | | N= 299 | |
| Urban Girls | M= 20.22 | Rural Girls | M= 20.53 | 1.42 |
| | SD= 2.61 | | SD= 2.73 | |
| | N= 301 | | N= 299 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.27 that the t value for 2 sub groups were found to be significant at the 0.05 level of confidence. From means analysis, in the Table 3.27, it is clear that urban boys (20.49) have scored more than rural boys (20.01) on 'Self confidence' dimension of self efficacy. Meaning thereby, that senior secondary boy students from urban localities are more self confident in their own abilities to perform a task or to reach at a certain than senior secondary girl students.

From means analysis, in the Table 3.27, it is clear that rural girls (20.53) have scored more than rural boys (20.01) on 'Self confidence' dimension of self efficacy. Meaning thereby, that senior secondary girl students from rural localities are more self confident in their own abilities to perform a task or to reach at a certain than senior secondary boy students from rural localities. Mean scoreson the 'Self Confidence' dimension of Self Efficacy is shown in below given Figure 3.21.

**FIGURE 3.21**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'SELF CONFIDENCE' DIMENSION OF SELF EFFICACY**

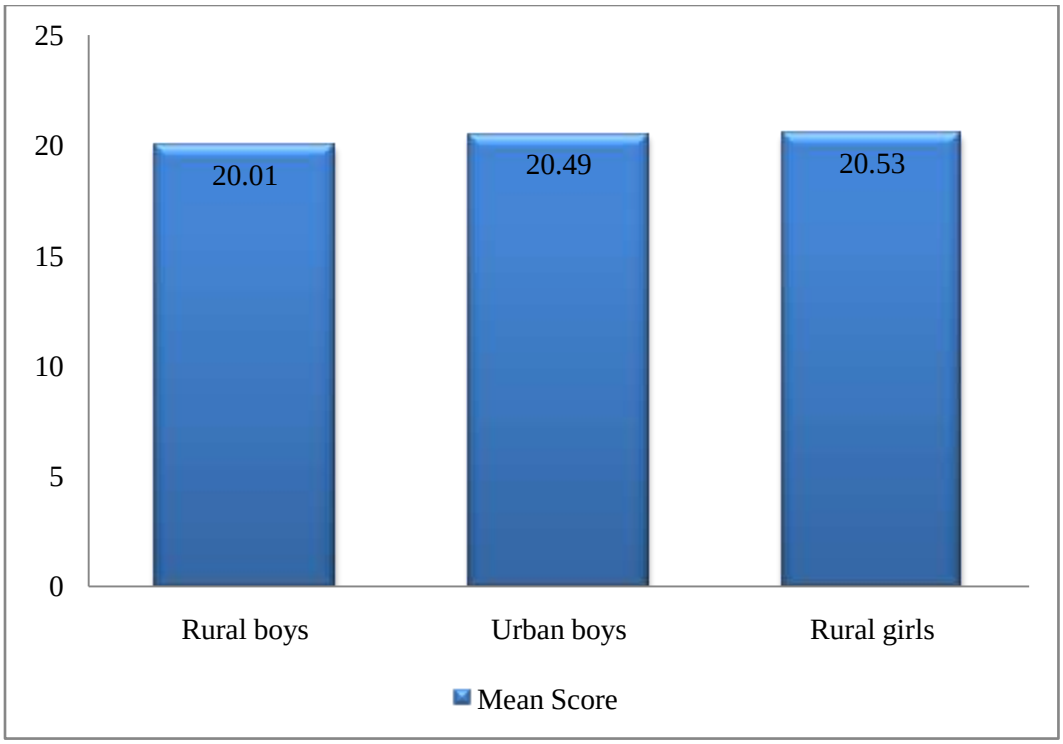


**TABLE 3.28**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'POSITIVE ATTITUDE' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Urban Boys | M= 19.39 | Rural Boys | M= 19.04 | 1.50 |
| | SD= 2.77 | | SD= 2.94 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 19.39 | Urban Girls | M= 19.76 | 1.66 |
| | SD= 2.77 | | SD= 2.66 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 19.39 | Rural Girls | M= 18.77 | 2.50* |
| | SD= 2.77 | | SD= 3.27 | |
| | N= 299 | | N= 299 | |
| Rural Boys | M= 19.04 | Urban Girls | M= 19.76 | 3.15** |
| | SD= 2.94 | | SD= 2.66 | |
| | N= 301 | | N= 301 | |
| Rural Boys | M= 19.04 | Rural Girls | M= 18.77 | 1.06 |
| | SD= 2.94 | | SD= 3.27 | |
| | N= 301 | | N= 299 | |
| Urban Girls | M= 19.76 | Rural Girls | M= 18.77 | 4.06** |
| | SD= 2.66 | | SD= 3.27 | |
| | N= 301 | | N= 299 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.28 that the t value for 3 sub groups were found to be significant either at the 0.05 or the 0.01 level of confidence. From means analysis, in the Table 3.28, it is clear that urban boys (19.39) have scored more than rural girls (18.77) on 'Positive attitude' dimension of self efficacy. Meaning thereby, that senior secondary boy students from urban localities are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary girl students from rural localities.

From means analysis, in the Table 3.28, it is clear that urban girls (19.76) have scored more than rural boys (19.04) on 'Positive attitude' dimension of self efficacy. Meaning thereby, that senior secondary girl students from urban localities are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary boy students from rural localities.

From means analysis, in the Table 3.28, it is clear that urban girls (19.76) have scored more than rural girls (18.77) on 'Positive attitude' dimension of self efficacy. Meaning thereby, that senior secondary girl students from urban localities are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary girl students from rural localities. Mean scoreson the 'Positive Attitude' dimension of Self Efficacy is shown in below given Figure 3.22.

**FIGURE 3.22**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'POSITIVE ATTITUDE' DIMENSION OF SELF EFFICACY**

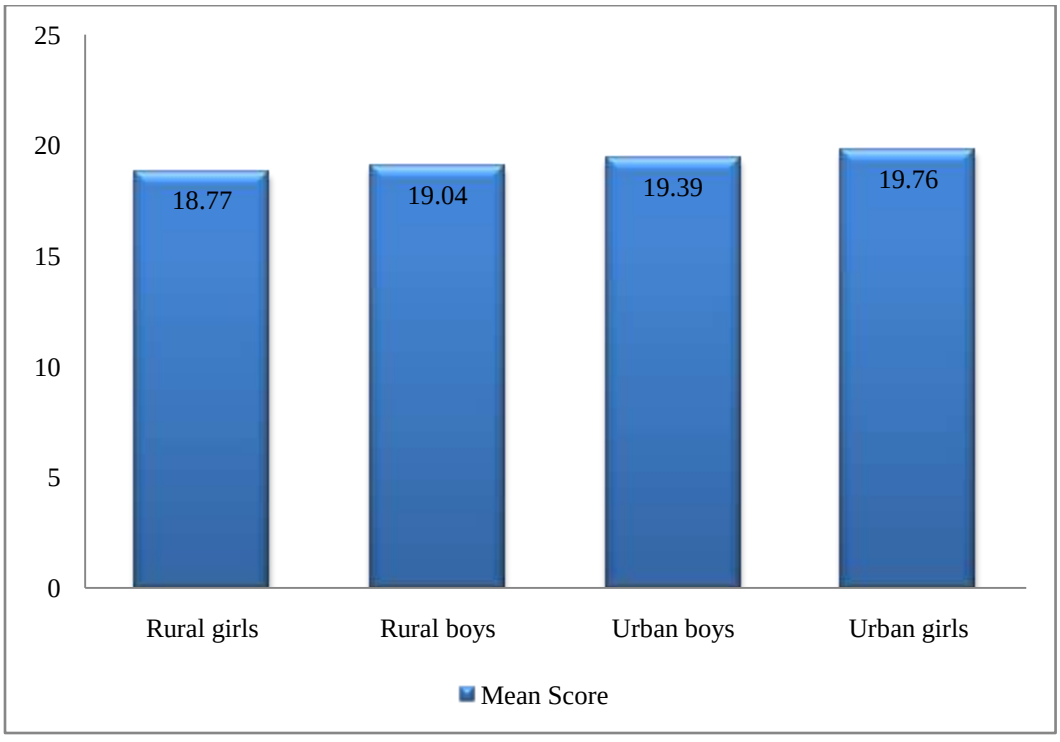


**TABLE 3.29**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'OUTCOME EXPECTATION' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Urban Boys | M= 20.85 | Rural Boys | M= 20.71 | 0.56 |
| | SD= 2.98 | | SD= 3.17 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 20.85 | Urban Girls | M= 20.06 | 0.43 |
| | SD= 2.98 | | SD= 3.17 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 20.85 | Rural Girls | M= 20.95 | 0.39 |
| | SD= 2.98 | | SD= 3.32 | |
| | N= 299 | | 299 | |
| Rural Boys | M= 20.71 | Urban Girls | M= 20.06 | 2.51* |
| | SD= 3.17 | | SD= 3.17 | |
| | N= 301 | | N= 301 | |
| Rural Boys | M= 20.71 | Rural Girls | M= 20.95 | 0.91 |
| | SD= 3.17 | | SD= 3.32 | |
| | N= 301 | | 299 | |
| Urban Girls | M= 20.06 | Rural Girls | M= 20.95 | 3.36** |
| | SD= 3.17 | | SD= 3.32 | |
| | N= 301 | | 299 | |

*Significant at 0.05 level of confidence

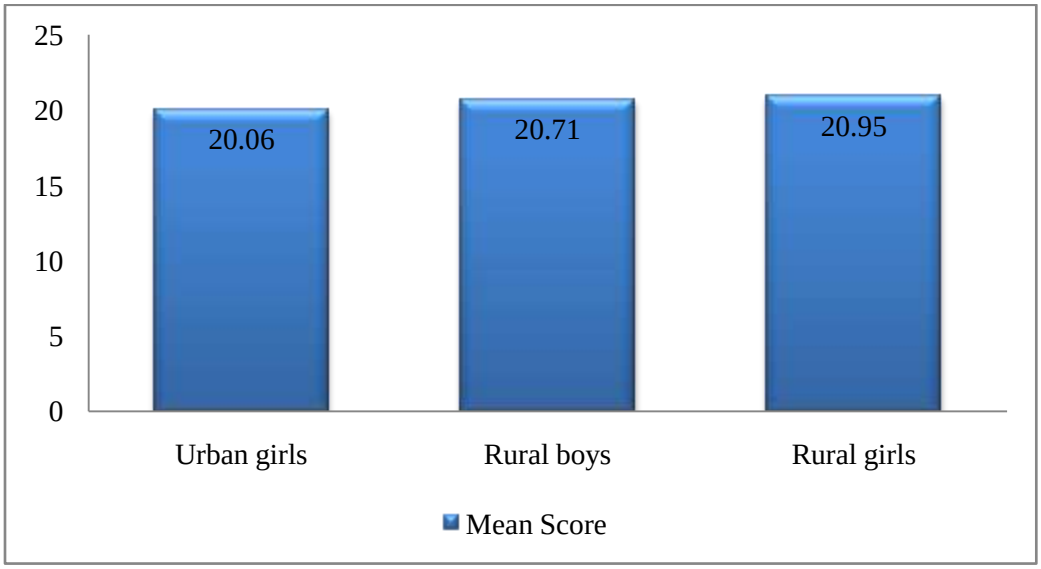
** Significant at 0.01 level of confidence

It has been observed from the Table 3.29 that the t value for 2 sub groups were found to be significant at the 0.05 and at the 0.01 level of confidence. From means analysis, in the Table 3.29, it is clear that rural boys (20.71) have scored more than urban girls (20.06) on 'Outcome expectation' dimension of self efficacy. Meaning thereby, that senior secondary boy students from rural localities are having more abilities in reaching out at particular outcome than senior secondary girl students from urban localities.

From means analysis, in the Table 3.29, it is clear that rural girls (20.95) have scored more than urban girls (20.06) on 'Outcome expectation' dimension of self efficacy. Meaning thereby, that senior secondary girl students from rural localities are more having abilities in reaching out at particular outcome than senior secondary girl students from urban localities. Mean scores on the 'Outcome Expectation' dimension of Self Efficacy is shown in below given Figure 3.23.

**FIGURE 3.23**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'OUTCOME EXPECTATION'DIMENSION OF SELF EFFICACY**




**Locality X Population**

It has been observed from the Table 3.26, that F-ratio for the interaction between locality and population of senior secondary school students on 'Self Confidence', 'Efficacy Expectation', 'Positive Attitude', 'Outcome Expectation' dimension of self efficacy and total score of self efficacy is found to be 9.18, 13.86, 18.49, 16.19 and 23.97 which is significant at the 0.01 level of confidence. This indicates that senior secondary school students on 'Self Confidence', 'Efficacy Expectation', 'Positive Attitude', 'Outcome Expectation' dimension of self efficacy and total score of self efficacy as a result of interaction of locality and population for different sub groups differ significantly. Thus, the data provide sufficient evidence to reject the hypothesis 19,"There is no interaction effect of

locality and population on the scores of self efficacy of senior secondary students" for 'Self Confidence', 'Efficacy Expectation', 'Positive Attitude', 'Outcome Expectation' dimension of self efficacy and total score of self efficacy. To further analyze the significant difference between various groups, t-values for the various sub groups have been calculated and are presented in the Table 3.30, 3.31, 3.32, 3.33, and 3.34.

**TABLE 3.30**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'SELF CONFIDENCE' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M= 20.26<br>SD= 2.73<br>N= 125 | Urban least populated districts | M= 21.26<br>SD= 2.55<br>N= 125 | 2.99** |
| Rural least populated districts | M= 20.26<br>SD= 2.73<br>N= 125 | Rural highly populated districts | M= 20.27<br>SD= 2.76<br>N= 475 | 0.03 |
| Rural least populated districts | M= 20.26<br>SD= 2.73<br>N= 125 | Urban highly populated districts | M= 20.11<br>SD= 2.63<br>N= 475 | 0.55 |
| Urban least populated districts | M= 21.26<br>SD= 2.55<br>N= 125 | Rural highly populated districts | M= 20.27<br>SD= 2.76<br>N= 475 | 3.79** |
| Urban least populated districts | M= 21.26<br>SD= 2.55<br>N= 125 | Urban highly populated districts | M= 20.11<br>SD= 2.63<br>N= 475 | 4.46** |
| Rural highly populated districts | M= 20.27<br>SD= 2.76<br>N= 475 | Urban highly populated districts | M= 20.11<br>SD= 2.63<br>N= 475 | 0.91 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.30 that the t value for 3 sub groups was found to be significant at the 0.01 level of confidence. From means analysis, in the Table 3.30, it is clear that students from urban least populated districts(21.26) have scored more than students from rural least populated districts(20.26) on 'Self confidence' dimension of self efficacy. Meaning thereby, that senior secondary school students from urban least populated districts are more self confident in their own abilities to perform a task or to reach at a certain than senior secondary school students from rural least populated districts.

From means analysis, in the Table 3.30, it is clear that students from urban least populated districts (21.26)have scored more than students from rural highly populated districts (20.27) and urban highly populated districts (20.11) on 'Self confidence' dimension of self efficacy. Meaning thereby, that senior secondary school students from urban least populated districts are more self confident in their own abilities to perform a task or to reach at a certain than senior secondary school students from rural and urban highly populated districts. Mean scoreson the 'Self Confidence' dimension of Self Efficacy is shown in below given Figure 3.24.

**FIGURE 3.24**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'SELF CONFIDENCE'DIMENSION OF SELF EFFICACY**

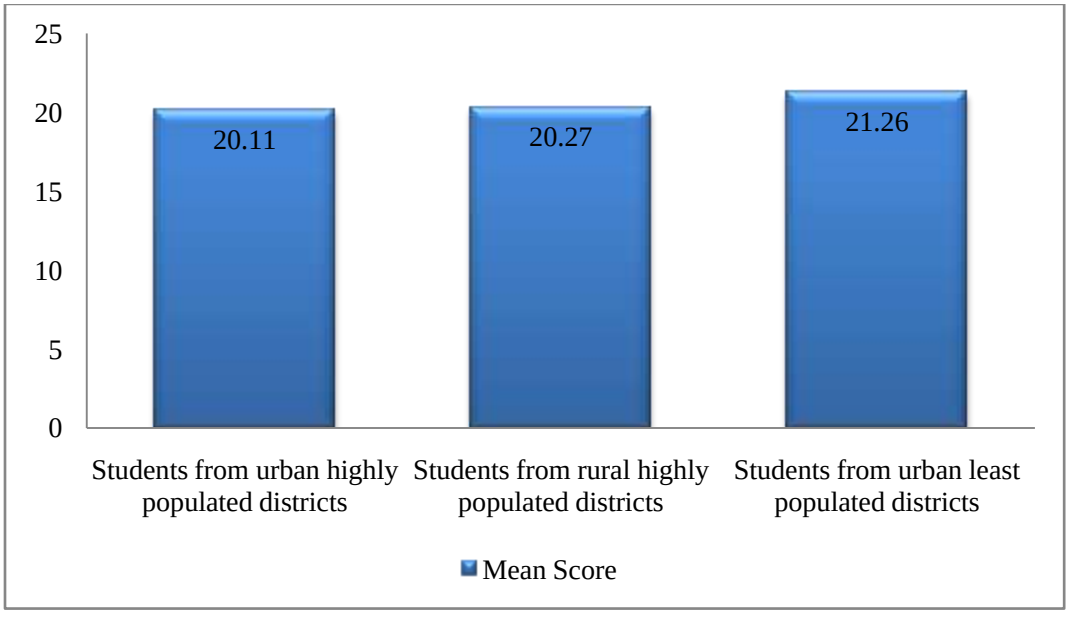


**TABLE 3.31**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'EFFICACY EXPECTATION' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M= 18.74<br>SD= 3.66<br>N= 125 | Urban least populated districts | M= 20.11<br>SD= 2.6<br>N= 125 | 3.41** |
| Rural least populated districts | M= 18.74<br>SD= 3.66<br>N= 125 | Rural highly populated districts | M= 20.13<br>SD= 3.03<br>N= 475 | 3.9** |
| Rural least populated districts | M= 18.74<br>SD= 3.66<br>N= 125 | Urban highly populated districts | M= 19.91<br>SD=3.03<br>N=475 | 3.29** |
| Urban least populated districts | M= 20.11<br>SD= 2.6<br>N= 125 | Rural highly populated districts | M= 20.13<br>SD= 3.03<br>N= 475 | 0.07 |
| Urban least populated districts | M= 20.11<br>SD= 2.6<br>N= 125 | Urban highly populated districts | M= 19.91<br>SD=3.03<br>N=475 | 0.74 |
| Rural highly populated districts | M= 20.13<br>SD= 3.03<br>N= 475 | Urban highly populated districts | M= 19.91<br>SD=3.03<br>N=475 | 1.12 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.31 that the t value for 3 sub groups were found to be significant at the 0.01 level of confidence. From means analysis, in the Table 3.31, it is clear that students from urban least populated districts(20.11) have scored more than students from rural least populated districts (18.74) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby, that senior secondary school students from urban least populated districts are more convicted to produce the behaviour required to generate the particular

outcome than senior secondary school students from rural least populated districts.

From means analysis, in the Table 3.31, it is clear that students from rural highly populated districts (20.13) have scored more than students from rural least populated districts (18.74) on Efficacy expectation' dimension of self efficacy. Meaning thereby, that senior secondary school students from rural highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary school students from rural least populated districts.

From means analysis, in the Table 3.31, it is clear that students from urban highly populated districts (19.91)have scored more than students from rural least populated districts (18.74) on Efficacy expectation' dimension of self efficacy. Meaning thereby, that senior secondary school students from urban highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary school students from rural least populated districts. Mean scoreson the 'Efficacy Expectation' dimension of Self Efficacy is shown in below given Figure 3.25.

**FIGURE 3.25**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'EFFICACY EXPECTATION'DIMENSION OF SELF EFFICACY**

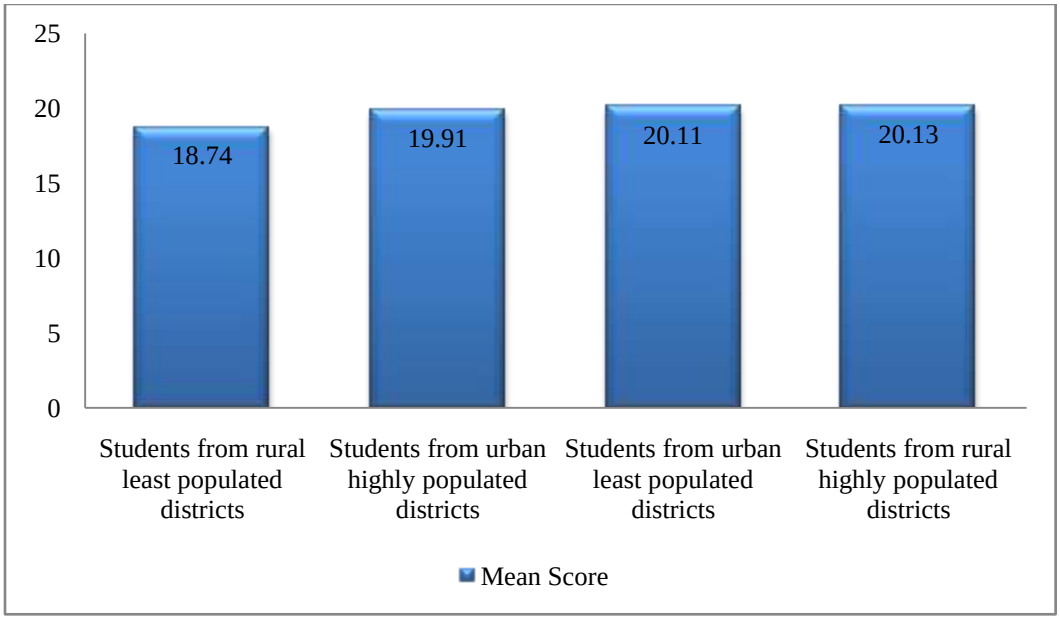


**TABLE 3.32**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'POSITIVE ATTITUDE' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M=18.14 | Urban least populated districts | M=20.19 | 4.97** |
| | SD=3.88 | | SD=2.5 | |
| | N=125 | | N=125 | |
| Rural least populated districts | M=18.14 | Rural highly populated districts | M=19.11 | 2.62** |
| | SD=3.88 | | SD=2.85 | |
| | N=125 | | N=475 | |
| Rural least populated districts | M=18.14 | Urban highly populated districts | M=19.41 | 3.44** |
| | SD=3.88 | | SD=2.75 | |
| | N=125 | | N=475 | |
| Urban least populated districts | M=20.19 | Rural highly populated districts | M=19.11 | 4.17** |
| | SD=2.5 | | SD=2.85 | |
| | N=125 | | N=475 | |
| Urban least populated districts | M=20.19 | Urban highly populated districts | M=19.41 | 3.04** |
| | SD=2.5 | | SD=2.75 | |
| | N=125 | | N=475 | |
| Rural highly populated districts | M=19.11 | Urban highly populated districts | M=19.41 | 1.65 |
| | SD=2.85 | | SD=2.75 | |
| | N=475 | | N=475 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.32 that the t value for 5 sub groups was found to be significant at the 0.01 level of confidence. From means analysis, in the Table 3.32, it is clear that students from urban least populated districts(20.19) have scored more than students from rural least populated districts (18.14) on 'Positive attitude' dimension of self efficacy. Meaning thereby, that senior secondary school students from urban least populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary school students from rural least populated districts.

From means analysis, in the Table 3.32, it is clear that students from rural highly populated districts (19.11) have scored more than students from rural least populated districts (18.14) on 'Positive attitude' dimension of self efficacy. Meaning thereby, that senior secondary school students from rural highly

populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary school students from rural least populated districts.

From means analysis, in the Table 3.32, it is clear that students from urban highly populated districts (19.41) have scored more than students from rural least populated districts (18.14) on 'Positive attitude' dimension of self efficacy. Meaning thereby, that senior secondary school students from urban highly populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than the senior secondary school students from rural least populated districts.

From means analysis, in the Table 3.32, it is clear that students from urban least populated districts (20.19) have scored more than students from rural highly populated districts (19.11) and students from urban highly populated districts (19.41) on 'Positive attitude' dimension of self efficacy. Meaning thereby, that senior secondary school students from urban least populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary school students from rural and urban highly populated districts. Mean scoreson the 'Positive Attitude' dimension of Self Efficacy is shown in below given Figure 3.26.

**FIGURE 3.26**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'POSITIVE ATTITUDE'DIMENSION OF SELF EFFICACY**

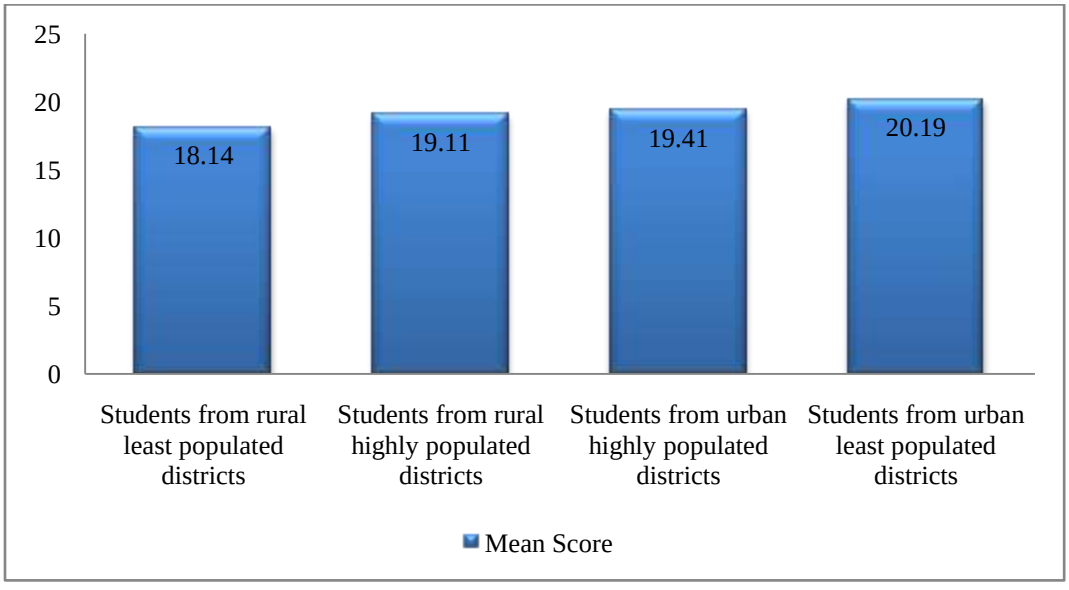


**TABLE 3.33**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'OUTCOME EXPECTATION' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M=19.99 | Urban least populated districts | M=21.03 | 2.46* |
| | SD=3.34 | | SD=3.34 | |
| | N=125 | | N=125 | |
| Rural least populated districts | M=19.99 | Rural highly populated districts | M=21.05 | 3.19** |
| | SD=3.34 | | SD=3.18 | |
| | N=125 | | N=475 | |
| Rural least populated districts | M=19.99 | Urban highly populated districts | M=20.3 | 0.94 |
| | SD=3.34 | | SD=3.02 | |
| | N=125 | | N=475 | |
| Urban least populated districts | M=21.03 | Rural highly populated districts | M=21.05 | 0.06 |
| | SD=3.34 | | SD=3.18 | |
| | N=125 | | N=475 | |
| Urban least populated districts | M=21.03 | Urban highly populated districts | M=20.3 | 2.22* |
| | SD=3.34 | | SD=3.02 | |
| | N=125 | | N=475 | |
| Rural highly populated districts | M=21.05 | Urban highly populated districts | M=20.3 | 3.73** |
| | SD=3.18 | | SD=3.02 | |
| | N=475 | | N=475 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.33 that the t value for 4 sub groups were found to be significant either at the 0.05 or at the 0.01 level of confidence. From means analysis, in the Table 3.33, it is clear that urban least populated districts (21.03) have scored more than rural least populated districts (19.99) on 'Outcome expectation' dimension of self efficacy. Meaning thereby, that senior secondary school students from urban least populated districts are more having abilities in reaching out at particular outcome than senior secondary school students from rural least populated districts.

From means analysis, in the Table 3.33, it is clear that rural highly populated districts (21.05) have scored more than rural least populated districts (19.99) on 'Outcome expectation' dimension of self efficacy. Meaning thereby, that senior secondary school students from rural highly populated districts are

more having abilities in reaching out at particular outcome than senior secondary girl students from rural populated districts.

From means analysis, in the Table 3.33, it is clear that urban least populated districts (21.03) have scored more than urban highly populated districts (20.3) on 'Outcome expectation' dimension of self efficacy. Meaning thereby, that senior secondary school students from urban least populated districts are more having abilities in reaching out at particular outcome than senior secondary school students from urban highly .populated districts.

From means analysis, in the Table 3.33, it is clear that rural highly populated districts (21.05) have scored more than urban highly populated districts (20.3) on 'Outcome expectation' dimension of self efficacy. Meaning thereby, that senior secondary school students from rural highly populated districts are more having abilities in reaching out at particular outcome than senior secondary school students from urban highly populated districts. Mean scores on the 'Outcome Expectation' dimension of Self Efficacy is shown in below given Figure 3.27.

**FIGURE 3.27**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'OUTCOME EXPECTATION' DIMENSION OF SELF EFFICACY**

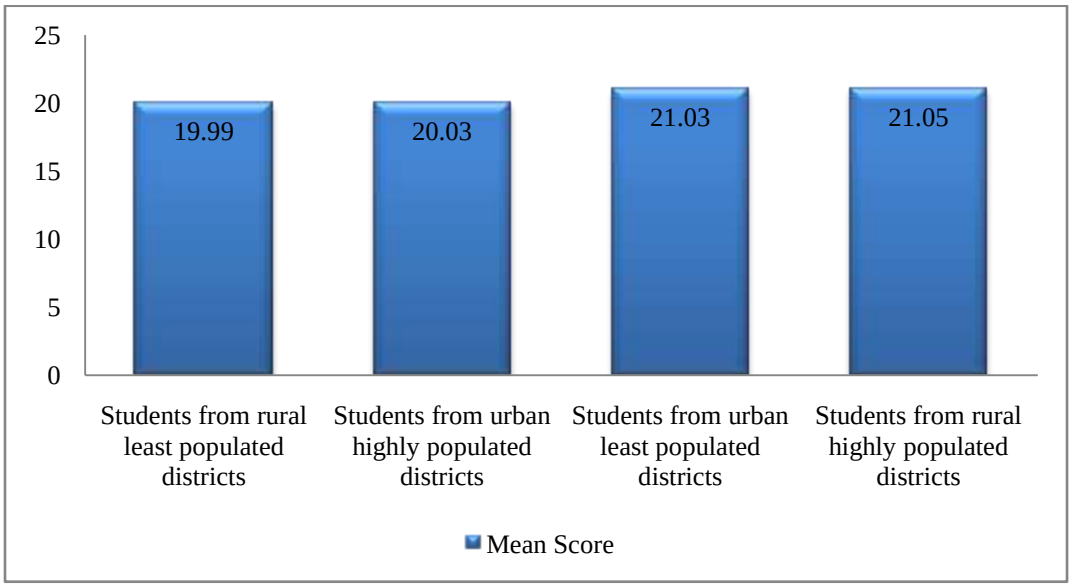


**TABLE 3.34**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF TOTAL SCORE OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M=77.13<br>SD=9.79<br>N=125 | Urban least populated districts | M=82.6<br>SD=7.97<br>N=125 | 4.84** |
| Rural least populated districts | M=77.13<br>SD=9.79<br>N=125 | Rural highly populated districts | M=80.56<br>SD=9.5<br>N=475 | 3.51** |
| Rural least populated districts | M=77.13<br>SD=9.79<br>N=125 | Urban highly populated districts | M=79.74<br>SD=8.82<br>N=475 | 2.71** |
| Urban least populated districts | M=82.6<br>SD=7.97<br>N=125 | Rural highly populated districts | M=80.56<br>SD=9.5<br>N=475 | 2.44* |
| Urban least populated districts | M=82.6<br>SD=7.97<br>N=125 | Urban highly populated districts | M=79.74<br>SD=8.82<br>N=475 | 3.49** |
| Rural highly populated districts | M=80.56<br>SD=9.5<br>N=475 | Urban highly populated districts | M=79.74<br>SD=8.82<br>N=475 | 1.38 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.34 that the t value for 5 sub groups were found to be significant either at the 0.05 or at the 0.01 level of confidence. From means analysis, in the Table 3.34, it is clear that students from urban least populated districts (82.6) have scored more than students from rural least populated districts (77.13) on total score of self efficacy. Meaning thereby, that senior secondary school students from urban least populated districts are more

confident about their abilities to perform a task, reaching a goal and overcome an obstacle than senior secondary school students from rural least populated districts.

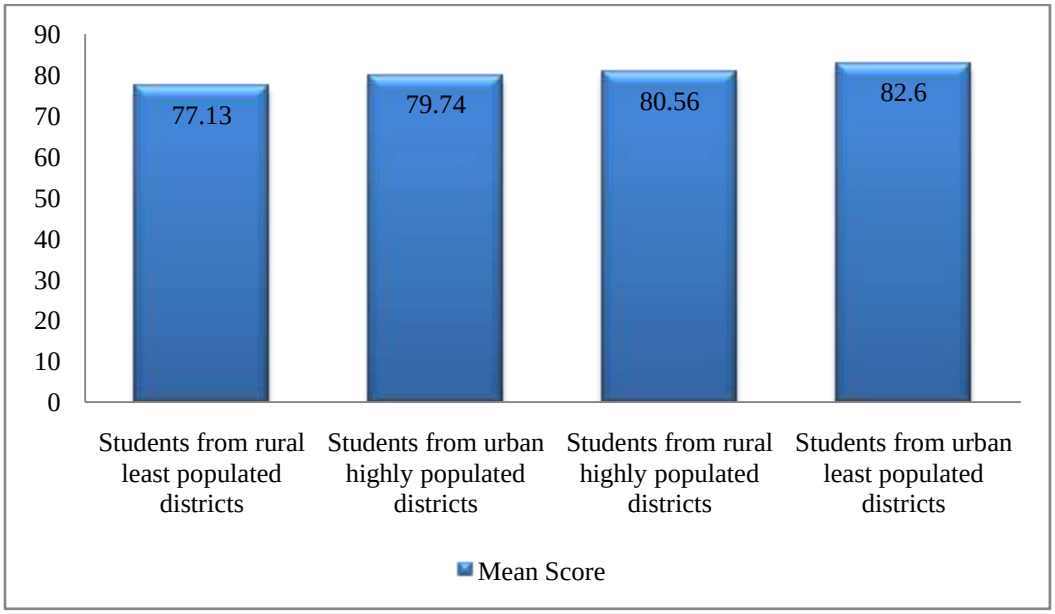
From means analysis, in the Table 3.34, it is clear that students from rural highly populated districts (80.56) have scored more than students from rural least populated districts (77.13) on total score of self efficacy. Meaning thereby, that senior secondary school students from highly populated districts are more confident about their abilities to perform a task, reaching a goal and overcome an obstacle than senior secondary school students from rural least populated districts.

From means analysis, in the Table 3.34, it is clear that students from urban highly populated districts (79.74) have scored more than students from rural least populated districts (77.13) on total score of self efficacy. Meaning thereby, that senior secondary school students from urban highly populated districts are more confident about their abilities to perform a task, reaching a goal and overcome an obstacle than the senior secondary school students from rural least populated districts.

From means analysis, in the Table 3.34, it is clear that students from urban least populated districts (82.6) have scored more than students from rural highly populated districts (80.56) and urban highly populated districts (79.74) on total score of self efficacy. Meaning thereby, that senior secondary school students from urban least populated districts are more confident about their abilities to perform a task, reaching a goal and overcome an obstacle than senior secondary school students from rural highly populated districts. Mean scores of the total score of Self Efficacy is shown in below given Figure 3.28.

**FIGURE 3.28**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF THE TOTAL SCORE OF SELF EFFICACY**




**Gender X Population**

It has been observed from the Table 3.26, that F-ratio for the interaction between gender and population of senior secondary school students on 'Efficacy Expectation', 'Positive Attitude', 'Outcome Expectation' dimension of self efficacy and total score of self efficacy is found to be 13.08, 4.66, 9.26 and 8.09 which is significant either at the 0.05 or 0.01 level of confidence. This indicates that senior secondary school students on 'Efficacy Expectation', 'Positive Attitude', 'Outcome Expectation' dimension of self efficacy and total score of self efficacy as a result of interaction of gender and population for different sub groups differ significantly. Thus, the data provides sufficient evidence to reject the hypothesis 20 "There is no interaction effect of gender and population on the scores of self efficacy of senior secondary students" for Efficacy Expectation', 'Positive Attitude', 'Outcome Expectation' dimension of self efficacy and total score of self efficacy. To further analyze the significant difference between various groups, t-values for the various sub groups have been calculated and are presented in the Table 3.35, 3.36, 3.37, 3.38.

**TABLE 3.35**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'EFFICACY EXPECTATION' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Girls from Least populated districts | M=18.74<br>SD=3.49<br>N=125 | Girls from highly populated districts | M=20.12<br>SD=3.00<br>N=475 | 4.05** |
| Girls from Least populated districts | M=18.74<br>SD=3.49<br>N=125 | Boys from least populated districts | M=20.1<br>SD=2.84<br>N=125 | 3.38** |
| Girls from Least populated districts | M=18.74<br>SD=3.49<br>N=125 | Boys from Highly populated districts | M=19.93<br>SD=3.06<br>N=475 | 3.48** |
| Girls from highly populated districts | M=20.12<br>SD=3.00<br>N=475 | Boys from least populated districts | M=20.1<br>SD=2.84<br>N=125 | 0.07 |
| Girls from highly populated districts | M=20.12<br>SD=3.00<br>N=475 | Boys from Highly populated districts | M=19.93<br>SD=3.06<br>N=475 | 0.97 |
| Boys from least populated districts | M=20.1<br>SD=2.84<br>N=125 | Boys from Highly populated districts | M=19.93<br>SD=3.06<br>N=475 | 0.59 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.35 that the t value for 3 sub groups were found to be significant at the 0.01 level of confidence. From means analysis, in the Table 3.35, it is clear that girls from highly populated districts (20.12) have scored more than girls from least populated districts (18.74) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby, that senior secondary girl students from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary girl students from least populated districts.

From means analysis, in the Table 3.35, it is clear that boys from least populated district (20.10) have scored more than girls from least populated districts (18.74) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby, that senior secondary boy students from least populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary girl students from least populated districts.

From means analysis, in the Table 3.35, it is clear that boys from highly populated districts (19.93) have scored more than girls from least populated districts (18.74) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby, that senior secondary boy students from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary girl students from least populated districts. Mean scoreson the 'Efficacy Expectation' dimension of Self Efficacy is shown in below given Figure 3.29.

**FIGURE 3.29**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'EFFICACY EXPECTATION' DIMENSION OF SELF EFFICACY**

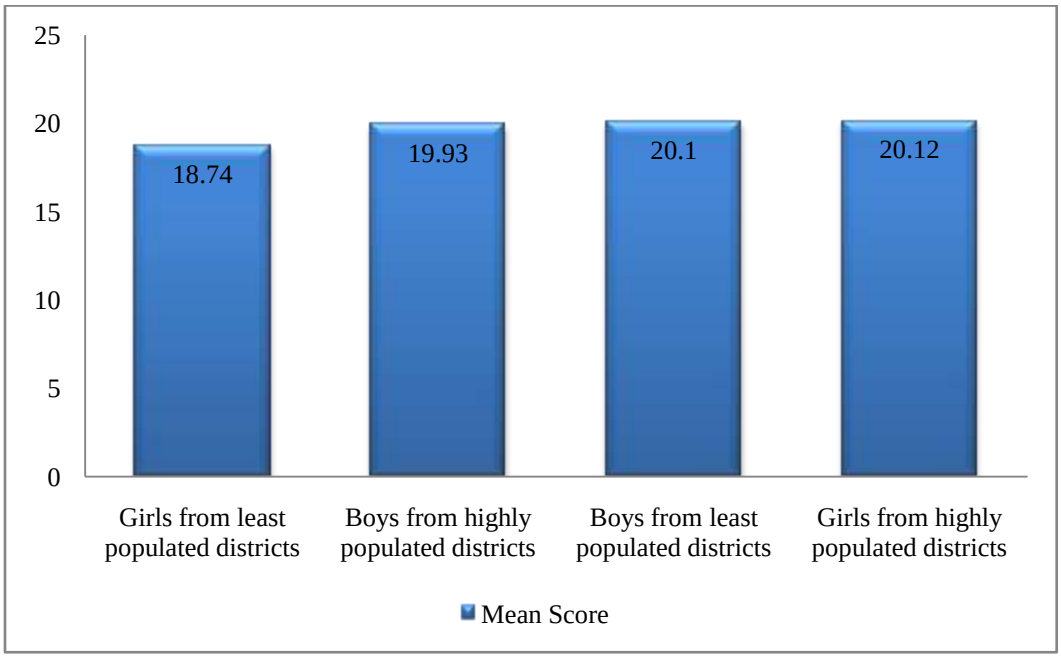


**TABLE 3.36**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'POSITIVE ATTITUDE' DIMEITUNSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Girls from Least populated districts | M=18.85 | Girls from highly populated districts | M=19.38 | 1.43 |
| | SD=3.9 | | SD=2.73 | |
| | N=125 | | N=475 | |
| Girls from Least populated districts | M=18.85 | Boys from least populated districts | M=19.48 | 1.46 |
| | SD=3.9 | | SD=2.83 | |
| | N=125 | | N=125 | |
| Girls from Least populated districts | M=18.85 | Boys from Highly populated districts | M=19.14 | 0.78 |
| | SD=3.9 | | SD=2.84 | |
| | N=125 | | N=475 | |
| Girls from highly populated districts | M=19.38 | Boys from least populated districts | M=19.48 | 0.35 |
| | SD=2.73 | | SD=2.83 | |
| | N=475 | | N=125 | |
| Girls from highly populated districts | M=19.38 | Boys from Highly populated districts | M=19.14 | 1.33 |
| | SD=2.73 | | SD=2.84 | |
| | N=475 | | N=475 | |
| Boys from least populated districts | M=19.48 | Boys from Highly populated districts | M=19.14 | 1.19 |
| | SD=2.83 | | SD=2.84 | |
| | N=125 | | N=475 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.36 that the t value for none of the subgroups were found to be significant even at the 0.05 level of confidence. Thus, the data does not provide sufficient evidence to reject the hypothesis 20 "There is no interaction effect of gender and population on the scores of self efficacy of senior secondary students" for 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary girls and boys from least and highly populated districts do not differ in their positive attitude.

**TABLE 3.37**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'OUTCOME EXPECTATION' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Girls from Least populated districts | M=19.84<br>SD=3.77<br>N=125 | Girls from highly populated districts | M=20.68<br>SD=3.11<br>N=475 | 2.29* |
| Girls from Least populated districts | M=19.84<br>SD=3.77<br>N=125 | Boys from least populated districts | M=21.18<br>SD=2.78<br>N=125 | 3.2** |
| Girls from Least populated districts | M=19.84<br>SD=3.77<br>N=125 | Boys from Highly populated districts | M=20.67<br>SD=3.14<br>N=475 | 2.26* |
| Girls from highly populated districts | M=20.68<br>SD=3.11<br>N=475 | Boys from least populated districts | M=21.18<br>SD=2.78<br>N=125 | 1.74 |
| Girls from highly populated districts | M=20.68<br>SD=3.11<br>N=475 | Boys from Highly populated districts | M=20.67<br>SD=3.14<br>N=475 | 0.05 |
| Boys from least populated districts | M=21.18<br>SD=2.78<br>N=125 | Boys from Highly populated districts | M=20.67<br>SD=3.14<br>N=475 | 1.77 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.37 that the t value for 3 sub groups were found to be significant at the 0.01 level of confidence. From means analysis, in the Table 3.37, it is clear that girls from highly populated districts (20.68) have scored more than girls from least populated districts (19.84) on 'Outcome expectation' dimension of self efficacy. Meaning thereby, that senior secondary girl students from highly populated districts are having more abilities in reaching

out at particular outcome than senior secondary girl students from least populated districts.

From means analysis, in the Table 3.37, it is clear that boys from least populated district (21.18)have scored more than girls from least populated districts (19.84) on 'Outcome expectation' dimension of self efficacy. Meaning thereby, that senior secondary boys students from least populated districts are having more abilities in reaching out at particular outcome than senior secondary girl students from least populated districts.

From means analysis, in the Table 3.37, it is clear that boys from highly populated districts (20.67)have scored more than girls from least populated districts (19.84) on 'Outcome expectation' dimension of self efficacy. Meaning thereby, that senior secondary boys from highly populated districts are having more abilities in reaching out at particular outcome than senior secondary girls from least populated districts. Mean scoreson the 'Outcome Expectation' dimension of Self Efficacy is shown in below given Figure 3.30.

**FIGURE 3.30**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'OUTCOME EXPECTATION'DIMENSION OF SELF EFFICACY**

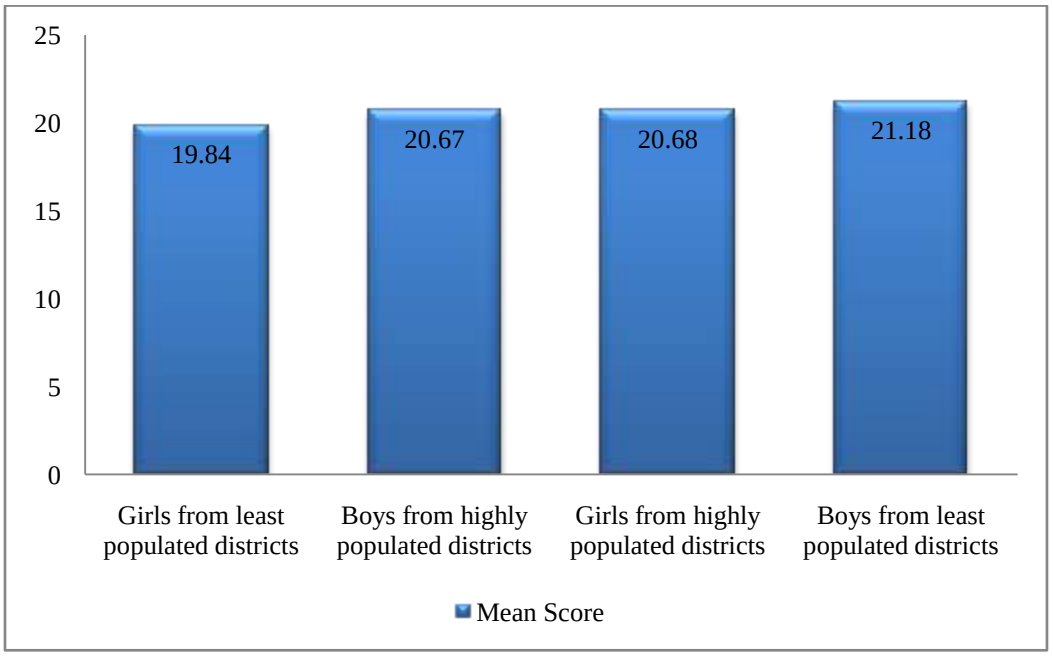


**TABLE 3.38**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF TOTAL SCORE OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Girls from Least populated districts | M=78.31<br>SD=9.51<br>N=125 | Girls from highly populated districts | M=80.41<br>SD=9.00<br>N=475 | 2.22* |
| Girls from Least populated districts | M=78.31<br>SD=9.51<br>N=125 | Boys from least populated districts | M=81.42<br>SD=8.89<br>N=125 | 2.67** |
| Girls from Least populated districts | M=78.31<br>SD=9.51<br>N=125 | Boys from Highly populated districts | M=79.89<br>SD=9.34<br>N=475 | 1.66 |
| Girls from highly populated districts | M=80.41<br>SD=9.00<br>N=475 | Boys from least populated districts | M=81.42<br>SD=8.89<br>N=125 | 1.13 |
| Girls from highly populated districts | M=80.41<br>SD=9.00<br>N=475 | Boys from Highly populated districts | M=79.89<br>SD=9.34<br>N=475 | 0.87 |
| Boys from least populated districts | M=81.42<br>SD=8.89<br>N=125 | Boys from Highly populated districts | M=79.89<br>SD=9.34<br>N=475 | 1.69 |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

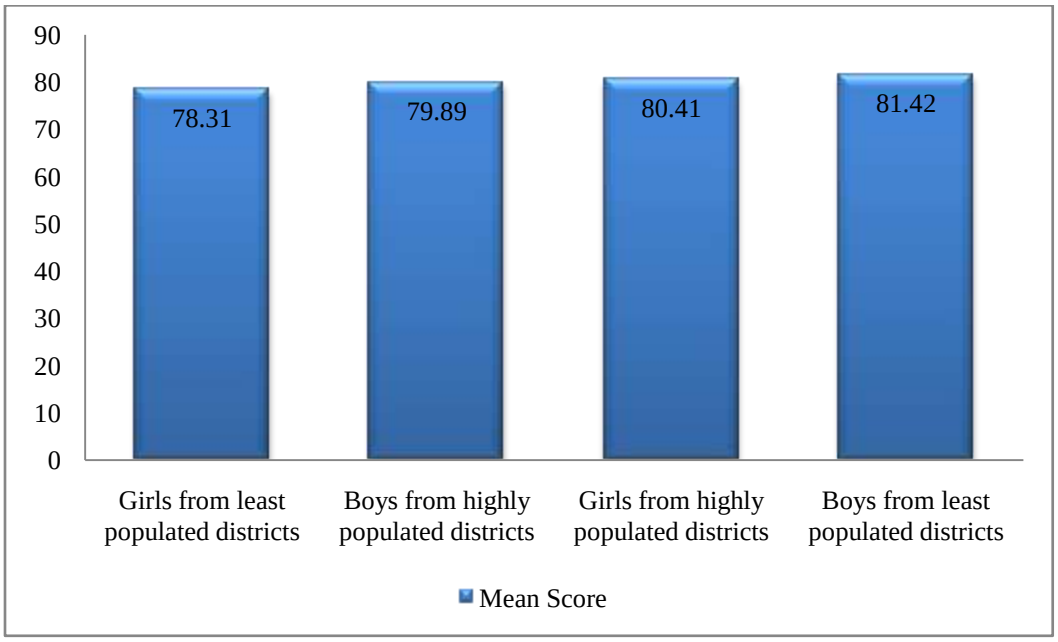
It has been observed from the Table 3.38 that the t value for 2 sub groups were found to be significant at the 0.05 and at the 0.01 level of confidence. From means analysis, in the Table 3.38, it is clear that girls from highly populated districts (80.41) have scored more than girls from least populated districts (78.31) on total score of self efficacy. Meaning thereby, that senior secondary girl students from highly populated districts are more confident about their abilities to

perform a task, reaching a goal and overcome an obstacle than senior secondary girl students from least populated districts.

From means analysis, in the Table 3.38, it is clear that boys from least populated district (81.42) have scored more than girls from least populated districts (78.31) on total score of self efficacy. Meaning thereby, that senior secondary boy students from least populated districts are more confident about their abilities to perform a task, reaching a goal and overcome an obstacle than senior secondary girl students from least populated districts. Mean scoreson the total score of Self Efficacy is shown in below given Figure 3.31.

**FIGURE 3.31**

**GRAPHICAL REPRESENTATION OF MEANS SCORES ON THE TOTAL SCORE OF SELF EFFICACY**




## THREE ORDER INTERACTION

### Locality X Gender X Population

It has been observed from the Table 3.26, that F-ratio for the interaction between locality, gender and population of senior secondary school students on 'Efficacy Expectation', 'Positive Attitude' dimensions of self efficacy is found to be 4.93 and 19.92 which is significant either at the 0.05 or 0.01 level of confidence. This indicates that senior secondary school students on 'Efficacy

Expectation', 'Positive Attitude' dimensions of self efficacy as a result of interaction of locality, gender and population for different sub groups differ significantly. Thus, the data provide sufficient evidence to reject the hypothesis 21, "There is no interaction effect of locality, gender and population on the scores of self efficacy of senior secondary students" for 'Efficacy Expectation', 'Positive Attitude'. To further analyze the significant difference between various groups, t-values for the various sub groups have been calculated and are presented in the Table 3.39.

**TABLE 3.39**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'EFFICACY EXPECTATION' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M=19.52 | Boys from urban least populated districts | M=20.69 | 2.31* |
| | SD=2.84 | | SD=2.73 | |
| | N=63 | | N=62 | |
| Boys from rural least populated districts | M=19.52 | Girls from rural least populated districts | M=17.94 | 2.45* |
| | SD=2.84 | | SD=4.22 | |
| | N=63 | | N=62 | |
| Boys from rural least populated districts | M=19.52 | Girls from rural highly populated districts | M=20.69 | 2.94** |
| | SD=2.84 | | SD=2.67 | |
| | N=63 | | N=237 | |
| Boys from rural highly populated districts | M=19.67 | Boys from urban least populated districts | M=20.69 | 2.5* |
| | SD=3.3 | | SD=2.73 | |
| | N=238 | | N=62 | |
| Boys from rural highly populated districts | M=19.67 | Girls from rural least populated districts | M=17.94 | 3 .0** |
| | SD=3.3 | | SD=4.22 | |
| | N=238 | | N=62 | |
| Boys from rural highly populated districts | M=19.67 | Girls from rural highly populated districts | M=20.69 | 3.7** |
| | SD=3.3 | | SD=2.67 | |
| | N=238 | | N=237 | |
| Boys from urban least populated districts | M=20.69 | Girls from rural least populated districts | M=17.94 | 4.31** |
| | SD=2.73 | | SD=4.22 | |
| | N=62 | | N=62 | |

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from urban least populated districts | M=20.69<br>SD=2.73<br>N=62 | Girls from urban least populated districts | M=19.54<br>SD=2.35<br>N=63 | 2.52* |
| Boys from urban least populated districts | M=20.69<br>SD=2.73<br>N=62 | Girls from urban highly populated districts | M=19.64<br>SD=3.23<br>N=238 | 2.59** |
| Boys from urban highly populated districts | M=20.19<br>SD=2.79<br>N=237 | Girls from rural least populated districts | M=17.94<br>SD=4.22<br>N=62 | 3.98** |
| Boys from urban highly populated districts | M=20.19<br>SD=2.79<br>N=237 | Girls from rural highly populated districts | M=20.69<br>SD=2.67<br>N=237 | 1.99* |
| Boys from urban highly populated districts | M=20.19<br>SD=2.79<br>N=237 | Girls from urban highly populated districts | M=19.64<br>SD=3.23<br>N=238 | 1.99* |
| Girls from rural least populated districts | M=17.94<br>SD=4.22<br>N=62 | Girls from rural highly populated districts | M=20.69<br>SD=2.67<br>N=237 | 4.88** |
| Girls from rural least populated districts | M=17.94<br>SD=4.22<br>N=62 | Girls from urban least populated districts | M=19.54<br>SD=2.35<br>N=63 | 2.61* |
| Girls from rural least populated districts | M=17.94<br>SD=4.22<br>N=62 | Girls from urban highly populated districts | M=19.64<br>SD=3.23<br>N=238 | 2.95** |
| Girls from rural highly populated districts | M=20.69<br>SD=2.67<br>N=237 | Girls from urban least populated districts | M=19.54<br>SD=2.35<br>N=63 | 3.35** |
| Girls from rural highly populated districts | M=20.69<br>SD=2.67<br>N=237 | Girls from urban highly populated districts | M=19.64<br>SD=3.23<br>N=238 | 3.86** |

* Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.39 that the t value for 17 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 21, "There is no interaction effect of locality, gender and population on the scores of self efficacy of senior secondary students" for the 'Efficacy expectation' dimension of self efficacy.

It is clear from the Table 3.39 that boys from urban least populated districts (20.69) have scored more than the boys from rural least populated districts (19.52) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary urban boys from least populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural boys from least populated districts.

Similarly, it is clear from the Table 3.39 that boys from rural least populated districts (19.52) have scored higher than girls from rural least populated districts (17.94) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary rural boys from least populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural girls from least populated districts.

It is clear from Table 3.39 that girls from rural highly populated districts (20.69) have scored more than the boys from rural least populated districts (19.52) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary rural girls from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural boys from least populated districts.

It is clear from Table 3.39 that boys from urban least populated districts (20.69) have scored more than the boys from rural highly populated districts (19.67) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary urban boys from least populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural boys from highly populated districts.

It is clear from Table 3.39 that boys from rural highly populated districts (19.67) have scored more than the girls from rural least populated districts (17.94) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary rural boys from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural girls from least populated districts.

It is clear from Table 3.39 that girls from rural highly populated districts (20.69) have scored more than the boys from rural highly populated districts (19.67) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary rural girls from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural boys from highly populated districts.

It is clear from Table 3.39 that boys from urban least populated districts (20.69) have scored more than the girls from rural least populated districts (17.94) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary urban boys from least populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural girls from least populate districts.

It is clear from Table 3.39 that boys from urban least populated districts (20.69) have scored more than the girls from urban least populated districts (19.54) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary urban boys from least populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary urban girls from least populated districts.

It is clear from Table 3.39 that boys from urban least populated districts (20.69) have scored more than the girls from urban highly populated districts (19.64) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary urban boys from less populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary urban girls from highly populated districts.

It is clear from Table 3.39 that boys from urban highly populated districts (20.19) have scored more than the girls from rural least populated districts (17.94) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary urban boys from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural girls from least populated districts.

It is clear from Table 3.39 that girls from rural highly populated districts (20.69) have scored more than the boys from urban highly populated districts (20.19) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary rural girls from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary urban boys from highly populated districts.

It is clear from Table 3.39 that boys from urban highly populated districts (20.19) have scored more than the girls from urban highly populated districts (19.64) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary urban boys from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary urban girls from highly populated districts.

It is clear from Table 3.39 that girls from rural highly populated districts (20.69) have scored more than the girls from rural least populated districts (17.94) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary rural girls from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural girls from least populated districts.

It is clear from Table 3.39 that girls from urban least populated districts (19.54) have scored more than the girls from rural least populated districts (17.94) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that urban girls from least populated districts take difficult are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural girls from least populated districts.

It is clear from Table 3.39 that girls from urban highly populated districts (19.64) have scored more than the girls from rural least populated districts (17.94) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary urban girls from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary rural girls from least populated districts.

It is clear from Table 3.39 that girls from rural highly populated districts (20.69) have scored more than the girls from urban least populated districts (19.54) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary rural girls from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary urban girls from least populated districts.

It is clear from Table 3.39 that girls from rural highly populated districts (20.69) have scored more than the girls from urban highly populated districts (19.64) on 'Efficacy expectation' dimension of self efficacy. Meaning thereby that senior secondary rural girls from highly populated districts are more convicted to produce the behaviour required to generate the particular outcome than senior secondary urban girls from highly populate districts.

**TABLE 3.40**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'POSITIVE ATTITUDE' DIMENSION OF SELF EFFICACY**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M=19.33 | Girls from rural least populated districts | M=16.92 | 3.63** |
| | SD=2.96 | | SD=4.32 | |
| | N=63 | | N=62 | |
| Boys from rural least populated districts | M=19.33 | Girls from urban least populated districts | M=20.75 | 3.07** |
| | SD=2.96 | | SD=2.17 | |
| | N=63 | | N=63 | |
| Boys from rural highly populated districts | M=18.96 | Girls from rural least populated districts | M=16.92 | 3.51** |
| | SD=2.94 | | SD=4.32 | |
| | N=238 | | N=62 | |
| Boys from rural highly populated districts | M=18.96 | Girls from urban least populated districts | M=20.75 | 5.37** |
| | SD=2.94 | | SD=2.17 | |
| | N=238 | | N=63 | |

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural highly populated districts | M=18.96 | Girls from urban highly populated districts | M=19.5 | 2.08* |
| | SD=2.94 | | SD=2.72 | |
| | N=238 | | N=238 | |
| Boys from urban least populated districts | M=19.63 | Girls from rural least populated districts | M=16.92 | 4.19** |
| | SD=2.69 | | SD=4.32 | |
| | N=62 | | N=62 | |
| Boys from urban least populated districts | M=19.63 | Girls from urban least populated districts | M=20.75 | 2.56* |
| | SD=2.69 | | SD=2.17 | |
| | N=62 | | N=63 | |
| Boys from urban highly populated districts | M=19.32 | Girls from rural least populated districts | M=16.92 | 4.15** |
| | SD=2.79 | | SD=4.32 | |
| | N=237 | | N=62 | |
| Boys from urban highly populated districts | M=19.32 | Girls from urban least populated districts | M=20.75 | 4.36** |
| | SD=2.79 | | SD=2.17 | |
| | N=237 | | N=63 | |
| Girls from rural least populated districts | M=16.92 | Girls from rural highly populated districts | M=19.26 | 4.06** |
| | SD=4.32 | | SD=2.75 | |
| | N=62 | | N=237 | |
| Girls from rural least populated districts | M=16.92 | Girls from urban least populated districts | M=20.75 | 6.25** |
| | SD=4.32 | | SD=2.17 | |
| | N=62 | | N=63 | |
| Girls from rural least populated districts | M=16.92 | Girls from urban highly populated districts | M=19.5 | 4.48** |
| | SD=4.32 | | SD=2.72 | |
| | N=62 | | N=238 | |
| Girls from rural highly populated districts | M=19.26 | Girls from urban least populated districts | M=20.75 | 4.56** |
| | SD=2.75 | | SD=2.17 | |
| | N=237 | | N=63 | |
| Girls from urban least populated districts | M=20.75 | Girls from urban highly populated districts | M=19.5 | 3.84** |
| | SD=2.17 | | SD=2.72 | |
| | N=63 | | N=238 | |

* Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.40 that the t value for 14 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 21, "There is no interaction effect of locality, gender and population on the scores of self efficacy of senior secondary students" for the 'Positive Attitude' dimension of self efficacy.

It is clear from the Table 3.40 that boys from rural least populated districts (19.33) have scored more than the girls from rural least populated districts (16.92) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary rural boys from least populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural girls from least populated districts.

Similarly, it is clear from the Table 3.40 that girls from urban least populated districts (19.33) have scored higher than boys from rural least populated districts (20.75) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary urban girls from lest populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural boys from least populated districts.

It is clear from Table 3.40 that boys from rural highly populated districts (18.96) have scored more than the girls from rural least populated districts (16.92) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary rural boys from highly populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural girls from least populated districts.

It is clear from Table 3.40 that girls from urban least populated districts (20.75) have scored more than the boys from rural highly populated districts (18.96) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary urban girls from least populated districts are having more positive outlook and tend to look good to overcome problems to find the

opportunities in every situation than senior secondary rural boys from highly populated districts.

It is clear from Table 3.40 that girls from urban highly populated districts (19.50) have scored more than the boys from rural highly populated districts (18.96) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary urban girls from highly populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural boys from highly populated districts.

It is clear from Table 3.40 that boys from urban least populated districts (19.63) have scored more than the girls from rural least populated districts (16.92) on 'Positive attitude' of self efficacy. Meaning thereby that senior secondary urban boys from least populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural girls from least populated districts.

It is clear from Table 3.40 that girls from urban least populated districts (20.75) have scored more than the boys from urban least populated districts (19.63) on 'Positive attitude' of self efficacy. Meaning thereby that senior secondary urban girls from least populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary urban boys from least populated districts.

It is clear from Table 3.40 that boys from urban highly populated districts (19.32) have scored more than the girls from rural least populated districts (16.92) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary urban boys from highly populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural girls from least populated districts.

It is clear from Table 3.40 that girls from urban least populated districts (20.75) have scored more than the boys from urban highly populated districts (19.32) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary urban girls from least populated districts are having more

positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary urban boys from highly populated districts.

It is clear from Table 3.40 that girls from rural highly populated districts (19.26) have scored more than the girls from rural least populated districts (16.92) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary rural girls from highly populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural girls from least populated districts.

It is clear from Table 3.40 that girls from urban least populated districts (20.75) have scored more than the girls from rural least populated districts (16.92) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary urban girls from least populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural girls from least populated districts.

It is clear from Table 3.40 that girls from urban highly populated districts (19.50) have scored more than the girls from rural least populated districts (16.92) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary urban girls from highly populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural girls from least populated districts.

It is clear from Table 3.40 that girls from urban least populated districts (20.75) have scored more than the girls from rural highly populated districts (19.26) on 'Positive attitude' dimension of self efficacy. Meaning thereby that senior secondary urban girls from least populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary rural girls from highly populated districts.

It is clear from Table 3.40 that girls from urban least populated districts (20.75) have scored more than the girls from urban highly populated districts (19.50) on 'Positive attitude' dimension of self efficacy. Meaning thereby that

senior secondary urban girls from least populated districts are having more positive outlook and tend to look good to overcome problems to find the opportunities in every situation than senior secondary urban girls from highly populated districts.

**DISCUSSION ON RESULTS**

Firstly, study results revealed that urban senior secondary school students are more self efficacious than the rural senior secondary students specifically urban students are better in terms 'Self confidence', 'Efficacy Expectations' and 'Positive Attitude' than rural counter parts. It has also been found that urban boys are more self confident than rural boys. However, urban girls are having more positive attitude than rural girls. Contrarily, rural girls are better in outcome expectation than urban girls. These findings are consonance with the study conducted by Shazadi et al. (2011) & Malhotra and Malhota (2016) revealed that urban adolescents have more self confidence than their counterparts. They differ significantly from the rural adolescents. Meera and Jumana (2016) indicated that students of urban background differ significantly from their rural counterpart.

Secondly, it has been found that gender has direct influence on the self efficacy of senior secondary students which indicates that senior secondary boys are more confident about their abilities to perform a task, reaching a goal and overcome an obstacle and are more self efficacious than senior secondary girls. Further, boys are also better in terms of efficacy expectation and outcome expectation. Result of the present study agrees with some other studies that showed that girls have lower self perceptions of academic abilities than boys (Phillips and Zimmerman, 1990; Wigfield et al., 1991; Bong, 1998; Santiago and Einarson, 1998; Ku, 2002 and Williams, 2014). The study result is contradictory to the findings of Kumar and Lal (2006) & Dehghani et al. (2011) in which girls were found to have higher self-efficacy than boys. It has also been found that girls from rural areas are more self confident than boys from rural areas. This study results are confirmed by Huang (2013) reported that females displayed higher language arts self-efficacy than males. Meanwhile, males exhibited higher mathematics, computer, and social sciences self-efficacy than females. Gender

differences in academic self-efficacy also varied with age.Another study conducted by Singh and Katlana (2015) worked on measuring level of self-efficacy of Male and Female teachers of colleges and the analysis of result revealed there is significant difference in the self-efficacy of male and female teachers of university.

Thirdly, it has been revealed that students from least populated districts are more self confident in their own abilities to perform a task or to reach at certain goal than students from highly populated districts. However, students from highly populated districts are more convicted to produce the behavior required to generate the particular outcome than students from least populated districts. It has also been revealed that students from rural highly populated districts are more self efficacious than students from rural least populated districts. Also, girls from highly populated districts are more self efficacious than girls from least populated districts.

Fourthly, findings of the study revealed that gender and locality has influence on 'Self Confidence', 'Positive Attitude' and 'Outcome Expectation' dimensions of the self efficacy of the senior secondary school students. It has also been revealed that boys from urban localities are having more positive attitude than girls from rural localities. Similarly, girls from urban localities, are having more positive attitude than boys from rural localities. However, girls from urban localities are having less outcome expectation than boys from rural localities. The finding of this study is supported by Rao and Haseena (2009) & Sharma and Rani (2014) who reported that university postgraduates were found to differ significantly by gender, locality and faculty in their self efficacy.

Fifthly, it has been revealed that senior secondary students from urban least populated areas are more self efficacious than senior secondary students from urban highly populated districts. This study finding supports the results of Meera & Jumana (2016) indicated that students of urban background differ significantly from their rural counterpart.

Sixthly, study results revealed that senior secondary girls from highly populated districts and boys from least populated districts are more self

efficacious than senior secondary girls from least populated districts. Previous researches observed strong effect of gender on self efficacy. The study conducted by Williams (2014) provided evidence that boys scored significantly lower than girls on measures of self-efficacy. Similar study conducted by Huang (2013) reported that females displayed higher language arts self-efficacy than males. Meanwhile, males exhibited higher mathematics, computer, and social sciences self-efficacy than females. Gender differences in academic self-efficacy also varied with age.

Seventhly, it has been revealed that gender, locality and population have influence on self efficacy of senior secondary students. Results are consistent with the findings of Singh and Katlana (2015) worked on measuring level of self-efficacy of male and female teachers of colleges and revealed there is significant difference in the self-efficacy of male and female teachers of university. Another studies conducted by Shazadi et al.(2011)& Malhotra and Malhota (2016) revealed that urban adolescents have more self confidence than their counterparts. They differ significantly from the rural adolescents. Meera & Jumana (2016) indicated that students of urban background differ significantly in their self efficacy from their rural counterpart.

### 3.2.4 Influence of locality, gender and population on Learning Environment

To study the learning environment of the boys and girls senior secondary school students from rural and urban localities of least and highly populated districts, means and standard deviations have been calculated for different dimensions and the total score of self efficacy and are presented below in the Table 3.41.

## TABLE 3.41

## MEANS, N AND SDs OF VARIOUS DIMENSIONS AND TOTAL LEARNING ENVIRONMENT w.r.t. LOCALITY, GENDER AND POPULATION

| Locality | Gender | Population | | PCE | IC | PCN | RO | LT | CE | TT | RP | PI | PIL | LE HM | LE SCHL | LE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rural | Girls | LPD | M= | 16.9 | 21.8 | 21.8 | 19.3 | 7.11 | 26.7 | 24.4 | 26.8 | 20.2 | 17 | 87 | 114.8 | 201.79 |
| | | N=62 | ∑ = | 2.88 | 3.13 | 3.79 | 4.23 | 2.65 | 3.61 | 5.21 | 4.04 | 4.5 | 3.5 | 12.1 | 15.44 | 21.91 |
| | | HPD | M= | 17.5 | 22 | 21 | 18.4 | 6.97 | 26 | 23.7 | 25.9 | 20.2 | 17 | 85.9 | 112.8 | 198.69 |
| | | N=237 | ∑ = | 2.22 | 2.7 | 3.36 | 3.3 | 2.46 | 4.41 | 5.27 | 4.31 | 3.65 | 3 | 9.55 | 15.27 | 21.58 |
| | | Total | M= | 17.4 | 22 | 21.2 | 18.6 | 7 | 26.1 | 23.8 | 26.1 | 20.2 | 17 | 86.1 | 113.2 | 199.33 |
| | | N=299 | ∑ = | 2.38 | 2.79 | 3.46 | 3.53 | 2.5 | 4.26 | 5.25 | 4.27 | 3.83 | 3.1 | 10.1 | 15.3 | 21.65 |
| | Boys | LPD | M= | 17 | 21.4 | 20.6 | 18.6 | 7.02 | 26.8 | 25.3 | 27.4 | 21.8 | 17 | 84.6 | 117.9 | 202.48 |
| | | N=63 | ∑ = | 3.42 | 4.21 | 4.13 | 3.98 | 2.64 | 3.87 | 5.07 | 4.19 | 3.95 | 3.4 | 17.8 | 16.14 | 28.27 |
| | | HPD | M= | 16.9 | 21.3 | 20.4 | 18.3 | 7.09 | 25.8 | 23.6 | 25.9 | 20.1 | 16 | 84.1 | 111.4 | 195.53 |
| | | N=238 | ∑ = | 2.98 | 3.35 | 3.83 | 4.02 | 2.47 | 4.45 | 5.25 | 4.44 | 4.3 | 3.5 | 12.6 | 16.58 | 26.72 |
| | | Total | M= | 17 | 21.3 | 20.4 | 18.4 | 7.07 | 26.1 | 24 | 26.2 | 20.4 | 16 | 84.2 | 112.8 | 196.98 |
| | | N=301 | ∑ = | 3.07 | 3.54 | 3.89 | 4.01 | 2.5 | 4.35 | 5.25 | 4.42 | 4.28 | 3.5 | 13 | 16.67 | 27.15 |
| | Total | LPD | M= | 17 | 21.6 | 21.2 | 19 | 7.1 | 26.8 | 24.9 | 27.1 | 21 | 16.7 | 85.8 | 116.4 | 202.14 |
| | | N=125 | ∑ = | 3.42 | 3.71 | 3.99 | 4.11 | 2.6 | 3.73 | 5.14 | 4.11 | 4.29 | 3.43 | 13.5 | 15.8 | 25.21 |
| | | HPD | M= | 16.9 | 21.7 | 20.7 | 18.4 | 7 | 25.9 | 23.7 | 25.9 | 20.1 | 16.5 | 85 | 112.1 | 197.11 |
| | | N=475 | ∑ = | 2.98 | 3.06 | 3.61 | 3.67 | 2.5 | 4.42 | 5.25 | 4.37 | 3.99 | 3.3 | 11.2 | 15.94 | 24.32 |
| | | Total | M= | 17 | 21.6 | 20.8 | 18.5 | 7 | 26.1 | 23.9 | 26.2 | 20.3 | 16.6 | 85.2 | 113 | 198.16 |
| | | N=600 | ∑ = | 3.07 | 3.2 | 3.7 | 3.77 | 2.5 | 4.3 | 5.25 | 4.34 | 4.06 | 3.33 | 11.7 | 15.99 | 24.57 |
| Urban | Girls | LPD | M= | 17.8 | 23 | 22.1 | 20.4 | 7.92 | 28.1 | 26.1 | 28.7 | 21.5 | 17 | 91.2 | 121.8 | 213 |
| | | N=63 | ∑ = | 2.49 | 2.3 | 3.67 | 3.6 | 2.13 | 3.27 | 5.25 | 2.36 | 4.28 | 2.8 | 10.8 | 15.32 | 23.62 |
| | | HPD | M= | 17 | 21.8 | 20.7 | 19 | 7.77 | 25.9 | 23 | 26.3 | 20.3 | 17 | 86.3 | 112.2 | 198.43 |
| | | N=238 | ∑ = | 2.42 | 2.96 | 3.16 | 3.61 | 1.99 | 3.88 | 4.64 | 3.19 | 3.37 | 2.9 | 9.65 | 11.85 | 18.78 |
| | | Total | M= | 17.2 | 22.1 | 21 | 19.3 | 7.8 | 26.4 | 23.6 | 26.8 | 20.6 | 17 | 87.3 | 114.2 | 201.48 |
| | | N=301 | ∑ = | 2.45 | 2.83 | 3.32 | 3.65 | 2.02 | 3.85 | 4.93 | 3.18 | 3.6 | 2.9 | 10.1 | 13.23 | 20.72 |
| | Boys | LPD | M= | 17 | 22.7 | 21 | 19.1 | 7.19 | 26.2 | 23.4 | 26.3 | 20.3 | 16 | 86.9 | 112.2 | 199.08 |
| | | N=62 | ∑ = | 2.49 | 2.4 | 3.07 | 3.44 | 2.26 | 3.85 | 5.25 | 3.99 | 3.43 | 3.5 | 9.92 | 15.47 | 21.97 |
| | | HPD | M= | 16.9 | 21.7 | 20.8 | 19.6 | 8.05 | 25.5 | 23.6 | 26.1 | 20.1 | 16 | 87 | 111.7 | 198.65 |

| Locality | Gender | Population | | PCE | IC | PCN | RO | LT | CE | TT | RP | PI | PIL | LE HM | LE SCHL | LE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N=237 | ∑= | 2.62 | 2.72 | 3.37 | 3.49 | 1.87 | 3.84 | 5.09 | 3.52 | 3.57 | 3 | 9.96 | 13.49 | 20.67 |
| | | Total | M= | 16.9 | 21.9 | 20.9 | 19.5 | 7.87 | 25.6 | 23.6 | 26.2 | 20.2 | 16 | 87 | 111.8 | 198.74 |
| | | N=299 | ∑= | 2.59 | 2.69 | 3.3 | 3.48 | 1.98 | 3.85 | 5.11 | 3.62 | 3.54 | 3.1 | 9.94 | 13.9 | 20.91 |
| | Total | LPD | M= | 17.37 | 22.88 | 21.5 | 19.75 | 7.56 | 27.16 | 24.8 | 27.5 | 20.9 | 16.7 | 89.1 | 117 | 206.1 |
| | | N=125 | ∑= | 2.51 | 2.22 | 3.42 | 3.58 | 2.22 | 3.67 | 5.41 | 3.46 | 3.91 | 3.21 | 10.5 | 16.07 | 23.79 |
| | | HPD | M= | 16.96 | 21.75 | 20.75 | 19.28 | 7.91 | 25.7 | 23.3 | 26.0 | 20.2 | 16.5 | 86.6 | 111.9 | 198.54 |
| | | N=475 | ∑= | 2.52 | 2.84 | 3.26 | 3.56 | 1.93 | 3.86 | 4.87 | 3.36 | 3.47 | 2.95 | 9.81 | 12.68 | 19.73 |
| | | Total | M= | 17.04 | 21.98 | 20.9 | 19.37 | 7.84 | 26 | 23.6 | 26.5 | 20.4 | 16.5 | 87.1 | 113 | 200.12 |
| | | N=600 | ∑= | 2.52 | 2.76 | 3.31 | 3.56 | 2 | 3.86 | 5.02 | 3.42 | 3.57 | 3 | 10 | 13.61 | 20.84 |
| Total | Girls | LPD | M= | 17.34 | 22.42 | 21.94 | 19.89 | 7.52 | 27.4 | 25.3 | 27.8 | 20.8 | 17.1 | 89.1 | 118.3 | 207.44 |
| | | N=125 | ∑= | 2.72 | 2.69 | 3.71 | 3.95 | 2.43 | 3.5 | 5.28 | 3.42 | 4.42 | 3.18 | 11.6 | 15.71 | 23.4 |
| | | HPD | M= | 17.27 | 21.9 | 20.83 | 18.71 | 7.37 | 25.93 | 23.3 | 26.1 | 20.3 | 16.8 | 86.1 | 112.5 | 198.56 |
| | | N=475 | ∑= | 2.33 | 2.83 | 3.26 | 3.47 | 2.27 | 4.15 | 4.97 | 3.8 | 3.51 | 2.91 | 9.6 | 13.65 | 20.21 |
| | | Total | M= | 17.29 | 22.01 | 21.06 | 18.96 | 7.4 | 26.23 | 23.7 | 26.5 | 20.4 | 16.9 | 86.7 | 113.7 | 200.41 |
| | | N=600 | ∑= | 2.41 | 2.81 | 3.39 | 3.6 | 2.3 | 4.06 | 5.09 | 3.78 | 3.72 | 2.97 | 10.1 | 14.29 | 21.2 |
| | Boys | LPD | M= | 16.98 | 22.03 | 20.78 | 18.84 | 7.1 | 26.54 | 24.3 | 26.9 | 21 | 16.3 | 85.7 | 115.1 | 200.79 |
| | | N=125 | ∑= | 2.98 | 3.49 | 3.63 | 3.72 | 2.45 | 3.86 | 5.23 | 4.11 | 3.76 | 3.4 | 12.6 | 16 | 25.3 |
| | | HPD | M= | 16.91 | 21.5 | 20.61 | 18.95 | 7.57 | 25.66 | 23.6 | 26 | 20.1 | 16.2 | 85.6 | 111.5 | 197.09 |
| | | N=475 | ∑= | 2.8 | 3.05 | 3.61 | 3.81 | 2.24 | 4.15 | 5.16 | 4 | 3.95 | 3.3 | 11.4 | 15.1 | 23.92 |
| | | Total | M= | 16.93 | 21.61 | 20.65 | 18.93 | 7.47 | 25.85 | 23.8 | 26.2 | 20.3 | 16.2 | 85.6 | 112.3 | 197.86 |
| | | N=600 | ∑= | 2.84 | 3.15 | 3.61 | 3.79 | 2.29 | 4.11 | 5.18 | 4.04 | 3.93 | 3.32 | 11.7 | 15.35 | 24.24 |
| | Total | LPD | M= | 17.16 | 22.22 | 21.36 | 19.36 | 7.31 | 26.9'7 | 24.8 | 27.3 | 20.9 | 16.7 | 87.4 | 116.7 | 204.12 |
| | | N=250 | ∑= | 2.85 | 3.12 | 3.71 | 3.86 | 2.44 | 3.7 | 5.26 | 3.8 | 4.1 | 3.31 | 12.2 | 15.91 | 24.54 |
| | | HPD | M= | 17.09 | 21.7 | 20.72 | 18.83 | 7.47 | 25.79 | 23.5 | 26.1 | 20.2 | 16.5 | 85.8 | 112 | 197.83 |
| | | N=950 | ∑= | 2.58 | 2.95 | 3.44 | 3.64 | 2.26 | 4.15 | 5.07 | 3.9 | 3.74 | 3.13 | 10.5 | 14.4 | 22.14 |
| | | Total | M= | 17.11 | 21.81 | 20.85 | 18.94 | 7.44 | 26.04 | 23.8 | 26.3 | 20.3 | 16.5 | 86.2 | 113 | 199.14 |
| | | N=1200 | ∑= | 2.64 | 2.99 | 3.51 | 3.69 | 2.3 | 4.09 | 5.14 | 3.91 | 3.83 | 3.17 | 10.9 | 14.84 | 22.8 |

**PCE**=Parental Control and Encouragement, **IC=**Independence and Conformity, **PCN**=Parental Care and Nurturance, **RO**=Recreational Orientation, **LT**=Learning through Computer technology, **CE**=Cognitive Encouragement, **TT=**Teaching through Technology, **RP**=Reward and Punishment, **PI**=Physical Infrastructure, **PIL**=Peer Influence on Learning, **LE HM**= Learning Environment at Home, **LE SCHL**=Learing Environment at School, **LE TOTAL**=Learning Environment total

**FIGURE 3.32**

**GRAPHICAL REPRESENTATION OF VARIOUS DIMENSIONS OF LEARNING ENVIRONMENT WITH RESPECT TO LOCALITY, GENDER AND POPULATION**

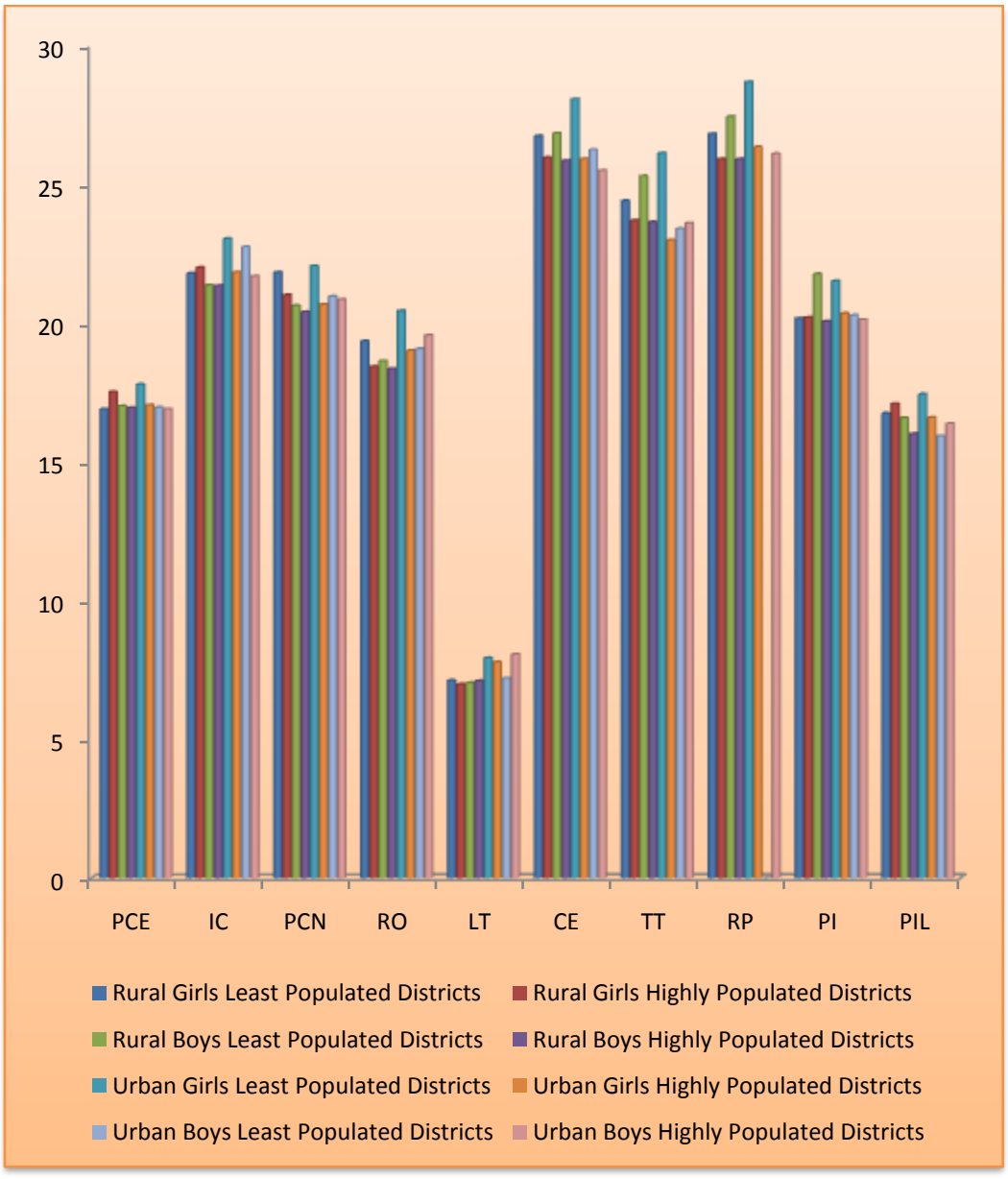
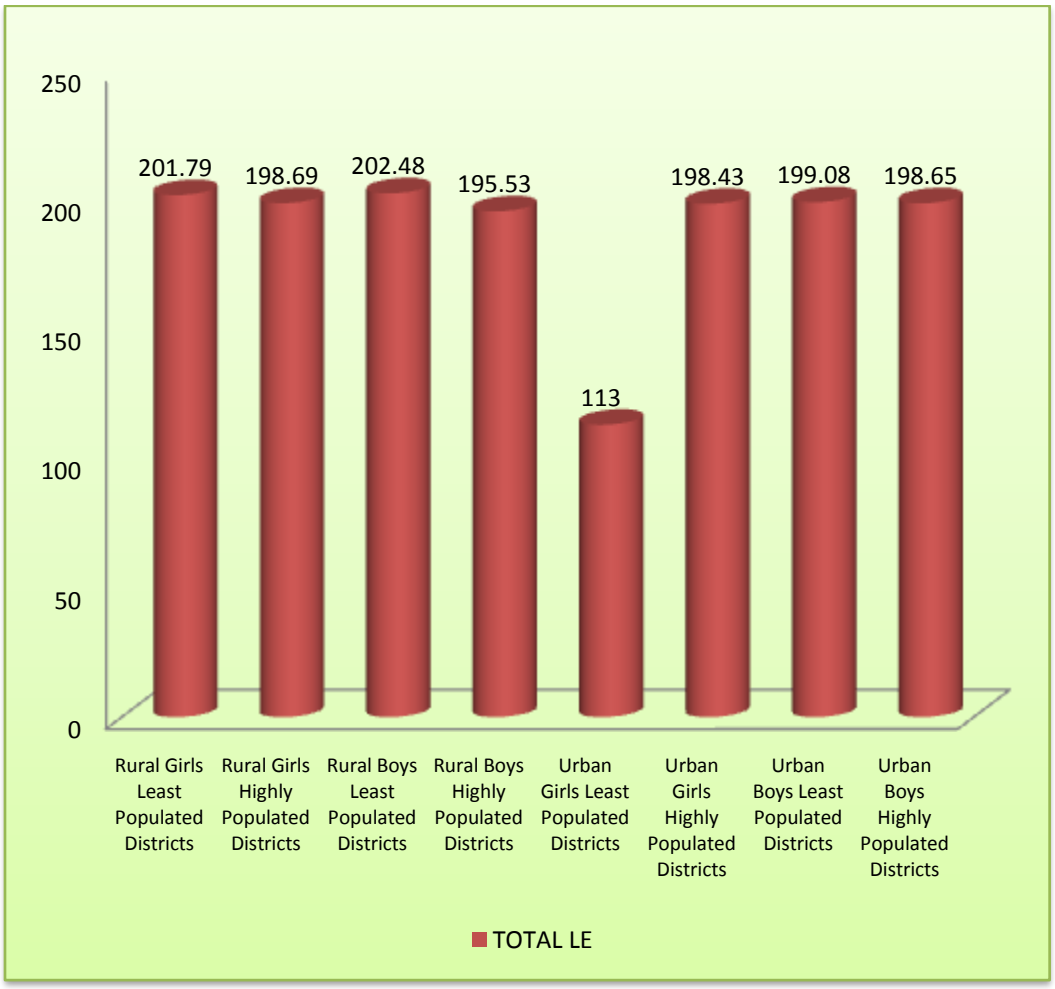


**FIGURE 3.33**

**GRAPHICAL REPRESENTATION OF LEARNING ENVIRONMENT TOTAL WITH RESPECT TO LOCALITY, GENDER AND POPULATION**




In order to analyze the variance of various dimensions and total score of learning environment of the boy and girl senior secondary school students from rural and urban localities of least and highly populated districts, the obtained scores are subjected to ANOVA and the results have been presented in the Table 3.42.

## TABLE 3.42

## SUMMARY OF 2X2X2 DESIGN WITH RESPECT TO VARIOUS DIMEANSIONS AND TOTAL LEARNING ENVIRONMENT IN RELATION TO LOCALITY, GENDER AND POPULATION

| | | Parental Control and Encouragement | | | Independence and Conformity | | | Parental Care and Nurturance | | | Recreational Orientation | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Source** | **df** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** |
| **L** | 1 | 1.15 | 1.15 | 0.16 | 95.92 | 95.92 | 10.84** | 5.49 | 5.49 | 0.44 | 136.46 | 136.46 | 10.16** |
| **G** | 1 | 25.44 | 25.44 | 3.65 | 29.59 | 29.59 | 3.34 | 91.53 | 91.53 | 7.49** | 31.99 | 31.99 | 2.38 |
| **P** | 1 | 0.71 | 0.71 | 0.103 | 53.68 | 53.68 | 6.06* | 81.01 | 81.01 | 6.63** | 56.2 | 56.2 | 4.186* |
| **L*G** | 1 | 3.25 | 3.25 | 0.46 | 5.3 | 5.3 | 0.59 | 9.94 | 9.94 | 0.81 | 0.003 | 0.003 | 0.00 |
| **L*P** | 1 | 23.5 | 23.5 | 3.38 | 74.32 | 74.32 | 8.40** | 2.49 | 2.49 | 0.2 | 0.77 | 0.77 | 0.058 |
| **G*P** | 1 | 0.001 | 0.001 | 0.00 | 0.03 | 0.03 | 0.004 | 43.65 | 43.65 | 3.57 | 81.003 | 81.003 | 6.03* |
| **L*G*P** | 1 | 23.05 | 23.05 | 3.31 | 1.82 | 1.82 | 0.2 | 5.74 | 5.74 | 0.47 | 20.09 | 20.09 | 1.49 |
| **Error** | 1192 | 8289.98 | 6.95 | | 10547.5 | 8.84 | | 14562.9 | 12.21 | | 16006.1 | 13.42 | |
| **Total** | 1200 | 359548 | | | 58167 | | | 536614 | | | 446907 | | |
| | | **Learning through Computer technology** | | | **Cognitive Encouragement** | | | **Teaching through Technology** | | | **Reward and Punishment** | | |
| **Source** | **df** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** |
| **L** | 1 | 93.28 | 93.28 | 18.19** | 1.61 | 1.61 | 0.098 | 11 | 11 | 0.42 | 25.98 | 25.98 | 1.73 |
| **G** | 1 | 2.23 | 2.23 | 0.43 | 62.56 | 62.56 | 3.79 | 20.63 | 20.63 | 0.79 | 46.58 | 46.58 | 3.11 |
| **P** | 1 | 4.99 | 4.99 | 0.97 | 270.72 | 270.7 | 16.42** | 347.92 | 347.92 | 13.38** | 314.8 | 314.8 | 21.03** |
| **L*G** | 1 | 2.68 | 2.68 | 0.52 | 61.99 | 61.99 | 3.76 | 107.02 | 107.02 | 4.11* | 125.53 | 125.53 | 8.38** |
| **L*P** | 1 | 7.43 | 7.43 | 1.45 | 16.27 | 16.27 | 0.98 | 3.9 | 3.9 | 0.15 | 0.43 | 0.43 | 0.029 |
| **G*P** | 1 | 18.51 | 18.51 | 3.61 | 17.65 | 17.65 | 1.07 | 70.74 | 70.74 | 2.72 | 25.58 | 25.58 | 1.70 |
| **L*G*P** | 1 | 7.79 | 7.79 | 1.52 | 31.8 | 31.8 | 1.92 | 225.68 | 225.68 | 8.68** | 88.94 | 88.94 | 5.94* |
| **Error** | 1192 | 6111.09 | 5.12 | | 19651.9 | 16.48 | | 30985.4 | 25.99 | | 17838.5 | 14.96 | |
| **Total** | 1200 | 72708 | | | 833715 | | | 708452 | | | 849984 | | |

| | | Physical Infrastructure | | | Peer Influence on Learning | | | Learning Environment at Home | | | Learning Environment at School | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Source** | **df** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** | **SS** | **MSS** | **F** |
| **L** | 1 | 0.066 | 0.066 | 0.005 | 0.092 | 0.092 | 0.009 | 1193.96 | 1194 | 10.16** | 9.03 | 9.03 | 0.04 |
| **G** | 1 | 0.004 | 0.004 | 0.004 | 109.6 | 109.6 | 11.02** | 739.94 | 739.94 | 6.29* | 881.17 | 881.17 | 4.09* |
| **P** | 1 | 112.12 | 112.1 | 7.71** | 4.77 | 4.77 | 0.48 | 503.44 | 503.44 | 4.28* | 4306.53 | 4306.53 | 20.02** |
| **L*G** | 1 | 105.55 | 105.6 | 7.26** | 2.99 | 2.99 | 0.302 | 3.85 | 3.85 | 0.03 | 1716.32 | 1716.32 | 7.97** |
| **L*P** | 1 | 1.55 | 1.55 | 0.10 | 0.29 | 0.29 | 0.03 | 130.84 | 130.84 | 1.11 | 35.59 | 35.59 | 0.16 |
| **G*P** | 1 | 6.33 | 6.33 | 0.43 | 1.81 | 1.81 | 0.18 | 388.02 | 388.02 | 3.3 | 272.21 | 272.21 | 1.26 |
| **L*G*P** | 1 | 93.36 | 93.36 | 6.42* | 59.05 | 59.05 | 5.94** | 250.45 | 250.45 | 2.13 | 2250.68 | 2250.68 | 10.46** |
| **Error** | 1192 | 17331.8 | 14.54 | | 11849.5 | 9.94 | | 140036 | 117.48 | | 256410 | 215.1 | |
| **Total** | 1200 | 513636 | | | 340455 | | | 9049081 | | | 1.6E+07 | | |

| | | Learning Environment TOTAL | | |
|---|---|---|---|---|
| **Source** | **df** | **SS** | **MSS** | **F** |
| **L** | 1 | 1410.72 | 1411 | 2.77 |
| **G** | 1 | 3236.07 | 3236 | 6.35* |
| **P** | 1 | 7754.84 | 7755 | 15.23** |
| **L*G** | 1 | 1557.52 | 1558 | 3.06 |
| **L*P** | 1 | 302.922 | 302.9 | 0.59 |
| **G*P** | 1 | 1310.24 | 1310 | 2.57 |
| **L*G*P** | 1 | 4002.72 | 4003 | 7.86** |
| **Error** | 1192 | 606752 | 509 | |
| **Total** | 1200 | 4.8E+07 | | |

*** significant at 0.05 level; ** significant at 0.01 level; F value at (1, 1192) df: 3.85 (0.05 level); 6.66 (0.01 level)**

**MAIN EFFECTS**

**Locality**

It has been observed from the Table 3.42 that F-ratio for the 'Independence and Conformity', 'Recreational Orientation', 'Learning through Computer technology', 'Learning Environment at Home' dimension of learning environment between rural and urban senior secondary school students has been found to be 10.84, 10.16, 18.19 and 10.16 which is found to be significant at the 0.01 level of confidence. This indicates that two groups of rural and urban senior secondary school students differ significantly on their scores of 'Independence and Conformity', 'Recreational Orientation', 'Learning through Computer technology', 'Learning Environment at Home' dimension of learning environment. Thus, the data provide sufficient evidence to reject the hypothesis 22, "There exists no significant difference between rural and urban senior secondary students in their learning environment" for 'Independence and Conformity', 'Recreational Orientation', 'Learning through Computer technology', 'Learning Environment at Home' dimension of learning environment. From reviewing the corresponding means in the Table 3.41, it is found that senior secondary school students from urban locality (21.9) had scored more on 'Independence and Conformity' dimension of learning environment than senior secondary school students from rural locality (21.6). This means that urban senior secondary students are good in taking their own decisions independently and follows parent's direction as compared to rural senior secondary school students. Supportive learning environment is provided to urban students by their parents so that they can work independently than the rural senior secondary students. In urban localities, Parents provide guidance to their children to explore achievement activities of their own.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from urban locality (19.3) had scored more on 'Recreational Orientation' dimension of learning environment than senior secondary students from rural locality (18.5). This means that in urban localities, students get more recreational or interesting activities at home like books,

puzzles, educational tours, and educational games etc that stimulate child's thinking and arouse their curiosity than senior secondary students from rural locality. Such students are more efficient, intelligent, academically motivated as compared to students from rural localities.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from urban locality (7.84) had scored more on 'Learning through Computer technology' dimension of learning environment than senior secondary students from rural locality (7.00). This means that senior secondary school students from urban localities are having facilities like computer, internet at their home for learning and accomplishing their academic tasks than the senior secondary school students from rural localities.

From reviewing the corresponding means in the Table 3.41, it is also found that senior secondary students from urban locality (87.1) had scored more on 'Learning Environment at Home' sub scale of learning environment than senior secondary students from rural locality (85.2). This means that senior secondary school students from urban localities get more stable, secure, and stimulating environment at home that promote positive attitude towards learning than the rural ones. Urban senior secondary school students are more motivated and engaged in their academic work. They set their goals and make efforts to achieve their goals. Students from urban localities are more likely to develop positive attitude toward themselves and pro social attitude and behaviours toward others than the students from rural localities.

However, F-ratios for the differences in locality for various dimensions i.e. 'Parental Control and Encouragement', 'Parental Care and Nurturance', 'Cognitive Encouragement', 'Teaching through Technology', 'Reward and Punishment', 'Physical Infrastructure', 'Peer Influence on Learning', 'Learning Environment at School' and total score of learning environment are not found to be significant even at the 0.05 level of confidence. This indicates that two groups of rural and urban senior secondary school students do not differ significantly on their scores on 'Parental Control and Encouragement', 'Parental Care and Nurturance', 'Cognitive Encouragement', 'Teaching through Technology',

‘Reward and Punishment’, ‘Physical Infrastructure’, ‘Peer Influence on Learning’, ‘Learning Environment at School’ and total score of learning environment. Thus, the data did not provide sufficient evidence to reject the hypothesis 22, “There exists no significant difference between rural and urban senior secondary students in their learning environment” for ‘Parental Control and Encouragement’, ‘Parental Care and Nurturance’, ‘Cognitive Encouragement’, ‘Teaching through Technology’, ‘Reward and Punishment’, ‘Physical Infrastructure’, ‘Peer Influence on Learning’, ‘Learning Environment at School’ and total score of learning environment. Meaning thereby, that senior secondary boys and girls do not differ in their learning environment.

**Gender**

It has been observed from the Table 3.42 that F-ratio for the ‘Parental Care and Nurturance’, ‘Peer Influence on Learning’ dimensions, and ‘Learning Environment at Home’, ‘Learning Environment at School’ subscales of learning environment and total score of learning environment between senior secondary boys and girls students has been found to be 7.49, 11.02, 6.29, 4.09 and 6.35 which is found to be significant at either the 0.05 or the 0.01 level of confidence. This indicates that two groups of boy and girl senior secondary school students differ significantly on their scores of ‘Parental Control and Encouragement’, ‘Parental Care and Nurturance’, ‘Cognitive Encouragement’, ‘Peer Influence on Learning’, ‘Learning Environment at Home’, ‘Learning Environment at School’ dimensions and subscales of learning environment and total score of learning environment. Thus, the data provide sufficient evidence to reject the hypothesis 23, “There exists no significant difference between senior secondary boys and girls in their learning environment” for ‘Parental Care and Nurturance’, ‘Peer Influence on Learning’ dimensions, and ‘Learning Environment at Home’, ‘Learning Environment at School’ subscales of learning environment and total score of learning environment.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary girl students (21.06) had scored more on ‘Parental Care and Nurturance’ dimension of learning environment than senior secondary boy

students (20.65). This means that senior secondary girl students get excessive care and parental support than senior secondary boy students.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary girl students (16.89) had scored more on 'Peer Influence on Learning' dimension of learning environment than senior secondary boy students (16.20). This means that senior secondary girl students are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondary boy students.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary girl students (86.71) had scored more on 'Learning Environment at Home' dimension of learning environment than senior secondary boy students (85.59). This means that senior secondary girl students are getting more stable, secure, and stimulating environment at home that promote positive attitude towards learning than senior secondary boy students.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary girl students (113.70) had scored more on 'Learning Environment at School' dimension of learning environment than senior secondary boy students (112.27). This means that senior secondary girl students are getting whole range of activities and opportunities at school to maximize their learning than senior secondary boy students.

It has been observed from the Table 3.42 that F-ratio for the differences in 'Parental Control and Encouragement', 'Independence and Conformity', 'Recreational Orientation', 'Learning through Computer technology', 'Cognitive Encouragement', 'Teaching through Technology', 'Reward and Punishment', 'Physical Infrastructure' dimension of learning environment are found to be 3.34, 2.38, 0.43, 0.79, 3.11 and 0.004 which are not found to be significant even at the 0.05 level of confidence. This indicates that two groups of senior secondary boy and girl students do not differ significantly on their scores of 'Parental Control and Encouragement', 'Independence and Conformity', 'Recreational Orientation', 'Learning through Computer technology', 'Cognitive Encouragement', 'Teaching through Technology', 'Reward and Punishment', 'Physical Infrastructure' dimension of learning environment. Thus, the data did not provide sufficient

evidence to reject the hypothesis 23, "There exists no significant difference between senior secondary boys and girls in their learning environment" for 'Independence and Conformity', 'Recreational Orientation', 'Learning through Computer technology', 'Teaching through Technology', 'Reward and Punishment', 'Physical Infrastructure' dimension of learning environment. Meaning thereby, that both boy and girl senior secondary school students do not differ in their parental control and encouragement, independence and conformity, recreational orientation, learning through computer technology, cognitive encouragement, teaching through technology, reward and punishment & physical infrastructure.

**Population**

It has been observed from the Table 3.42 that F-ratios for the differences in 'Independence and Conformity', 'Parental Care and Nurturance', 'Recreational Orientation', 'Cognitive Encouragement', 'Teaching through Technology', 'Reward and Punishment', 'Physical Infrastructure' dimensions and 'Learning Environment at Home', 'Learning Environment at School' subscales of learning environment and total score of learning environment between senior secondary school students from least populated and highly populated districts are found to be 6.06, 6.63, 4.18, 16.42, 13.38, 21.03, 7.71, 4.28, 20.02 and 15.23, which are found to be significant either at the 0.05 or the 0.01 level of confidence. This indicates that two groups of students i.e. senior secondary students from least and highly populated districts differ significantly on their scores of 'Independence and Conformity', 'Parental Care and Nurturance', 'Recreational Orientation', 'Cognitive Encouragement', 'Teaching through Technology', 'Reward and Punishment', 'Physical Infrastructure', 'Learning Environment at Home', 'Learning Environment at School' dimension of learning environment and total score of learning environment. Thus, the data provides sufficient evidence to reject the hypothesis 24, "There exists no significant difference between senior secondary students from least and highly populated districts in their learning environment" for 'Independence and Conformity', 'Parental Care and Nurturance', 'Recreational Orientation', 'Cognitive Encouragement', 'Teaching through Technology', 'Reward and Punishment', 'Physical Infrastructure'

dimensions and 'Learning Environment at Home', 'Learning Environment at School' subscales of learning environment and total score of learning environment.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (22.22) had scored more on 'Independence and Conformity' dimension of learning environment than senior secondary students from highly populated districts (21.70). This means that senior secondary students from least populated districts are good in taking their own decisions independently and follows parent's direction than senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (21.36) had scored more on 'Parental Care and Nurturance' dimension of learning environment than senior secondary students from highly populated districts (20.72). This means that senior secondary students from least populated districts get excessive care and parental support for developmental needs than senior secondary students from highly populated districts

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (19.36) had scored more on 'Recreational Orientation' dimension of learning environment than senior secondary students from highly populated districts (18.83). This means that senior secondary students from least populated districts get more recreational or interesting activities at home like books, puzzles, educational tours, and educational games etc that stimulate child's thinking and arouse their curiosity than senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (26.97) had scored more on 'Cognitive Encouragement' dimension of learning environment than senior secondary students from highly populated districts (25.79). This means that senior secondary students from least populated districts are getting more encouragement to stimulate their cognitive development than senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (24.80) had scored more on 'Teaching through Technology' dimension of learning environment than senior secondary students from highly populated districts (23.47). This means that senior secondary students from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (27.33) had scored more on 'Reward and Punishment' dimension of learning environment than senior secondary students from highly populated districts (26.06). This means that for senior secondary school students in least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour than for senior secondary students in highly populated districts.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (20.93) had scored more on 'Physical Infrastructure' dimension of learning environment than senior secondary students from highly populated districts (20.17). This means that senior secondary students from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (87.42) had scored more on 'Learning Environment at Home' dimension of learning environment than senior secondary students from highly populated districts (85.82). This means that senior secondary students from least populated districts are getting more stable, secure, and stimulating environment at home that promote positive attitude towards learning than senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (116.70) had scored more on 'Learning Environment at School' dimension of learning environment than

senior secondary students from highly populated districts (112.01). This means that senior secondary students from least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary students from highly populated districts.

From reviewing the corresponding means in the Table 3.41, it is found that senior secondary students from least populated districts (204.12) had scored more on total learning environment than senior secondary students from highly populated districts (197.83). This means that senior secondary students from least populated districts are getting effective and better learning environment at home and at school which promote positive attitude towards learning as compared to senior secondary students from highly populated districts.

It has been observed from the Table 3.42 that F-ratio for the differences in 'Parental Control and Encouragement', 'Learning through Computer technology', 'Peer Influence on Learning' dimensions of learning environment between senior secondary students from least and highly populated districts is found to be 0.10, 0.97 and 0.48 which is not found to be significant even at the 0.05 level of confidence. This indicates that two groups of students i.e. senior secondary students from least and highly populated districts do not differ significantly on their scores of 'Parental Control and Encouragement', 'Learning through Computer technology', 'Peer Influence on Learning' dimensions of learning environment. Thus, the data did not provide sufficient evidence to reject the hypothesis 24"There exists no significant difference between senior secondary students from least and highly populated districts in their learning environment" for 'Parental Control and Encouragement', 'Learning through Computer technology', 'Peer Influence on Learning' dimensions of learning environment. Meaning thereby, that senior secondary students from least and highly populated districts do not differ in their parental control and encouragement, learning through computer technology, peer influence on learning.

## TWO ORDER INTERACTION

### Gender X Locality

It has been observed from the Table 3.42, that F-ratio for the interaction between gender and locality of senior secondary school students on 'Teaching through Technology', 'Reward and Punishment', 'Physical Infrastructure', 'Learning Environment at School' dimension of learning environment is found to be 4.11, 8.38, 7.26 and 7.97 which is significant at either the 0.05 or the 0.01 level of confidence. To further analyze the significant difference between various groups, t-test have been applied on the 'Teaching through Technology', 'Reward and Punishment' and 'Physical Infrastructure', 'Learning Environment at School' dimension of learning environment and obtained results are presented in the Table 3.43, 3.44, 3.45 and 3.46.

**TABLE 3.43**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'TEACHING THROUGH TECHNOLOGY' DIMENSION OF LEARNING ENVIRONMENT**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Urban Boys | M= 23.6 | Rural Boys | M= 24 | 0.94 |
| | SD= 5.11 | | SD= 5.25 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 23.6 | Urban Girls | M= 23.6 | 0.00 |
| | SD= 5.11 | | SD= 4.93 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 23.6 | Rural Girls | M= 23.8 | 0.47 |
| | SD= 5.11 | | SD= 5.25 | |
| | N= 299 | | N= 299 | |
| Rural Boys | M= 24 | Urban Girls | M= 23.6 | 0.96 |
| | SD= 5.25 | | SD= 4.93 | |
| | N= 301 | | N= 301 | |
| Rural Boys | M= 24 | Rural Girls | M= 23.8 | 0.46 |
| | SD= 5.25 | | SD= 5.25 | |
| | N= 301 | | N= 299 | |
| Urban Girls | M= 23.6 | Rural Girls | M= 23.8 | 0.48 |
| | SD= 4.93 | | SD= 5.25 | |
| | N= 301 | | N= 299 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.43 that the t value for none of the subgroups were found to be significant even at the 0.05 level of confidence. Thus, the data do not provide sufficient evidence to reject the hypothesis 25, "There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students" for 'Teaching through Technology' dimension of Learning Environment. Meaning thereby, the interaction of gender and locality has no influence on 'Teaching through technology' dimension of learning environment.

**TABLE 3.44**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'REWARD AND PUNISHMENT' DIMENSION OF LEARNING ENVIRONMENT**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Urban Boys | M= 26.2 | Rural Boys | M= 26.2 | 0.00 |
| | SD= 3.62 | | SD= 4.42 | |
| | N= 299 | | N=301 | |
| Urban Boys | M= 26.2 | Urban Girls | M= 26.8 | 2.15* |
| | SD= 3.62 | | SD= 3.18 | |
| | N= 299 | | N=301 | |
| Urban Boys | M= 26.2 | Rural Girls | M= 26.1 | 0.31 |
| | SD= 3.62 | | SD= 4.27 | |
| | N= 299 | | N= 299 | |
| Rural Boys | M= 26.2 | Urban Girls | M= 26.8 | 1.91 |
| | SD= 4.42 | | SD= 3.18 | |
| | N=301 | | N=301 | |
| Rural Boys | M= 26.2 | Rural Girls | M= 26.1 | 0.28 |
| | SD= 4.42 | | SD= 4.27 | |
| | N=301 | | N= 299 | |
| Urban Girls | M= 26.8 | Rural Girls | M= 26.1 | 2.27* |
| | SD= 3.18 | | SD= 4.27 | |
| | N=301 | | N= 299 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.44 that the t value for 2 sub groups was found to be significant at the 0.05 level of confidence. Thus, the data provide sufficient evidence to reject the hypothesis 25 "There is no interaction effect of

gender and locality on the scores of learning environment of senior secondary students" for Reward and Punishment dimension of learning environment.

From means analysis, in the Table 3.44, it is clear that urban girls (26.8) have scored more than the urban boys (26.2) on 'Reward and Punishment' dimension of learning environment. Meaning thereby, that in urban areas, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of urban girls than senior secondary boys from urban localities.

From means analysis, in the Table 3.44, it is clear that urban girls (26.8) have scored more than rural girls (26.1) on 'Reward and Punishment' dimension of learning environment. Meaning thereby, that in urban areas, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of urban girls than senior secondary girls from rural localities. Mean scoreson the 'Reward and Punishment' dimension of Learning Environment is shown in below given Figure 3.34.

**FIGURE 3.34**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'REWARD AND PUNISHMENT'DIMENSION OF LEARNING ENVIRONMENT**

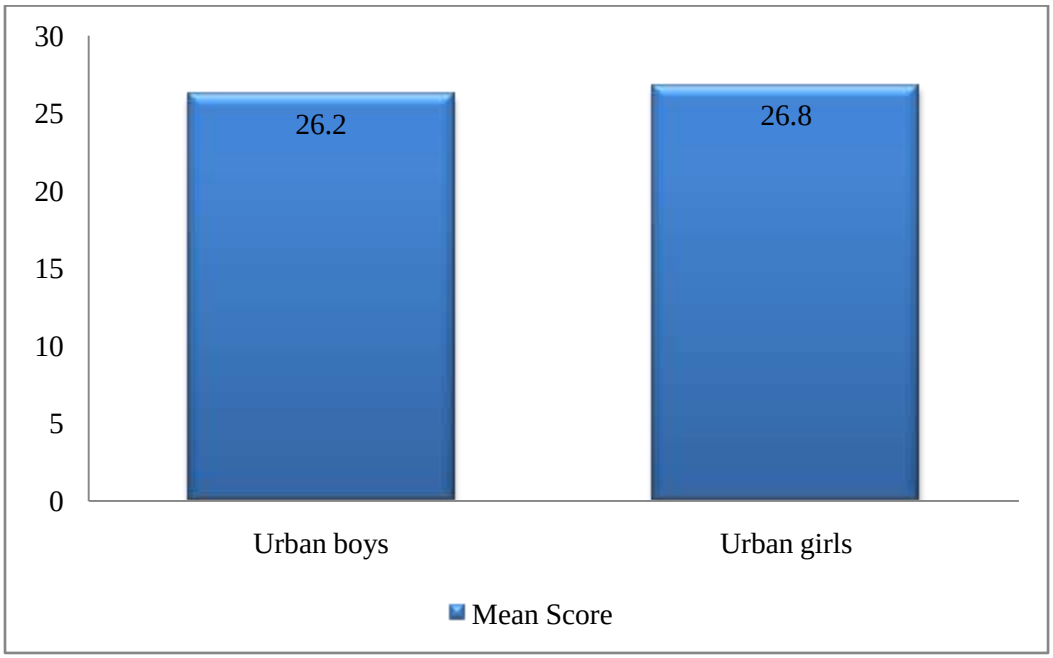


**TABLE 3.45**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'PHYSICAL INFRASTRUCTURE' DIMENSION OF LEARNING ENVIRONMENT**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Urban Boys | M= 20.2 | Rural Boys | M= 20.4 | 0.62 |
| | SD= 3.54 | | SD= 4.28 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 20.2 | Urban Girls | M= 20.6 | 1.37 |
| | SD= 3.54 | | SD= 3.6 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 20.2 | Rural Girls | M= 20.2 | 0.00 |
| | SD= 3.54 | | SD= 3.83 | |
| | N= 299 | | N= 299 | |
| Rural Boys | M= 20.4 | Urban Girls | M= 20.6 | 0.62 |
| | SD= 4.28 | | SD= 3.6 | |
| | N= 301 | | N= 301 | |
| Rural Boys | M= 20.4 | Rural Girls | M= 20.2 | 0.60 |
| | SD= 4.28 | | SD= 3.83 | |
| | N= 301 | | N= 299 | |
| Urban Girls | M= 20.6 | Rural Girls | M= 20.2 | 1.32 |
| | SD= 3.6 | | SD= 3.83 | |
| | N= 301 | | N= 299 | |

*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.45 that the t value for none of the subgroups were found to be significant even at the 0.05 level of confidence. Thus, the data do not provide sufficient evidence to reject the hypothesis 25, "There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students" for 'Physical Infrastructure' dimension of learning environment. Meaning thereby, boys & girls from rural & urban localities do not differ in Physical Infrastructural facilities.

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**TABLE 3.46**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'LEARNING ENVIRONMENT AT SCHOOL' SUBSCALE OF LEARNING ENVIRONMENT**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Urban Boys | M= 111.8 | Rural Boys | M= 112.8 | 0.79 |
| | SD= 13.9 | | SD= 16.67 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 111.8 | Urban Girls | M= 114.2 | 2.16* |
| | SD= 13.9 | | SD= 13.23 | |
| | N= 299 | | N= 301 | |
| Urban Boys | M= 111.8 | Rural Girls | M= 113.2 | 1.17 |
| | SD= 13.9 | | SD= 15.3 | |
| | N= 299 | | N= 299 | |
| Rural Boys | M= 112.8 | Urban Girls | M= 114.2 | 1.14 |
| | SD= 16.67 | | SD= 13.23 | |
| | N= 301 | | N= 301 | |
| Rural Boys | M= 112.8 | Rural Girls | M= 113.2 | 0.31 |
| | SD= 16.67 | | SD= 15.3 | |
| | N= 301 | | N= 299 | |
| Urban Girls | M= 114.2 | Rural Girls | M= 113.2 | 0.85 |
| | SD= 13.23 | | SD= 15.3 | |
| | N= 301 | | N= 299 | |

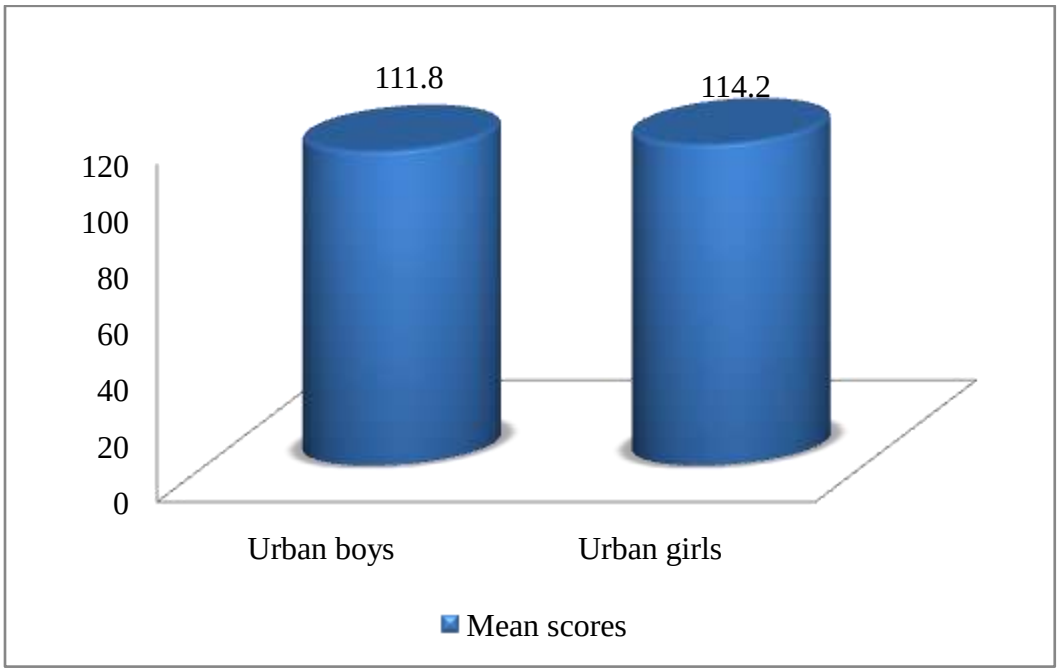
*Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.45 that the t value for one sub groups was found to be significant at the 0.05 level of confidence. Thus, the data provide sufficient evidence to reject the hypothesis 25, "There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students" for 'Learning Environment at School' subscale of learning environment. Meaning thereby, girls from urban localities perceive more favourable learning environment at school than boys from urban localities. Mean scoreson the 'Learning Environment at School' subscale of Learning Environment is shown in below given Figure 3.35.

**FIGURE 3.35**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'LEARNING ENVIRONMENT AT SCHOOL' SUBSCALE OF LEARNING ENVIRONMENT**




**Locality X Population**

It has been observed from the Table 3.42, that F-ratio for the interaction between locality and population of senior secondary school students on 'Independence and Conformity', dimensions of learning environment is found to be 8.40, which is significant at the 0.01 level of confidence.

To further analyze the significant difference between various groups, t-test has been applied on the 'Independence and Conformity' dimension of learning environment and obtained results are presented in the Table 3.47.

**TABLE 3.47**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'INDEPENDENCE AND CONFORMITY' DIMENSION OF LEARNING ENVIRONMENT**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Rural least populated districts | M= 21.6 | Urban least populated districts | M= 22.8 | 3.10** |
| | SD= 3.71 | | SD= 2.22 | |
| | N= 125 | | N= 125 | |
| Rural least populated districts | M= 21.6 | Rural highly populated districts | M= 21.7 | 0.27 |
| | SD= 3.71 | | SD= 3.06 | |
| | N= 125 | | N= 475 | |
| Rural least populated districts | M= 21.6 | Urban highly populated districts | M= 21.75 | 0.42 |
| | SD= 3.71 | | SD= 2.84 | |
| | N= 125 | | N= 475 | |
| Urban least populated districts | M= 22.8 | Rural highly populated districts | M= 21.7 | 4.52** |
| | SD= 2.22 | | SD= 3.06 | |
| | N= 125 | | N= 475 | |
| Urban least populated districts | M= 22.8 | Urban highly populated districts | M= 21.75 | 4.42** |
| | SD= 2.22 | | SD= 2.84 | |
| | N= 125 | | N= 475 | |
| Rural highly populated districts | M= 21.7 | Urban highly populated districts | M= 21.75 | 0.26 |
| | SD= 3.06 | | SD= 2.84 | |
| | N= 475 | | N= 475 | |

* Significant at 0.05 level of confidence

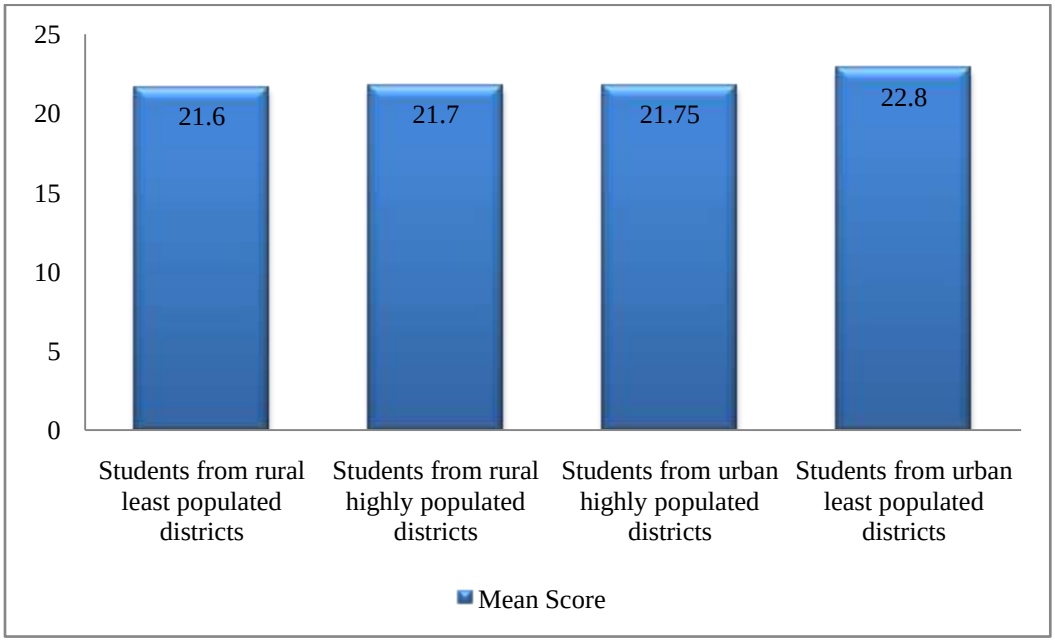
** Significant at 0.01 level of confidence

It has been observed from the Table 3.47 that the t value for 3 sub groups were found to be significant at the 0.01 level of confidence. From means analysis, in the Table 3.47, it is clear that students from urban least populated districts (22.8) have scored more than students from rural least populated districts (21.6) on 'Independence and conformity' dimension of learning environment. Meaning thereby, that senior secondary school students from urban least populated districts are good in taking their own decisions independently and follows parent's direction than senior secondary students from rural least populated districts.

From means analysis, in the Table 3.47, it is clear that students from urban least populated district (22.8)have scored more than students from rural highly populated districts (21.70) and students from urban highly populated districts (21.75) on 'Independence and conformity' dimension of learning environment. Meaning thereby, that senior secondary school students from urban least populated districts are good in taking their own decisions independently and follows parent's direction than senior secondary students from rural highly populated districts. Mean scores on the 'Independence and Conformity' dimension of Learning Environment is shown in below given Figure 3.36.

**FIGURE 3.36**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'INDEPENDENCE AND CONFORMITY' DIMENSION OF LEARNING ENVIRONMENT**




**Gender X Population**

It has been observed from the Table 3.42, that F-ratio for the interaction between locality and population of senior secondary school students on 'Recreational Orientation' dimensions of learning environment is found to be 6.03, which is significant at the 0.01 level of confidence.

To further analyze the significant difference between various sub groups, t-test has been applied on the 'Recreational Orientation' dimension of learning environment and obtained results are presented in the Table 3.48.

**TABLE 3.48**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'RECREATIONAL ORIENTATION' DIMENSION OF LEARNING ENVIRONMENT**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Girls from Least populated districts | M= 19.89 | Girls from highly populated districts | M= 18.71 | 3.04** |
| | SD= 3.95 | | SD= 3.47 | |
| | N=125 | | N= 475 | |
| Girls from Least populated districts | M= 19.89 | Boys from least populated districts | M= 18.84 | 2.16* |
| | SD= 3.95 | | SD= 3.72 | |
| | N= 125 | | N= 125 | |
| Girls from Least populated districts | M= 19.89 | Boys from Highly populated districts | M= 18.95 | 2.38* |
| | SD= 3.95 | | SD= 3.81 | |
| | N= 125 | | N= 475 | |
| Girls from highly populated districts | M= 18.71 | Boys from least populated districts | M= 18.84 | 0.35 |
| | SD= 3.47 | | SD= 3.72 | |
| | N= 475 | | N= 125 | |
| Girls from highly populated districts | M= 18.71 | Boys from Highly populated districts | M= 18.95 | 1.01 |
| | SD= 3.47 | | SD= 3.81 | |
| | N= 475 | | N= 475 | |
| Boys from least populated districts | M= 18.84 | Boys from Highly populated districts | M= 18.95 | 0.29 |
| | SD= 3.72 | | SD= 3.81 | |
| | N= 125 | | N= 475 | |

* Significant at 0.05 level of confidence

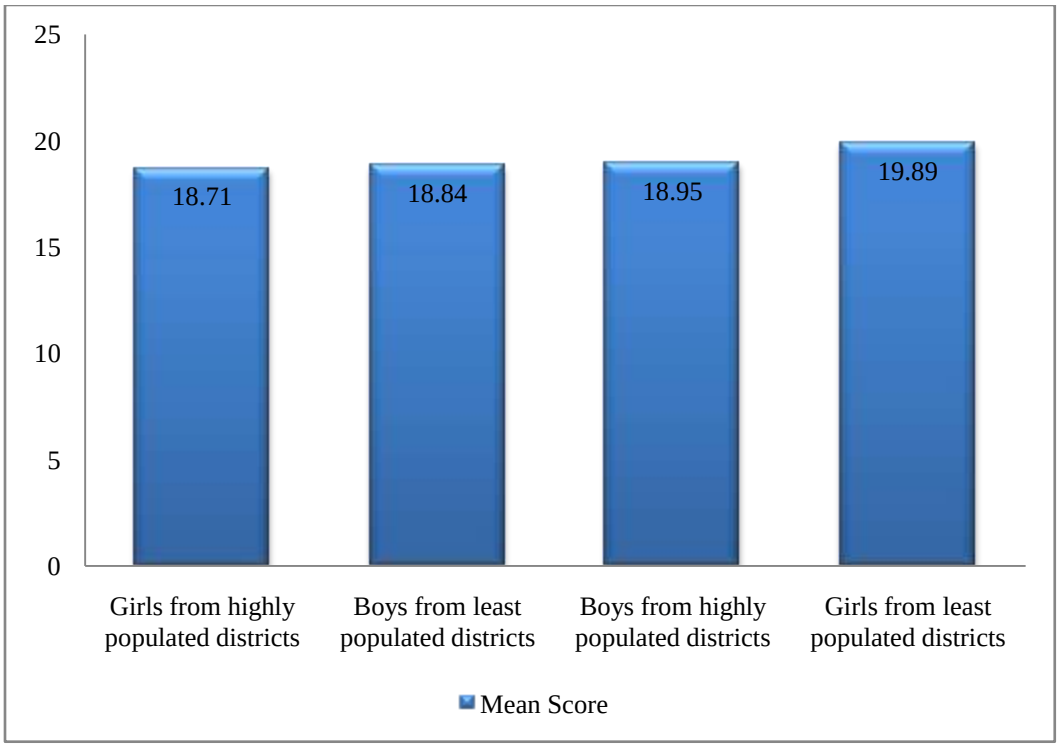
** Significant at 0.01 level of confidence

It has been observed from the Table 3.48 that the t value for 3 sub groups were found to be significant at the 0.05 and at the 0.01 level of confidence. From means analysis, in the Table 3.48, it is clear that girls from least populated districts (19.89) have scored more than girls (18.71) & boys (18.95) from highly populated districts and boys from least populated districts (18.84) on 'Recreational orientation' dimension of self efficacy. Meaning thereby, that senior

secondary girl students from least populated districts get more recreational or interesting activities at home like books, puzzles, educational tours, and educational games etc that stimulate child's thinking and arouse their curiosity than senior secondary girl and boy students from highly populated districts and boys from least populated districts. Mean scoreson the 'Recreational Orientation' dimension of Learning Environment is shown in below given Figure 3.37.

**FIGURE 3.37**

**GRAPHICAL REPRESENTATION OF MEAN SCORES OF 'RECREATIONAL ORIENTATION' DIMENSION OF LEARNING ENVIRONMENT**




## THREE ORDER INTERACTION

### Locality X Gender X Population

It has been observed from the Table 3.42, that F-ratio for the interaction between locality and population of senior secondary school students on 'Teaching through Technology', 'Reward and Punishment' and 'Physical Infrastructure', 'Peer Influence on Learning' and 'Learning Environment at School' dimensions and subscale of learning environment and total score of learning environment is

found to be 8.68, 5.94, 6.42, 5.94, 10.46 and 7.84 which is significant either at the 0.05 or 0.01 level of confidence.

To further analyze the significant difference between various groups, t-test have been applied on the 'Teaching through Technology', 'Reward and Punishment' and 'Physical Infrastructure', 'Peer Influence on Learning' and 'Learning Environment at School' dimensions and subscale of learning environment and total score of learning environment and obtained results are presented in the Table 3.49.

**TABLE 3.49**

**SUMMARY OF 'T'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'TEACHING THROUGH TECHNOLOGY' DIMENSION OF LEARNING ENVIRONMENT**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M=25.3 | Boys from rural highly populated districts | M=23.6 | 2.34* |
| | SD=5.07 | | SD=5.25 | |
| | N=63 | | N=238 | |
| Boys from rural least populated districts | M=25.3 | Boys from urban least populated districts | M=23.4 | 2.05 * |
| | SD=5.07 | | SD=5.25 | |
| | N=63 | | N=62 | |
| Boys from rural least populated districts | M=25.3 | Boys from urban highly populated districts | M=23.6 | 2.36* |
| | SD=5.07 | | SD=5.09 | |
| | N=63 | | N=237 | |
| Boys from rural least populated districts | M=25.3 | Girls from rural highly populated districts | M=23.7 | 2.20* |
| | SD=5.07 | | SD=5.27 | |
| | N=63 | | N=237 | |
| Boys from rural least populated districts | M=25.3 | Girls from urban least populated districts | M=23.4 | 2.05* |
| | SD=5.07 | | SD=5.25 | |
| | N=63 | | N=62 | |
| Boys from rural least populated districts | M=25.3 | Girls from urban highly populated districts | M=23 | 3.25** |
| | SD=5.07 | | SD=4.64 | |
| | N=63 | | N=238 | |

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural highly populated districts | M=23.6 | Girls from urban least populated districts | M=26.1 | 3.36** |
| | SD=5.25 | | SD=5.25 | |
| | N=238 | | N=63 | |
| Boys from urban least populated districts | M=23.4 | Girls from urban least populated districts | M=26.1 | 2.87** |
| | SD=5.25 | | SD=5.25 | |
| | N=62 | | N=63 | |
| Boys from urban highly populated districts | M=23.6 | Girls from urban least populated districts | M=26.1 | 3.38** |
| | SD=5.09 | | SD=5.25 | |
| | N=237 | | N=63 | |
| Girls from rural highly populated districts | M=23.7 | Girls from urban least populated districts | M=26.1 | 3.22** |
| | SD=5.27 | | SD=5.25 | |
| | N=237 | | N=63 | |
| Girls from urban least populated districts | M=26.1 | Girls from urban highly populated districts | M=23 | 4.26** |
| | SD=5.25 | | SD=4.64 | |
| | N=63 | | N=238 | |

* Significant at0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.49 that the t value for 11 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 25, "There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students." for the 'Teaching through technology' dimension of learning environment.

It is clear from the Table 3.49 that boys from rural least populated districts (25.30) have scored more than the boys from rural highly populated districts (23.60) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary rural boys from highly populated districts.

It is clear from the Table 3.49 that boys from rural least populated districts (25.30) have scored more than the boys from urban least populated districts (23.40) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary urban boys from least populated districts.

It is clear from the Table 3.49 that boys from rural least populated districts (25.30) have scored more than the boys from urban highly populated districts (23.60) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary boys from rural least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary boys from urban highly populated districts.

It is clear from the Table 3.49 that boys from rural least populated districts (25.30) have scored more than the girls from rural highly populated districts (23.70) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary rural girls from highly populated districts.

It is clear from the Table 3.49 that boys from rural least populated districts (25.30) have scored more than the girls from urban least populated districts (23.40) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary urban girls from least populated districts.

It is clear from the Table 3.49 that boys from rural least populated districts (25.30) have scored more than the girls from urban highly populated districts (23.00) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary urban girls from highly populated districts.

Similarly, it is clear from the Table 3.49 that girls from urban least populated districts (26.10) have scored higher than boys from rural highly populated districts (23.60) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary urban girls from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary rural boys from highly populated districts.

It is clear from Table 3.49 that girls from urban least populated districts (26.10) have scored more than the boys from urban least populated districts (23.40) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary urban girls from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary urban boys from least populated districts.

It is clear from Table 3.49 that girls from urban least populated districts (26.10) have scored more than the boys from urban highly populated districts (23.60) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary urban girls from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary urban boys from highly populated districts.

It is clear from Table 3.49 that girls from urban least populated districts (26.10) have scored more than the girls from rural highly populated districts (23.70) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary urban girls from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary rural girls from highly populated districts.

It is clear from Table 3.49 that girls from urban least populated districts (26.10) have scored more than the girls from urban highly populated districts (23.00) on 'Teaching through technology' dimension of learning environment. Meaning thereby that senior secondary urban girls from least populated districts are using more technology like computers, internet, PPTs in the classroom for effective learning than senior secondary urban girls from least populated districts.

**TABLE 3.50**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'REWARD AND PUNISHMENT' DIMENSION OF LEARNING ENVIRONMENT**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M=27.4<br>SD=4.19<br>N=63 | Boys from rural highly populated districts | M=25.9<br>SD=4.44<br>N=238 | 2.49* |
| Boys from rural least populated districts | M=27.4<br>SD=4.19<br>N=63 | Boys from urban highly populated districts | M=26.1<br>SD=3.52<br>N=237 | 2.25* |
| Boys from rural least populated districts | M=27.4<br>SD=4.19<br>N=63 | Girls from rural highly populated districts | M=25.9<br>SD=4.31<br>N=237 | 2.51* |
| Boys from rural least populated districts | M=27.4<br>SD=4.19<br>N=63 | Girls from urban least populated districts | M=28.7<br>SD=2.36<br>N=63 | 2.14* |
| Boys from rural highly populated districts | M=25.9<br>SD=4.44<br>N=238 | Girls from urban least populated districts | M=28.7<br>SD=2.36<br>N=63 | 6.76** |
| Boys from urban least populated districts | M=26.37<br>SD=3.99<br>N=62 | Girls from urban least populated districts | M=28.7<br>SD=2.36<br>N=63 | 3.96** |
| Boys from urban highly populated districts | M=26.1<br>SD=3.52<br>N=237 | Girls from rural least populated districts | M=26.8<br>SD=4.04<br>N=62 | 6.93** |
| Boys from urban highly populated districts | M=26.1<br>SD=3.52<br>N=237 | Girls from urban least populated districts | M=28.7<br>SD=2.36<br>N=63 | 6.93** |
| Girls from rural least populated districts | M=26.8<br>SD=4.04<br>N=62 | Girls from urban least populated districts | M=28.7<br>SD=2.36<br>N=63 | 3.20** |
| Girls from rural highly populated districts | M=25.9<br>SD=4.31<br>N=237 | Girls from urban least populated districts | M=28.7<br>SD=2.36<br>N=63 | 6.85** |
| Girls from urban least populated districts | M=28.7<br>SD=2.36<br>N=63 | Girls from urban highly populated districts | M=26.37<br>SD=3.19<br>N=238 | 6.43** |

* Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.50 that the t value for 11 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 25,"There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students." for the 'Reward and Punishment' dimension of learning environment.

It is clear from the Table 3.50 that boys from rural least populated districts (27.40) have scored more than the boys from rural highly populated districts (25.90) on 'Reward and Punishment' dimension of learning environment. Meaning thereby that in rural least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of boys than for senior secondary boys from rural highly populated districts.

It is clear from the Table 3.50 that boys from rural least populated districts (27.40) have scored more than the boys from urban highly populated districts (26.10) on 'Reward and Punishment' dimension of learning environment. Meaning thereby that in rural least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of boys than for senior secondary boys from urban highly populated districts.

It is clear from the Table 3.50 that boys from rural least populated districts (27.40) have scored more than the girls from rural least populated districts (25.90) on 'Reward and Punishment' dimension of learning environment. Meaning thereby that in rural least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of boys than for senior secondary girls from rural populated districts.

It is clear from the Table 3.50 that girls from urban least populated districts (28.70) have scored more than the boys from rural least populated

districts (27.40) on ‘Reward and Punishment’ dimension of learning environment. Meaning thereby that in urban least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of girls than for senior secondary boys from rural least populated districts.

It is clear from the Table 3.50 that girls from urban least populated districts (28.70) have scored more than the boys from rural highly populated districts (25.90) on ‘Reward and Punishment’ dimension of learning environment. Meaning thereby that in urban least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of girls than for senior secondary boys from rural highly populated districts.

It is clear from the Table 3.50 that girls from urban least populated districts (28.70) have scored more than the boys from urban least populated districts (26.37) on ‘Reward and Punishment’ dimension of learning environment. Meaning thereby that in urban least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of girls than for senior secondary boys from urban least populated districts.

Similarly, it is clear from the Table 3.50 that girls from rural least populated districts (26.80) have scored higher than boys from urban highly populated districts (26.10) on reward and punishment dimension of learning environment. Meaning thereby that in rural least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of girls than for senior secondary boys from urban highly populated districts.

It is clear from Table 3.50 that girls from urban least populated districts (28.70) have scored more than the boys from urban highly populated districts (26.10) on ‘Reward and Punishment’ dimension of learning environment.

Meaning thereby that in urban least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of girls than for senior secondary boys from urban highly populated districts.

It is clear from Table 3.50 that girls from urban least populated districts (28.70) have scored more than the girls from rural least populated districts (26.80) on 'Reward and Punishment' dimension of learning environment. Meaning thereby that in urban least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of girls than for senior secondary girls from rural least populated districts senior secondary that girls from urban least populated districts are more self confident and motivated towards their work than senior secondary girls from rural least populated districts.

It is clear from Table 3.50 that girls from urban least populated districts (28.70) have scored more than the girls from rural highly populated districts (25.90) on 'Reward and Punishment' dimension of learning environment. Meaning thereby that in urban least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of girls than for senior secondary girls from rural highly populated districts.

It is clear from Table 3.50 that girls from urban least populated districts (28.70) have scored more than the girls from urban highly populated districts (26.37) on 'Reward and Punishment' dimension of learning environment. Meaning thereby that in urban least populated districts, teachers use more reward and punishment techniques for strengthening desired behaviour and avoiding undesirable behaviour of girls than for senior secondary girls from urban highly populated districts.

## TABLE 3.51

## SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'PHYSICAL INFRASTRUCTURE' DIMENSION OF LEARNING ENVIRONMENT

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M=21.8 | Boys from rural highly populated districts | M=20.1 | 2.98** |
| | SD=3.95 | | SD=4.3 | |
| | N=63 | | N=238 | |
| Boys from rural least populated districts | M=21.8 | Boys from urban least populated districts | M=20.3 | 2.27* |
| | SD=3.95 | | SD=3.43 | |
| | N=63 | | N=62 | |
| Boys from rural least populated districts | M=21.8 | Boys from urban highly populated districts | M=20.1 | 2.90** |
| | SD=3.95 | | SD=3.58 | |
| | N=63 | | N=237 | |
| Boys from rural least populated districts | M=21.8 | Girls from rural least populated districts | M=20.2 | 2.11* |
| | SD=3.95 | | SD=4.5 | |
| | N=63 | | N=62 | |
| Boys from rural least populated districts | M=21.8 | Girls from rural highly populated districts | M=20.2 | 2.90** |
| | SD=3.95 | | SD=3.65 | |
| | N=63 | | N=237 | |
| Boys from rural least populated districts | M=21.8 | Girls from urban highly populated districts | M=20.3 | 2.76** |
| | SD=3.95 | | SD=3.37 | |
| | N=63 | | N=238 | |
| Boys from rural highly populated districts | M=20.1 | Girls from urban least populated districts | M=21.5 | 2.31* |
| | SD=4.3 | | SD=4.28 | |
| | N=238 | | N=63 | |
| Boys from urban highly populated districts | M=20.1 | Girls from urban least populated districts | M=21.5 | 2.38* |
| | SD=3.58 | | SD=4.28 | |
| | N=237 | | N=63 | |
| Girls from rural highly populated districts | M=20.2 | Girls from urban least populated districts | M=21.5 | 2.21* |
| | SD=3.65 | | SD=4.28 | |
| | N=237 | | N=63 | |
| Girls from urban least populated districts | M=21.5 | Girls from urban highly populated districts | M=20.3 | 2.06* |
| | SD=4.28 | | SD=3.37 | |
| | N=63 | | N=238 | |

* Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.51 that the t value for 10 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 25, "There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students." for the 'Physical Infrastructure' dimension of learning environment.

It is clear from the Table 3.51 that boys from rural least populated districts have scored more than the boys from rural highly populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary rural boys from highly populated districts.

It is clear from the Table 3.51 that boys from rural least populated districts have scored more than the boys from urban least populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary urban boys from least populated districts.

It is clear from the Table 3.51 that boys from rural least populated districts have scored more than the boys from urban highly populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary urban boys from highly populated districts.

It is clear from the Table 3.51 that boys from rural least populated districts have scored more than the girls from rural least populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary rural girls from least populated districts.

It is clear from the Table 3.51 that boys from rural least populated districts have scored more than the girls from rural highly populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior

secondary rural boys from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary rural girls from highly populated districts.

It is clear from the Table 3.51 that boys from rural least populated districts have scored more than the girls from urban highly populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary urban girls from highly populated districts.

It is clear from the Table 3.51 that girls from urban least populated districts have scored higher than boys from rural highly populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior secondary urban girls from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary rural boys from highly populated districts.

It is clear from Table 3.51 that girls from urban least populated districts have scored more than the boys from urban highly populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior secondary urban girls from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary urban boys from highly populated districts.

It is clear from Table 3.51 that girls from urban least populated districts have scored more than the girls from rural highly populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior secondary urban girls from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary rural girls from highly populated districts.

It is clear from Table 3.51 that girls from urban least populated districts have scored more than the girls from urban highly populated districts on 'Physical Infrastructure' dimension of learning environment. Meaning thereby that senior secondary urban girls from least populated districts are getting more physical facilities like grounds, library, laboratory apparatus and equipment for stimulating learning than senior secondary urban girls from highly populated districts.

## TABLE 3.52

## SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'PEER INFLUENCE ON LEARNING' DIMENSION OF LEARNING ENVIRONMENT

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M=17 | Boys from rural highly populated districts | M=16 | 2.06* |
| | SD=3.4 | | SD=3.5 | |
| | N=63 | | N=238 | |
| Boys from rural least populated districts | M=17 | Boys from urban highly populated districts | M=16 | 2.12* |
| | SD=3.4 | | SD=3 | |
| | N=63 | | N=237 | |
| Boys from rural highly populated districts | M=16 | Girls from rural least populated districts | 17 | 2.0* |
| | SD=3.5 | | SD=3.5 | |
| | N=238 | | N=62 | |
| Boys from rural highly populated districts | M=16 | Girls from rural highly populated districts | M=17 | 3.34** |
| | SD=3.5 | | SD=3 | |
| | N=238 | | N=237 | |
| Boys from rural highly populated districts | M=16 | Girls from urban least populated districts | M=17 | 2.38* |
| | SD=3.5 | | SD=2.8 | |
| | N=238 | | N=63 | |
| Boys from rural highly populated districts | M=16 | Girls from urban highly populated districts | M=17 | 3.39** |
| | SD=3.5 | | SD=2.9 | |
| | N=238 | | N=238 | |
| Boys from urban least populated districts | M=16 | Girls from rural highly populated districts | M=17 | 2.06* |
| | SD=3.5 | | SD=3 | |
| | N=62 | | N=237 | |
| Boys from urban least populated districts | M=16 | Girls from urban highly populated districts | M=17 | 2.07* |
| | SD=3.5 | | SD=2.9 | |
| | N=62 | | N=238 | |
| Boys from urban highly populated districts | M=16 | Girls from rural least populated districts | 17 | 2.06* |
| | SD=3 | | SD=3.5 | |
| | N=237 | | N=62 | |
| Boys from urban highly populated districts | M=16 | Girls from rural highly populated districts | M=17 | 3.63** |
| | SD=3 | | SD=3 | |
| | N=237 | | N=237 | |
| Boys from urban highly populated districts | M=16 | Girls from urban least populated districts | M=17 | 2.48* |
| | SD=3 | | SD=2.8 | |
| | N=237 | | N=63 | |
| Boys from urban highly populated districts | M=16 | Girls from urban highly populated districts | M=17 | 3.69** |
| | SD=3 | | SD=2.9 | |
| | N=237 | | N=238 | |

* Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.52 that the t value for 12 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 25,"There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students." for the 'Peer Influence on Learning' dimension of learning environment.

It is clear from the Table 3.52 that boys from rural least populated districts have scored more than the boys from rural highly populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondary rural boys from highly populated districts.

It is clear from the Table 3.52 that boys from rural least populated districts have scored more than the boys from urban highly populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary rural boys from least populated districts are are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondary urban boys from highly populated districts.

It is clear from the Table 3.52 that girls from rural least populated districts have scored more than the boys from rural highly populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary girls from rural least populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondary boys from rural highly populated districts.

It is clear from the Table 3.52 that girls from rural highly populated districts have scored more than the boys from rural highly populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary girls from rural highly populated districts are

getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondaryboys from rural highly populated districts.

It is clear from the Table 3.52 that girls from urban least populated districts have scored more than the boys from rural highly populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary girls from urban least populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondary boys from rural highly populated districts.

It is clear from the Table 3.52 that girls from urban highly populated districts have scored more than the boys from rural highly populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary girls from urban highly populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondaryboys from rural highly populated districts.

It is clear from the Table 3.52 that girls from rural highly populated districts have scored higher than boys from urban least populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary girls from rural highly populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondary boys from urban least populated districts.

It is clear from Table 3.52 that girls from urban highly populated districts have scored more than the boys from urban least populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary girls from urban highly populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondaryboys from urban least populated districts.

It is clear from Table 3.52 that girls from rural least populated districts have scored more than the boys from urban highly populated districts on 'Peer

Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary girls from rural least populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondary boys from urban highly populated districts.

It is clear from Table 3.52 that girls from rural highly populated districts have scored more than the boys from urban highly populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary girls from rural highly populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondary boys from urban highly populated districts.

It is clear from Table 3.52 that girls from urban least populated districts have scored more than the boys from urban highly populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary girls from urban least populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondaryboys from urban highly populated districts.

It is clear from Table 3.52 that girls from urban highly populated districts have scored more than the boys from urban highly populated districts on 'Peer Influence on Learning' dimension of learning environment. Meaning thereby that senior secondary urban girls from highly populated districts are getting more positive and supportive help from peers/classmates to attain their academic goals than senior secondary urban boys from highly populated districts.

**TABLE 3.53**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'LEARNING ENVIRONMENT AT SCHOOL' SUBSCALE OF LEARNING ENVIRONMENT**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M=117.9<br>SD=16.14<br>N=63 | Boys from rural highly populated districts | M=111.4<br>SD=16.58<br>N=238 | 2.83** |
| Boys from rural least populated districts | M=117.9<br>SD=16.14<br>N=63 | Boys from urban least populated districts | M=112.2<br>SD=15.47<br>N=62 | 2.02* |
| Boys from rural least populated districts | M=117.9<br>SD=16.14<br>N=63 | Boys from urban highly populated districts | M=111.7<br>SD=13.49<br>N=237 | 2.8* |
| Boys from rural least populated districts | M=117.9<br>SD=16.14<br>N=63 | Girls from rural highly populated districts | M=112.8<br>SD=15.27<br>N=237 | 2.25* |
| Boys from rural least populated districts | M=117.9<br>SD=16.14<br>N=63 | Girls from urban highly populated districts | M=112.2<br>SD=11.85<br>N=238 | 2.62* |
| Boys from rural highly populated districts | M=111.4<br>SD=16.58<br>N=238 | Girls from urban least populated districts | M=121.8<br>SD=15.32<br>N=63 | 4.7** |
| Boys from urban least populated districts | M=112.2<br>SD=15.47<br>N=62 | Girls from urban least populated districts | M=121.8<br>SD=15.32<br>N=63 | 3.49** |
| Boys from urban highly populated districts | M=111.7<br>SD=13.49<br>N=237 | Girls from urban least populated districts | M=121.8<br>SD=15.32<br>N=63 | 4.76** |
| Girls from rural least populated districts | M=114.8<br>SD=15.44<br>N=62 | Girls from urban least populated districts | M=121.8<br>SD=15.32<br>N=63 | 2.54* |
| Girls from rural highly populated districts | M=112.8<br>SD=15.27<br>N=237 | Girls from urban least populated districts | M=121.8<br>SD=15.32<br>N=63 | 4.15** |
| Girls from urban least populated districts | M=121.8<br>SD=15.32<br>N=63 | Girls from urban highly populated districts | M=112.2<br>SD=11.85<br>N=238 | 4.62** |

* Significant at 0.05 level of confidence

** Significant at 0.01 level of confidence

It has been observed from the Table 3.53 that the t value for 11 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provides sufficient evidence to reject the hypothesis 25,"There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students." for the 'Learning Environment at school' sub scale of learning environment.

It is clear from the Table 3.53 that boys from rural least populated districts have scored more than the boys from rural highly populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that boys from rural least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary boys from rural highly populated districts

It is clear from the Table 3.53 that boys from rural least populated districts have scored more than the boys from urban least populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that senior secondary boys from rural least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary boys from urban least populated districts.

It is clear from the Table 3.53 that boys from rural least populated districts have scored more than the boys from urban highly populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that senior secondary boys from rural least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary boys from urban highly populated districts.

It is clear from the Table 3.53 that girls from rural least populated districts have scored more than the girls from rural highly populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that senior secondary girls from rural least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary girls from rural highly populated districts.

It is clear from the Table 3.53 that boys from rural least populated districts have scored more than the girls from urban highly populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that senior secondary boys from rural least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary girls from urban highly populated districts.

It is clear from the Table 3.53 that girls from urban least populated districts have scored more than the boys from rural highly populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that senior secondary girls from urban least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary boys from rural highly populated districts.

It is clear from the Table 3.53 that girls from urban least populated districts have scored higher than boys from urban least populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that senior secondary girls from urban least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary boys from urban least populated districts.

It is clear from Table 3.53 that girls from urban least populated districts have scored more than the boys from urban highly populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that senior secondary girls from urban least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary boys from urban highly populated districts.

It is clear from Table 3.53 that girls from urban least populated districts have scored more than the boys from urban highly populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that senior secondary girls from urban least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary boys from urban highly populated districts.

It is clear from Table 3.53 that girls from urban least populated districts have scored more than the girls from rural highly populated districts on 'Learning Environment at school'sub scale of learning environment. Meaning thereby that senior secondary girls from urban least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary girls from rural highly populated districts.

It is clear from Table 3.53 that girls from urban least populated districts have scored more than the girls from urban highly populated districts on 'Learning Environment at school' sub scale of learning environment. Meaning thereby that senior secondary girls from urban least populated districts are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers, etc than senior secondary girls from urban highly populated districts.

**TABLE 3.54**

**SUMMARY OF 't'-VALUES FOR THE SUB GROUPS IN RESPECT OF 'TOTAL LEARNING ENVIRONMENT'**

| Groups | Parameter | Groups | Parameter | t value |
|---|---|---|---|---|
| Boys from rural least populated districts | M=202.48 | Girls from urban least populated districts | M=213 | 2.27* |
| | SD=28.27 | | SD=23.62 | |
| | N=63 | | N=63 | |
| Boys from rural highly populated districts | M=195.53 | Girls from urban least populated districts | M=213 | 5.07** |
| | SD=26.72 | | SD=23.62 | |
| | N=238 | | N=63 | |
| Boys from urban least populated districts | M=199.08 | Girls from urban least populated districts | M=213 | 3.41** |
| | SD=21.97 | | SD=23.62 | |
| | N=62 | | N=63 | |
| Boys from urban highly populated districts | M=198.65 | Girls from urban least populated districts | M=213 | 4.39** |
| | SD=20.67 | | SD=23.62 | |
| | N=237 | | N=63 | |
| Girls from rural least populated districts | M=201.79 | Girls from urban least populated districts | M=213 | 2.75** |
| | SD=21.91 | | SD=23.62 | |
| | N=62 | | N=63 | |
| Girls from rural highly populated districts | M=198.69 | Girls from urban least populated districts | M=213 | 4.35** |
| | SD=21.58 | | SD=23.62 | |
| | N=237 | | N=63 | |
| Girls from urban least populated districts | M=213 | Girls from urban highly populated districts | M=198.43 | 4.53** |
| | SD=23.62 | | SD=18.78 | |
| | N=63 | | N=238 | |

* Significant at 0.05 level of confidence
** Significant at 0.01 level of confidence

It has been observed from the Table 3.54 that the t value for 11 sub groups were found to be significant at either the 0.05 or the 0.01 level of confidence. Thus, the data provide sufficient evidence to reject the hypothesis 25, "There is no interaction effect of gender and locality on the scores of learning environment of senior secondary students." for the total 'Learning Environment'.

It is clear from the Table 3.54 that girls from urban least populated districts have scored more than the boys from rural least populated districts on total 'Learning Environment'. Meaning thereby that senior secondary girls from urban least populated districts are getting effective and better learning environment at home and at school that promote positive attitude towards learning at home and at school than senior secondary boys from rural least populated districts.

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**DISCUSSION ON RESULTS**

Firstly, study results revealed that locality has influence on the 'Learning Environment at Home' of the senior secondary school students which indicates that learning environment at home is perceived better by students belonging to urban areas than belonging to rural areas. Specifically in terms of 'Independence and Conformity', 'Recreational Orientation', 'Learning through Computer Technology' is found better in students from urban localities than students from rural localities. This has also been found true in the case of senior secondary students from urban least populated districts are better in their Independence and Conformity than students from rural least populated districts. Present study results are confirmed by Adell (2002) found that students in rural areas have low performance compared to students in urban areas because it is relate to their parents education. Majority of parents in rural areas are less educated than parents

in urban areas. Survey found that, rural students felt no pressure to attain good performance when their parents' expectations towards education were low. Compared to students at urban areas, the majority of them come from high income families and their parents afford to send them to their tuition classes in order to get better performance. Urban students also can buy additional books for their references while for the rural students, their non-exposure to educational resources affect the performance compared to those who have access to such resources.

Secondly, it has been revealed that gender also has direct influence on the learning environment of the senior secondary school students at home and at school. It has been revealed that senior secondary girls are getting effective and better learning environment at home than boys specifically in terms of 'Parental Care and Nurturance'. Similarly, girls perceived better learning environment at school that promote positive attitude towards learning at school than senior secondary boys specifically in terms of 'Peer influence on Learning'. Also, this has been found true in the case of girls from urban localities than boys. Results also revealed that girls from least populated are getting better recreational orientation at home than boys from least populated districts. The results are in line with the study conducted by Melhuish et al. (2008) shows the continued impact on attainment of a wide range of family and home learning factors. One of the similar study was conducted by Sammons et al. (2008) explored that girls have a higher Home Learning Environment (as reported by parents) than boys. Review of literature suggests that supportive group learning environment is important for academic achievement. These results are consistent with earlier research that argues for the importance of a supportive group environment (Danielsen et al., 2010; Eccles, 2011; Eccles and Roeser, 2011).

Thirdly, results of the present study revealed that population has direct influence on the learning environment of the senior secondary school students which indicates that students from least populated districts are getting more secure and stimulating environment at home specifically in terms of 'Independence and Conformity', 'Parental Care and Nurturance', 'Recreational

Orientation' and they are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers etc specifically in terms 'Cognitive Encouragement', 'Teaching through Technology', 'Reward and Punishment' and 'Physical Infrastructure' than students from highly populated districts. It has also been found that senior secondary students from urban least populated districts are better in their Independence and Conformity than students from urban highly populated districts. also, girls from least populated districts are better in their recreational orientation than girls from highly populated districts. Due to the increased population in highly populated districts, there is increase in the number of school going children as a result of which resources fall short for the learning needs of the learners. Obi (2005) in his book philosophical foundation of education (page 143), he said that urban schools are necessarily large in size there is usually a serious control problem with respect to overpopulation. It is really an established fact that overpopulation distorts effective learning and good management of any school. The rise in the population growth in secondary school has really affected the learning process of the students because of the inadequate facilities which include classroom; overpopulation has generated poor performance in academic work and has turned the school environment to a playing ground instead to learning environment. Present study results are congruent with the survey conducted by the SDPI (Sustainable development policy institute, 1998) declared that overcrowded classroom is the major factor responsible for academic failure in Pakistan.

Fourthly, study results also revealed that gender and locality has direct influence on the 'Learning environment at School' of senior secondary school students specifically in terms of 'Teaching through Technology', 'Reward and Punishment' and 'Physical Infrastructure'. These results are similar to those obtained by Kishore (2016) who concluded that gender, locality and type of school have significant impact on learning environment.

Fifthly, study results revealed that locality and population has influence on the 'Independence and conformity' of senior secondary school students which

indicates that students from urban least populated districts are good in taking their own decisions independently than students from rural highly populated districts. Osoro et al. (2000) indicated that rural students tend to seek help from parents and teachers more than urban students, and parents, more than career teachers, play a major role in the career decision-making of students in rural areas.

Sixthly, study revealed that gender and population has influence on the 'Recreational orientation' in Learning environment at Home of senior secondary students which indicated that girls from least populated districts are getting more recreational or interesting activities at home like books, puzzles, educational tours, and educational games etc that stimulate child's thinking and arouse their curiosity than boys from highly populated districts. Study results are in line with Hall (1980) who reported that at the home and community level, there has been a rapid expansion in recreation opportunities for girls. Bialeschki and Henderson (1986) found that the home is the main site for leisure for most girls.

Seventhly, it has been revealed that locality, gender and population have direct influence on the 'Learning environment' of senior secondary school students. It is found true for 'Learning environment at school' specifically in terms of 'Teaching through Technology', 'Reward and Punishment', 'Physical Infrastructure' and 'Peer influence on learning'. Study results are consonance with the results reported by Obi (2005) reported that urban schools large in size distort effective learning and good management of any school. The rise in the population growth in secondary school has really affected the learning process of the students because of the inadequate facilities which include classroom; overpopulation has generated poor performance in academic work. Another study conducted by Agbaje and Awodun (2014) who reported that there is significant difference in the mean scores of male and female from rural and urban localities. Sammons et al. (2008) found gender and school learning environment has impact on the attainment of younger children.

## 3.3 Relationship between academic resilience of senior secondary students with metacognition, self efficacy and learning environment

Relationship between academic resilience of senior secondary students with Metacognition, Self efficacy and Learning environment has been analysed separately under the following headings.

3.3.1 Correlation between academic resilience of senior secondary students with metacognition

3.3.2 Correlation between academic resilience of senior secondary students with self efficacy

3.3.3 Correlation between academic resilience of senior secondary students with learning environment

### 3.3.1 Correlation between academic resilience of senior secondary students with metacognition

The correlation between academic resilience and metacognition at 1198 degree of freedom for 1200 senior secondary students have been calculated and are presented in the Table 3.55 below.

**TABLE 3.55**

**SUMMARY OF CORRELATION BETWEEN ACADEMIC RESILIENCE AND METACOGNITION OF SENIOR SECONDARY STUDENTS**

| | DK | PK | CK | P | IMS | CM | DS | E | RC | KC | MC Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Academic Confidence | .123** | .085** | .086** | .131** | .081** | .116** | 0.04 | .111** | .135** | .131** | .143** |
| Sense of Well being | .146** | .119** | .188** | .189** | .154** | .136** | .113** | .177** | .213** | .196** | .221** |
| Motivation and Ability to get goals | .136** | .141** | .138** | .187** | .109** | .133** | .136** | .153** | .194** | .180** | .202** |
| Relationship with peers and adults | .126** | .125** | .139** | .100** | .120** | .093** | .142** | .125** | .157** | .168** | .172** |
| Emotional regulation and physical health | .163** | .134** | .153** | .182** | .145** | .181** | .115** | .206** | .228** | .197** | .232** |
| ACADEMIC RESILIENCE TOTAL | .206** | .182** | .212** | .234** | .184** | .197** | .171** | .233** | .279** | .261** | .291** |

** Correlation is significant at the 0.01 level (2-tailed).

DK=Declarative Knowledge, PK=Procedural knowledge, CK=Conditional Knowledge, P=Planning, IMS=Information Management Strategies, CM=Comprehension Monitoring, DS=Debugging Strategies, E=Evaluation, RC=Regulation of Cognition, KC=Knowledge of Cognition, MC=Metacognition Total

Table 3.55 shows the coefficient of correlation between various dimensions and total score of Academic Resilience and various dimensions and total score of Metacognition scores of senior secondary students.

Correlation between Academic Confidence dimension of Academic Resilience and total score of Metacognition is found highly significant at the 0.01 level of confidence i.e. (.143**). Same is found true for the other dimensions of metacognition i.e. (.123**) for Declarative knowledge, (.085**) for Procedural knowledge, (.086**) for Conditional knowledge, (.131**) for Planning dimension, (.081**) for Information and Management Strategies, (.116**) for Comprehension monitoring, (.111**) for Evaluation, (.135**) for Regulation of Cognition, (.131**) for Knowledge about Cognition except one dimension of metacognition i.e. (0.04) for Debugging strategies which is not found to be significant even at 0.05 level of confidence. This indicates that there is significant positive relationship between academic confidence dimension academic resilience and metacognition of senior secondary school students. This indicates that senior secondary students with higher metacognitive abilities are also good in their academic confidence. In other words, higher the metacognitive beliefs, their academic resiliency will be higher at the same time or vice versa.

Correlation between Sense of Well Being dimension of Academic Resilience and total score of Metacognition is found highly significant at the 0.01 level of confidence i.e. (.221**). Same is found true for the other dimensions of metacognition i.e. (.146**) for Declarative knowledge, (.119**) for Procedural knowledge, (.188**) for Conditional knowledge, (.189**) for Planning dimension, (.154**) for Information and Management Strategies, (.136**) for Comprehension monitoring, (.113**) for Debugging Strategies, (.177**) for Evaluation, (.213**) for Regulation of Cognition and (.196**) for Knowledge about Cognition. This means that there is significant positive relationship between sense of well being dimension of academic resilience and metacognition of senior secondary school students. Meaning thereby that senior secondary school students with high metacognitive beliefs are also good in their sense of well being or vice versa.

Correlation between Motivation and Ability to get goals dimension of Academic Resilience and total score of Metacognition is found significant at the 0.01 level of confidence i.e. (.202**). Same is found true for the other dimensions of metacognition i.e. (.136**) for Declarative knowledge, (.141**) for Procedural knowledge, (.138**) for Conditional knowledge, (.187**) for Planning dimension, (.109**) for Information and Management Strategies, (.133**) for Comprehension monitoring, (.136**) for Debugging Strategies, (.153**) for Evaluation, (.194**) for Regulation of Cognition, and (.180**) for Knowledge about Cognition. This means that there is significant positive relationship between motivation and ability to get goals dimension of academic resilience and metacognition of senior secondary school students which indicates that higher the metacognitive abilities, higher the motivation and ability to get goals in senior secondary students or vice versa.

Correlation between Relationship with peers and adults dimension of Academic Resilience and total score of Metacognition is found significant at the 0.01 level of confidence i.e (.172**). Same is found true for the other dimensions of metacognition i.e. (.126**) for Declarative knowledge (.125**) for Procedural knowledge, (.139**) for Conditional knowledge, (.100**) for Planning dimension, (.120**) for Information and Management Strategies, (.093**) for Comprehension monitoring, (.142**) for Debugging Strategies, (.125**) for Evaluation, (.157**) for Regulation of Cognition, and (.168**) for Knowledge about Cognition. This means that senior secondary school students with high metacognitive abilities are also good in maintaining strong and positive relationship with teachers and peers or vice versa.

Correlation between Emotional regulation and physical health dimension of Academic Resilience and total score of Metacognition is found significant at the 0.01 level of confidence i.e. (.232**). Same is found true for the other dimensions of metacognition i.e. (.163**) for Declarative knowledge (.134**) for Procedural knowledge, (.153**) for Conditional knowledge, (.182**) for Planning dimension, (.145**) for Information and Management Strategies, (.181**) for Comprehension monitoring, (.115**) for Debugging Strategies, (.206**) for

Evaluation, (.228**) for Regulation of Cognition and (.197**) for Knowledge about Cognition. This means that senior secondary school students good in their metacognitive abilities are also good in understanding and balancing their emotions under pressure and stay physically fit or vice versa.

Correlation between total score of Academic Resilience and total score of Metacognition is found significant at the 0.01 level of confidence i.e. (.291**). Same is found true for the other dimensions of metacognition i.e. (.206**) for Declarative knowledge (.182**) for Procedural knowledge, (.212**) for Conditional knowledge, (.234**) for Planning dimension, (.184**) for Information and Management Strategies, (.197**) for Comprehension monitoring, (.171**) for Debugging Strategies, (.233**) for Evaluation, (.279**) for Regulation of Cognition, and (.261**) for Knowledge about Cognition. This indicates that more the student have metacognitive abilities, more the students is academically resilient or vice versa.

Hence, significant correlations are found between Academic Resilience and various dimensions of Metacognition scores for senior secondary school students. Thus, the hypothesis 29, 'There exists no significant relationship between academic resilience of senior secondary students with metacogniton' is rejected. The correlation between academic resilience and metacognition is found to be positive, which means that more an individual is aware about his or her metacognition, the more are the chances that he/she will be academically resilient or vice versa.

**DISCUSSION ON RESULTS**

Study results revealed that correlation between academic resilience and metacognition is found positive and significant, which means that more an individual is aware about his or her metacognition, the more are the chances that he/she will be academically resilient and vice versa.It implies that metacognitive skill helps students to solve environmental problems by developing resilient thinking in them. This result is consistent with prior research which has indicated that metacognitive skills or abilities enable learner to use skills and knowledge in

situations other than those in which the skill was learned and are therefore critical to solving problems in a rapidly changing world (Boddy et al., 2003; Fazey et al., 2007; Fazey, 2010). The ability to think critically to solve complex problems (Chapin et al., 2009; Fazey, 2010).

Metacognition, or the knowledge of and ability to regulate one's own thinking, has been suggested as an important approach to learning that could help improve this suite of resilience thinking skills (Fazey et al., 2005; 2007; Spellman, 2015).Glaser et al. (1992) & Kelemen et al. (2000) found that metacognitive learning strategies improve student's ability to use resilient thinking in environmental problem solving.

It can be concluded that metacognitive skills play eminent role in improving resilience thinking skills of students (Spellman et al., 2016). This suggests that metacognitive strategies which enhance the resilient abilities of the students to adapt the environmental changes needs to be strengthen by the school personnel and policy makers.

### 3.3.2 Correlation between academic resilience of senior secondary students with various dimensions of self efficacy.

The coefficient of correlation between academic resilience and self efficacy has been calculated and are presented in the Table 3.56 below.

**TABLE 3.56**

**SUMMARY OF CORRELATION BETWEEN ACADEMIC RESILIENCE AND SELF EFFICACY OF SENIOR SECONDARY STUDENTS**

| | Self Confidence | Efficacy Expectation | Positive attitude | Outcome Expectation | Self Efficacy Total |
|---|---|---|---|---|---|
| Academic Confidence | .226** | .163** | .141** | .131** | .212** |
| Sense of Well being | .172** | .134** | .116** | .168** | .191** |
| Motivation and Ability to get goals | .139** | .090** | .099** | .092** | .135** |
| Relationship with peers and adults | .133** | .084** | 0.045 | .092** | .113** |
| Emotional regulation and physical health | .180** | .166** | .171** | .136** | .210** |
| Academic Resilience Total | .241** | .183** | .166** | .178** | .247** |
| **Correlation is significant at the 0.01 level (2-tailed). | | | | | |

Table 3.56 shows the coefficient of correlation between various dimensions and total score of Academic Resilience and various dimensions and total score of Self efficacy scores of senior secondary students.

Correlation between Academic confidence dimension of Academic Resilience and total score of Self efficacy is found significant at the 0.01 level of confidence i.e. (.212**). Same is found true for the other dimensions of self efficacy i.e. (.226**) for Self confidence (.163**) for Efficacy expectation, (.141**) for Positive attitude, and (.131**) for Outcome expectation dimension. This means that senior secondary school students with high self efficacious abilities are academically confidence or vice versa.

Correlation between Sense of well being dimension of Academic Resilience and total score of Self efficacy is found significant at the 0.01 level of confidence i.e. (.191**). Same is found true for the other dimensions of self efficacy i.e. (.172**) for Self confidence (.134**) for Efficacy expectation, (.116**) for Positive attitude, and (.168**) for Outcome expectation dimension. This means that senior secondary school students with high self efficacy beliefs are having positive state of mind that enables them to function effectively or vice versa.

Correlation between Motivation and ability to get goals dimension of Academic Resilience and total score of Self efficacy is found to be significant at the 0.01 level of confidence i.e. (.135**). Same is found true for the other dimensions of self efficacy i.e. (.139**) for Self confidence (.090**) for Efficacy expectation, (.099**) for Positive attitude, and (.092**) for Outcome expectation dimension. This means that senior secondary school students who are self efficacious are also motivated to accomplish academic tasks or vice versa.

Correlation between Relationship with peers and adults dimension of Academic Resilience and total score of Self efficacy is found to be significant at the 0.01 level of confidence i.e. (.113**). Same is found true for the other dimensions of self efficacy i.e. (.133**) for Self confidence (.084**) for Efficacy expectation, and (.092**) for Outcome expectation except one dimension i.e. (0.045) for Positive attitude which is not significant even at 0.05 level of confidence. This means that senior secondary school students with better self efficacy beliefs are also good in maintaining strong and positive relationship with teachers and peers or vice versa.

Correlation between Emotional regulation and physical health dimension of Academic Resilience and total score of Self efficacy is found to be significant at the 0.01 level of confidence i.e. (.210**). Same is found true for the other dimensions of self efficacy i.e. (.180**) for Self confidence, (.166**) for Efficacy expectation, (.171**) for Positive attitude, and (.136**) for Outcome expectation dimension. This means that senior secondary school students with better self efficacy beliefs are also good in understanding and balancing their emotions to stay effective under pressure and stay physically fit and sound or vice versa.

Correlation between total score of Academic Resilience and total score of Self efficacy is found to be significant at the 0.01 level of confidence i.e. (.247**). Same is found true for the other dimensions of self efficacy i.e. (.241**) for Self confidence (.183**) for Efficacy expectation, (.166**) for Positive attitude, and (.178**) for Outcome expectation dimension. This means that significant correlation is found between Academic Resilience and various dimensions of Self Efficacy scores for senior secondary school students. Thus, the hypothesis 30, 'There exists no significant relationship between academic resilience of senior secondary students with self efficacy' is rejected. The correlation between academic resilience and self efficacy is found to be positive, which means that more an individual is self efficacious, the more are the chances that he will be academically resilient or vice versa.

**DISCUSSION ON RESULTS**

Study results revealed that relationship between academic resilience and self efficacy has been found significant and positive in nature which indicates more an individual is self efficacious, the more are the chances that he will be academically resilient or vice versa. The finding is similar to Hamill (2003); Alessandria and Nelson (2005); Lohfink and Paulsen (2005); Hudson (2007); Carlton (2011); Sagone and Caroli(2013); Schwarzer and Warner (2013) reported the positive relationship between academic resilience and self efficacy. The relationship indicates that academically resilient students are more efficacious in their abilities to accomplish academic tasks and are more successful in school and are more likely to thrive academically. Self efficacious students have internal control and have the ability to select positive coping responses or options to develop competence in the face of adversity or difficulty. Those who are self-

efficacious are also more likely to reject negative thoughts about themselves or their abilities than those with a sense of personal inefficacy (Ozer and Bandura, 1990).

Perceived self-efficacy likely affects individuals' ability to adapt and deal flexibly with difficult situations, and also affects individuals' aspirations, analytical thinking, and perseverance in the face of failure (Bandura et al., 2001).This is particularly relevant to adolescent development because in order to negotiate the risks and challenges associated with this transitional period, adolescents' success is partly dependent on the strength of their perceived self-efficacy (Bandura et al., 1999). If adolescents receive positive feedback from those close to them, and are generally regarded well by others, they are likely to believe they are competent in activities important to them (Saarni, 1999). This helps them to reinforce their self efficacy beliefs to engage them in other activities, seek new challenges and involve themselves in other worthwhile tasks.

Self efficacy beliefs play an important role in developing a sense of worth to influence a student's ability to persevere in the face of adversity or academic difficulties like tough homework/assignments, problem in adjusting in the classroom etc. Individuals with high levels of perceived self-efficacy trust their own abilities in the face of adversity, tend to conceptualize problems as challenges rather than as threats or uncontrollable situations, experience less negative emotional arousal in demanding tasks, think in self-enhancing ways, motivate themselves, and show perseverance when confronted with difficult situations (Bandura, 1997; Luszczynska et al., 2005).Therefore, it can be said that high self-efficacy beliefs can have a positive impact on motivational processes even if specific stressors are absent. Being self-efficacious may, however, also be helpful to show resilience in the face of adversity. By activating affective, motivational, and behavioral mechanisms in taxing situations, self-efficacy beliefs can promote resilience. Self efficacy therefore has sometimes been conceptualized as one component of resilience (Werner, 1982; Rutter, 1987).

### 3.3.3 Correlation between academic resilience of senior secondary students with learning environment.

The coefficient of correlation between academic resilience and learning environment has been calculated and are presented in the Table 3.57 below.

## TABLE 3.57

## SUMMARY OF CORRELATION BETWEEN ACADEMIC RESILIENCE AND LEARNING ENVIRONMENT OF SENIOR SECONDARY STUDENTS

| | Parental control and encouragement | Independence and conformity | Parental care and nurturance | Recreational orientation | Learning through Computer technology | cognitive encouragement | Teaching through technology | Reward and punishment | Physical infrastructure | Peer influence on learning | Learning Environment Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Academic Confidence | .106** | .106** | .111** | .085** | .070* | .068* | .121** | .070* | .117** | .098** | .149** |
| Sense of Well being | .100** | .166** | .122** | .096** | 0.02 | .118** | .129** | .125** | .151** | .118** | .183** |
| Motivation and Ability to get goals | .101** | .074** | .092** | .099** | 0.03 | .075** | .104** | .123** | .158** | .061* | .147** |
| Relationship with peers and adults | .110** | .076** | .130** | .091** | 0.03 | .124** | .137** | .110** | .115** | .170** | .175** |
| Emotional regulation and physical health | .126** | .118** | .158** | .133** | .059* | .120** | .148** | .129** | .181** | .153** | .211** |
| ACADEMIC RESILIENCE TOTAL | .160** | .156** | .182** | .151** | 0.06 | .152** | .188** | .169** | .217** | .180** | .258** |
| **Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | | | | |
| *Correlation is significant at the 0.05 level (2-tailed). | | | | | | | | | | | |

Table 3.57 shows the coefficient of correlation between various dimensions and total score of Academic Resilience and various dimensions and total score of Learning Environment scores of senior secondary students.

Correlation between Academic Confidence dimension of Academic Resilience and total score of Learning Environment is found significant either at the 0.05 or the 0.01 level of confidence i.e. (.149**). Same is found true for the other dimensions of Learning Environment i.e. (.106**) for Parental control and encouragement (.106**) for Independence and Conformity, (.111**) for Parental care and nurturance, (.085**) for Recreational orientation dimension, (.070*) for Learning through Computer technology, (.068*) for Cognitive encouragement, (.121**) for Teaching through technology, (.070*) for Reward and Punishment, (.117**) for Physical Infrastructure, and (.098**) for Peer influence on learning. This means that there is significant positive relationship between academic confidence dimension of academic resilience and Parental control and encouragement dimension of Learning Environment of senior secondary school students. This also indicates that senior secondary students who perceive favourable learning environment are also academically confident or vice versa.

Correlation between Sense of well being dimension of Academic Resilience and total score of Learning Environment is found significant at the 0.01 level of confidence i.e. (.183**). Same is found true for the other dimensions of Learning Environment i.e. (.100**) for Parental control and encouragement(.166**) for Independence and Conformity, (.122**) for Parental care and nurturance, (.096**) for Recreational orientation dimension, (.118**) for Cognitive encouragement, (.129**) for Teaching through technology, (.125**) for Reward and Punishment, (.151**) for Physical Infrastructure, and (.118**) for Peer influence on learning except one dimension i.e. (0.02) for Learning through Computer technology. This indicates that students who are getting effective and supportive learning environment at home and at school are also good in their sense of well being or vice versa.

Correlation between Motivation and ability to get goals dimension of Academic Resilience and total score of Learning Environment is found to be significant either at the 0.05 or the 0.01 level of confidence i.e. (.147**). Same is

found true for the other dimensions of Learning Environment i.e. (.101**) for Parental control and encouragement(.074**) for Independence and Conformity, (.092**) for Parental care and nurturance, (.099**) for Recreational orientation dimension, (.075**) for Cognitive encouragement, (.104**) for Teaching through technology, (.123**) for Reward and Punishment, (.158**) for Physical Infrastructure, and (.061*) for Peer influence on learning except one dimension i.e. (0.03**) for Learning through Computer technology which is not significant even at 0.05 level of confidence. This indicates that senior secondary students from favourable learning environment are more motivated and able to achieve their academic goals or vice versa.

Correlation between Relationship with peers and adults dimension of Academic Resilience and total score of Learning Environment is found to be significant at the 0.01 level of confidence i.e. (.175**). Same is found true for the other dimensions of Learning Environment i.e. (.110**) for Parental control and encouragement (.076**) for Independence and Conformity, (.130**) for Parental care and nurturance, (.091**) for Recreational orientation dimension, (.124**) for Cognitive encouragement, (.137**) for Teaching through technology, (.110**) for Reward and Punishment, (.115**) for Physical Infrastructure, and (.170**) for Peer influence on learning except for one dimension i.e. (0.03**) for Learning through Computer technology which is not significant even at 0.05 level of confidence. This means that senior secondary school students who are getting good learning environment are also good in maintaining strong and positive relationship with teachers and peers or vice versa.

Correlation between Emotional regulation and physical health dimension of Academic Resilience and total score of Learning Environment is found to be significant either at the 0.05 or the 0.01 level of confidence i.e. (.211**). Same is found true for the other dimensions of Learning Environment i.e. (.126**) for Parental control and encouragement(.118**) for Independence and Conformity, (.158**) for Parental care and nurturance, (.133**) for Recreational orientation dimension, (.059*) for Learning through Computer technology, (.120**) for Cognitive encouragement, (.148**) for Teaching through technology, (.129**) for Reward and Punishment, (.181**) for Physical Infrastructure, and (.153**) for

Peer influence on learning.. This indicates that senior secondary school students who are getting favourable learning environment are also good in understanding and balancing their emotions to stay effective under pressure and stay physically fit and sound or vice versa.

Correlation between total score of Academic Resilience and total score of Learning Environment is found to be significant at the 0.01 level of confidence i.e. (.258**). Same is found true for the other dimensions of Learning Environment i.e.(.160**) for Parental control and encouragement (.156**) for Independence and Conformity, (.182**) for Parental care and nurturance, (.151**) for Recreational orientation dimension, (.152**) for Cognitive encouragement, (.188**) for Teaching through technology, (.169**) for Reward and Punishment, (.217**) for Physical Infrastructure, and (.180**) for Peer influence on learning except one dimension i.e. (.0.06) for Learning through Computer technology which is not significant even at 0.05 level of confidence. This indicates that significant correlation is found between Academic Resilience and various dimensions of Learning Environment scores for senior secondary school students. Thus, the hypothesis 31, "There exists no significant relationship between academic resilience of senior secondary students with learning environment" is rejected. The correlation between academic resilience and learning environment is found to be positive, which means that senior secondary school students who are getting good learning environment at home and at school are academically more resilient or vice versa.

**DISCUSSION ON RESULTS**

Study results revealed that relationship between academic resilience and various dimensions of learning environment is found positive which indicates that more effective learning environment at home and school student gets, more the student will be the academically resilient or vice versa. Results are confirmed by Waxman et al. (1997) who compared the motivation and learning environment of resilient and non resilient students and found that resilient students had significantly higher perceptions of involvement, satisfaction, academic self-concept, and achievement motivation than nonresilient students. There are many studies which have focused on examining learning environment and student's

resilience to make them academically motivated. The students with high resilience perceive school as a safe place, enjoy educational challenges and do not experience conflicts with others at school (Abolmaali et al., 2011).

In relation to the strong connection between learning environment and academic resilience, the results of the present study are consistent with the results of Brooks (2006) who reported that school environment strengthens resilience by developing social competence, increasing bonding between students and caring adults, and maximizing opportunities for meaningful participation of students in the school environment. Similarly, Rouse (2001) examined the motivational patterns of resilient high school students in achieving their goals and found that resilient students had more positive beliefs toward good academic achievement, social ability, and received more social–environmental support than nonresilient students. In addition, schools increase students' resilience by cultivating realistic expectations and strengthening self esteem, self-control, problem-solving skills and optimistic thinking pattern (Linke, 2010; Kirmayer et al., 2011; Zolkoski and Ballock, 2012). In addition, it is recommended that parents foster resilience in their children through empathy (Bernard, 1993), reasonable expectations (Grant et al., 2004), show flexibility during times of stress (Walsh, 2006), supportive relationships (Benzies and Mychasiuk, 2009), create opportunities for participation in social activities (Easterbrooks et al., 2011) and create a respectful and accepting family environment (Ungar et al., 2013).

### 3.4 Influence of Metacognition, Self efficacy and Learning Environment on Academic resilience of senior secondary school students

3.4.1 Influence of Metacognition on Academic resilience of senior secondary students

3.4.2 Influence of Self Efficacy on Academic resilience of senior secondary students

3.4.3 Influence of Learning Environment on Academic resilience of senior secondary students

### 3.4.1 Influence of Metacognition on Academic resilience of senior secondary students

The analysis for Influence of Metacognition on Academic resilience of senior secondary students has been presented below. The Table 3.58 shows Means, Standard deviation and number of senior secondary students belonging to different levels of metacognition i.e. low, below average, average, above average and high.

**TABLE 3.58**

**SUMMARY OF MEAN and S.D. OF VARIOUS DIMENSIONS AND TOTAL ACADEMIC RESILIENCE SCORES WITH RESPECT TO METACOGNITION**

| Dimensions of academic resilience | Metacognition Levels | N | Mean | Std. Deviation |
|---|---|---|---|---|
| Academic Confidence | Below Average | 27 | 29.22 | 3.904 |
| | Average | 76 | 29.99 | 3.904 |
| | Above Average | 700 | 31.24 | 3.153 |
| | High | 397 | 31.68 | 3.131 |
| | Total | 1200 | 31.26 | 3.246 |
| Sense of Wellbeing | Below Average | 27 | 37.67 | 5.204 |
| | Average | 76 | 36.05 | 5.518 |
| | Above Average | 700 | 39.89 | 4.682 |
| | High | 397 | 40.53 | 4.817 |
| | Total | 1200 | 39.81 | 4.91 |
| Motivation and ability to get goals | Below Average | 27 | 34.63 | 7.80 |
| | Average | 76 | 35.92 | 6.017 |
| | Above Average | 700 | 39.36 | 5.561 |
| | High | 397 | 40.24 | 5.637 |
| | Total | 1200 | 39.32 | 5.798 |
| Relationship with peers and adults | Below Average | 27 | 34.37 | 6.505 |
| | Average | 76 | 35.14 | 5.358 |
| | Above Average | 700 | 37.31 | 5.69 |
| | High | 397 | 38.6 | 5.723 |
| | Total | 1200 | 37.53 | 5.779 |
| Emotional Regulation and Physical health | Below Average | 27 | 48.07 | 8.288 |
| | Average | 76 | 49.96 | 7.443 |
| | Above Average | 700 | 52.59 | 6.304 |
| | High | 397 | 54.48 | 6.372 |
| | Total | 1200 | 52.95 | 6.594 |
| Academic Resilience Total | Below Average | 27 | 183.96 | 21.518 |
| | Average | 76 | 187.07 | 18.866 |
| | Above Average | 700 | 200.39 | 16.705 |
| | High | 397 | 205.53 | 17.676 |
| | Total | 1200 | 200.88 | 18 |

In order to find the significant differences in the academic resilience of senior secondary students from various levels of metacognition, one way ANOVA has been applied and results have been presented below in Table 3.59.

**TABLE 3.59**

**SUMMARY OF ONEWAY ANOVA ON VARIOUS DIMENSIONS AND TOTAL ACADEMIC RESILIENCE SCORES WITH RESPECT TO METACOGNITION**

| Variable | Source of Variance | Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|---|
| Academic Confidence | Between Groups | 303.908 | 3 | 101.303 | 9.827** |
| | Within Groups | 12329.45 | 1196 | 10.309 | |
| | Total | 12633.36 | 1199 | | |
| Sense of Well being | Between Groups | 1408.286 | 3 | 469.429 | 20.42** |
| | Within Groups | 27494.39 | 1196 | 22.989 | |
| | Total | 28902.68 | 1199 | | |
| Motivation and Ability to get goals | Between Groups | 1806.554 | 3 | 602.185 | 18.709** |
| | Within Groups | 38495.99 | 1196 | 32.187 | |
| | Total | 40302.55 | 1199 | | |
| Relationship with peers and adults | Between Groups | 1195.086 | 3 | 398.362 | 12.263** |
| | Within Groups | 38851.58 | 1196 | 32.485 | |
| | Total | 40046.67 | 1199 | | |
| Emotional regulation and physical health | Between Groups | 2338.742 | 3 | 779.581 | 18.723** |
| | Within Groups | 49798.95 | 1196 | 41.638 | |
| | Total | 52137.69 | 1199 | | |
| Academic Resilience Total | Between Groups | 30970.34 | 3 | 10323.45 | 34.534** |
| | Within Groups | 357522.9 | 1196 | 298.932 | |
| | Total | 388493.3 | 1199 | | |

*Significant at 0.05 level

**Significant at 0.01 level

It has been observed from the Table 3.59 that the F-value for the five dimensions of Academic resilience i.e. Academic Confidence, Sense of Well being, Motivation and Ability to get goals, Relationship with peers and adults, Emotional regulation and total sore of academic resilience are 7.653, 15.427, 14.541, 9.763, 14.041 and 25.945 are found to be significant at 0.05 and 0.01 level of confidence. This indicates that metacognition has direct influence on academic resilience of senior secondary students. Thus, the data provides sufficient evidence to reject the hypothesis 32, "There exists no significant influence of metacognition on academic resilience of senior secondary students".

In order to find the significant difference between groups, Scheffe post hoc test is applied and results are presented below in the Table 3.60.

**TABLE 3.60**

**SUMMARY OF POST HOC ANALYSIS (SCHEFFE TEST) OF VARIOUS DIMENSIONS AND TOTAL OF ACADEMIC RESILIENCE WITH RESPECT TO METACOGNITION**

| Dependent Variable | (I) Meta Cognition Level | (J) Meta Cognition Level | Mean Difference (I-J) | Std. Error | p-value |
|---|---|---|---|---|---|
| Academic Confidence | Below Average | Average | 0.765 | 0.719 | 0.77 |
| | | Above Average | -2.021* | 0.63 | 0.017 |
| | | High | -2.453* | 0.639 | 0.002 |
| | Average | Above Average | -1.256* | 0.388 | 0.015 |
| | | High | -1.688* | 0.402 | 0.001 |
| | Above Average | High | -0.432 | 0.202 | 0.205 |
| Sense of Well being | Below Average | Average | 1.614 | 1.074 | 0.521 |
| | | Above Average | -2.225 | 0.94 | 0.134 |
| | | High | -2.865* | 0.954 | 0.029 |
| | Average | Above Average | -3.839* | 0.579 | 0 |
| | | High | -4.479* | 0.6 | 0 |
| | Above Average | High | -0.64 | 0.301 | 0.212 |
| Motivation and Ability to get goals | Below Average | Average | -1.291 | 1.271 | 0.793 |
| | | Above Average | -4.726* | 1.113 | 0 |
| | | High | -5.607* | 1.128 | 0 |
| | Average | Above Average | -3.435* | 0.685 | 0 |
| | | High | -4.316* | 0.71 | 0 |
| | Above Average | High | -0.881 | 0.356 | 0.107 |
| Relationship with peers and adults | Below Average | Average | 0.774 | 1.277 | 0.947 |
| | | Above Average | -2.937 | 1.118 | 0.076 |
| | | High | -4.234* | 1.134 | 0.003 |
| | Average | Above Average | -2.162* | 0.688 | 0.02 |
| | | High | -3.460* | 0.714 | 0 |
| | Above Average | High | -1.297* | 0.358 | 0.005 |
| Emotional regulation and physical health | Below Average | Average | -1.886 | 1.446 | 0.636 |
| | | Above Average | -4.517* | 1.266 | 0.005 |
| | | High | -6.405* | 1.283 | 0 |
| | Average | Above Average | -2.631* | 0.779 | 0.01 |
| | | High | -4.518* | 0.808 | 0 |
| | Above Average | High | -1.887* | 0.405 | 0 |
| Academic Resilience Total | Below Average | Average | -3.103 | 3.874 | 0.887 |
| | | Above Average | -16.426* | 3.391 | 0 |
| | | High | -21.563* | 3.439 | 0 |
| | Average | Above Average | -13.323* | 2.088 | 0 |
| | | High | -18.461* | 2.165 | 0 |
| | Above Average | High | -5.138* | 1.086 | 0 |

It is clear from the Table 3.60 that either at 0.05 or at 0.01, pair wise comparison has been found to be significant for various dimensions and total Academic Resilience.

Table 3.60 reveals that for the 'Academic Confidence' dimension of Academic Resilience senior secondary school students with above average metacognitive abilities had scored more than students with below average and average metacognitive abilities. Similarly students with high metacognitive abilities had also scored more than the students with average and below average metacognitive abilities. From this it can be concluded that students who scored good in their metacognition are also found more confident academically.

It is also clear from Table 3.60 that for the 'Sense of well being' dimension of Academic Resilience, senior secondary school students with high metacognitive abilities had scored more than students with average and below average metacognitive abilities. Similarly students with above average metacognitive abilities had also scored more than the students with average metacognitive abilities. From this it can be concluded that students who scored good in their metacognition are also found good in their sense of well being.

Table 3.60 revealed that for the 'Motivation and ability to get goals' dimension of Academic Resilience, senior secondary school students with above average metacognitive abilities had scored more than students with below average and average metacognitive abilities. Further the students with below average and average metacognitive abilities had scored less than students with high metacognitive abilities. From this it can be concluded that students who scored good in their metacognition are also found more motivated and confident about their work and always try to achieve their academic goals.

Table 3.60 shows that for the 'Relationship with peers and adults' dimension of Academic Resilience, senior secondary school students with high metacognitive abilities had scored more than students with average, below average and above average metacognitive abilities. Similarly students with above average metacognitive abilities had also scored more than the students with average metacognitive abilities. From this it can be concluded that students who

scored good in their metacognition are also found more socially competent and develop good relation with people around them.

It is also clear for the 'Emotional regulation and physical health' dimension of Academic Resilience, senior secondary school students with above average metacognitive abilities had scored more than students with average and below average metacognitive abilities. Similarly students with high metacognitive abilities had also scored more than the students with below average, average and above average metacognitive abilities. From this it can be concluded that students who scored good in their metacognition are also found to be physically sound and emotionally strong.

It is also clear for the total Academic Resilience, senior secondary school students with above average metacognitive abilities had scored more than students with below average and average metacognitive abilities. Similarly students with high metacognitive abilities had also scored more than the students with below average, average and above average metacognitive abilities. From this it can be concluded that students who scored good in their metacognition are also found more academically resilient.

**DISCUSSION ON RESULTS**

From the results it can be concluded that metacognition has direct influence on academic resilience. Earlier studies have also shown that resilience is linked with higher level abstract thinking (Bernard, 1997). Study results revealed that students with high metacognitive abilities are found more academically resilient than the students with below average, average and above average metacognitive abilities.This is found true specifically for 'Relationship with peers and adults' and 'Emotional Regulation and Physical Health' dimensions of Academic Resilience. Results are similar with the study of Narayanan (2009) who reported that highly resilient school students use metacognition concerning explanations than those who had low resilience. Individuals high on resilience are found to use more of metacognition to resolve the varying cognitive elements involved in an issue. Similarly, Simmons et al. (2012) showed that people with

high resilience when faced with emotional events, were more likely to show positive emotions. They believed that this may be due to the ability of people to cope successfully when faced with challenging situations especially the situations with nature of interpersonal.

Further, it has been found that students with high metacognitive abilities are found more academically resilient than the students withaverage and below average metacognitive abilities specifically for 'Academic Confidence', 'Sense of Well Being', and 'Motivation and Ability to get goals'. It has also been found that students with above average metacognitive abilities are found more academically resilient than the students with below average and average metacognitive abilities specifically for 'Academic Confidence', 'Motivation and Ability to get goals' and 'Emotional Regulation and Physical Health'. Spada et al. (2013) in a study concluded that metacognitive beliefs are a mediator between stress and negative emotions. So, metacognition was associated with stress and negative emotions.

Study results have also revealed that students with above average metacognitive abilities are found more academically resilient than the students with average metacognitive abilities specifically for 'Sense of Well Being', and 'Relationship with peers and adults'. Futher it has been revealed that students with high metacognitive abilities are found more academically resilient than the students with above average, average and below average metacognitive abilities specifically for 'Relationship with peers and adults', and 'Emotional Regulation and Physical Health'. Similarly, Abbaspour (2011) studied the relationship between metacognitive strategies and resilience. Thus, it can be concluded that with the increase in metacognitive abilities in students, the academic resilience abilities also increase.

### 3.4.2 Influence of Self Efficacy on Academic resilience of senior secondary students

The analysis for Influence of Self Efficacy on Academic resilience of senior secondary students has been presented below. The Table 3.61 shows

Means, Std. deviation and number of senior secondary students belonging to different levels of self efficacy i.e. poor, average and high.

**TABLE 3.61**

**SUMMARY OF MEAN and S.D. OF VARIOUS DIMENSIONS AND TOTAL ACADEMIC RESILIENCE SCORES WITH RESPECT TO SELF EFFICACY**

| Dimensions of Academic resilience | Levels of Self efficacy | N | Mean | Std. Deviation |
|---|---|---|---|---|
| Academic Confidence | Poor | 248 | 30.06 | 3.68 |
| | Average | 557 | 31.37 | 2.968 |
| | High | 395 | 31.86 | 3.141 |
| | Total | 1200 | 31.26 | 3.246 |
| Sense of Well being | Poor | 248 | 38.27 | 5.076 |
| | Average | 557 | 39.78 | 4.734 |
| | High | 395 | 40.81 | 4.805 |
| | Total | 1200 | 39.81 | 4.91 |
| Motivation and Ability to get goals | Poor | 248 | 38 | 5.54 |
| | Average | 557 | 39.42 | 5.501 |
| | High | 395 | 40.01 | 6.225 |
| | Total | 1200 | 39.32 | 5.798 |
| Relationship with peers and adults | Poor | 248 | 36.1 | 5.643 |
| | Average | 557 | 37.87 | 5.391 |
| | High | 395 | 37.96 | 6.247 |
| | Total | 1200 | 37.53 | 5.779 |
| Emotional regulation and physical health | Poor | 248 | 50.38 | 7.149 |
| | Average | 557 | 53.3 | 6.151 |
| | High | 395 | 54.06 | 6.429 |
| | Total | 1200 | 52.95 | 6.594 |
| Academic Resilience Total | Poor | 248 | 192.82 | 19.783 |
| | Average | 557 | 201.75 | 16.769 |
| | High | 395 | 204.7 | 16.949 |
| | Total | 1200 | 200.88 | 18 |

In order to find the significant differences in the academic resilience of senior secondary students from various levels of self efficacy, one way ANOVA has been applied and results have been presented below in the Table 3.62.

**TABLE 3.62**

**SUMMARY OF ONEWAY ANOVA ON VARIOUS DIMENSIONS AND TOTAL ACADEMIC RESILIENCE SCORES WITH RESPECT TO SELF EFFICACY**

| Variable | Source of Variance | Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|---|
| Academic Confidence | Between Groups | 503.498 | 2 | 251.749 | 24.843** |
| | Within Groups | 12129.86 | 1197 | 10.134 | |
| | Total | 12633.36 | 1199 | | |
| Sense of Well being | Between Groups | 982.474 | 2 | 491.237 | 21.06** |
| | Within Groups | 27920.21 | 1197 | 23.325 | |
| | Total | 28902.68 | 1199 | | |
| Motivation and Ability to get goals | Between Groups | 624.761 | 2 | 312.381 | 9.424** |
| | Within Groups | 39677.79 | 1197 | 33.148 | |
| | Total | 40302.55 | 1199 | | |
| Relationship with peers and adults | Between Groups | 646.944 | 2 | 323.472 | 9.827** |
| | Within Groups | 39399.72 | 1197 | 32.915 | |
| | Total | 40046.67 | 1199 | | |
| Emotional regulation and physical health | Between Groups | 2188.094 | 2 | 1094.047 | 26.218** |
| | Within Groups | 49949.6 | 1197 | 41.729 | |
| | Total | 52137.69 | 1199 | | |
| ACADEMIC RESILIENCE TOTAL | Between Groups | 22292.91 | 2 | 11146.46 | 36.434** |
| | Within Groups | 366200.3 | 1197 | 305.932 | |
| | Total | 388493.3 | 1199 | | |

*Significant at 0.05 level

**Significant at 0.01 level

It has been observed from the Table 3.62 that the F-value for the five dimensions of Academic resilience i.e. Academic Confidence, Sense of Well being, Motivation and Ability to get goals, Relationship with peers and adults, Emotional regulation& Physical Health and total sore of academic resilience are 24.843, 21.06, 9.424, 9.827, 26.218 and 36.434 are found to be significant at 0.05 and 0.01 level of confidence. This indicates that self efficacy has direct influence on academic resilience of senior secondary students. Thus, the data provide sufficient evidence to reject the hypothesis 33,"There exists no significant influence of self efficacy on academic resilience of senior secondary students".

In order to find the significant difference between groups, Scheffe post hoc test is applied and results are presented below in the Table 3.63.

**TABLE 3.63**

**SUMMARY OF POST HOC ANALYSIS (SCHEFFE TEST) OF VARIOUS DIMENSIONS AND TOTAL OF ACADEMIC RESILIENCE WITH RESPECT TO SELF EFFICACY**

| Dependent Variable | (I) Self Efficacy Level | (J) Self Efficacy Level | Mean Difference (I-J) | Std. Error | p-value |
|---|---|---|---|---|---|
| Academic Confidence | Poor | Average | -1.304* | 0.243 | 0 |
| | | High | -1.796* | 0.258 | 0 |
| | Average | High | 0.493 | 0.209 | 0.063 |
| Sense of Well being | Poor | Average | -1.509* | 0.369 | 0 |
| | | High | -2.538* | 0.391 | 0 |
| | Average | High | -1.030* | 0.318 | 0.005 |
| Motivation and Ability to get goals | Poor | Average | -1.418* | 0.44 | 0.006 |
| | | High | -2.009* | 0.466 | 0 |
| | Average | High | 0.591 | 0.379 | 0.297 |
| Relationship with peers and adults | Poor | Average | -1.774* | 0.438 | 0 |
| | | High | -1.863* | 0.465 | 0 |
| | Average | High | -0.089 | 0.377 | 0.973 |
| Emotional regulation and physical health | Poor | Average | -2.919* | 0.493 | 0 |
| | | High | -3.675* | 0.523 | 0 |
| | Average | High | -0.757 | 0.425 | 0.205 |
| Academic Resilience Total | Poor | Average | -8.922* | 1.335 | 0 |
| | | High | -11.881* | 1.417 | 0 |
| | Average | High | -2.959* | 1.151 | 0.037 |
| *The mean difference is significant at the 0.05 level. | | | | | |

It is clear from the Table 3.63 that either at 0.05 or at 0.01, pair wise comparison has been found significant for various dimensions and total Academic Resilience.

It is also clear for the 'Academic Confidence' dimension of Academic Resilience, senior secondary school students with average and high self efficacy had scored more than students with poor self efficacy. From this it can be concluded that students who scored average and high in self efficacy are also found more confident academically.

Similarly, it is clear for the 'Sense of well being' dimension of Academic Resilience, senior secondary school students with average and high self efficacy had scored more than the students with poor self efficacy. Also senior secondary school students with high self efficacy had scored more than the students with average self efficacy. From this, it can be concluded that students who scored average and high in self efficacy are also found more positive about themselves, their work and relation with others and students who scored high in self efficacy are also found better in their sense of well being than students with average self efficacy.

Further, it is clear from Table 3.63 for the 'Motivation and ability to get goals' dimension of Academic Resilience, senior secondary school the students with average and high self efficacy had scored more than students with poor self efficacy. From this it can be concluded that students who scored average and high in self efficacy are also found confident in achieving their academic goals than students with poor self efficacy.

It is clear from Table 3.63 for the 'Relationship with peers and adults' dimension of Academic Resilience, senior secondary school the students with average and high self efficacy had scored more than students with poor self efficacy. From this it can be concluded that students who scored average and high in self efficacy are having strong and positive relationship with teachers and peers to remain secure in the school environment than students with poor self efficacy.

It is also clear from Table 3.63 for the 'Emotional regulation and physical health' dimension of Academic Resilience, senior secondary school students with

average and high self efficacy had scored more than students with poor self efficacy. From this it can be concluded that students who scored average and high in self efficacy are good in understanding and balancing their emotions to stay effective under pressure and are physically sound than students with poor self efficacy.

Table 3.63 also shows for Total Academic Resilience, senior secondary school students with average and high self efficacy had scored more than students with poor self efficacy. Similarly, senior secondary school students with high self efficacy had scored more than students with average self efficacy which indicates that students who scored average and high in self efficacy are more academically resilient.

**DISCUSSION ON RESULTS**

Study found that self efficacy has direct influence on academic resilience among senior secondary students. Results revealed that senior secondary students with average and high self efficacy are found more academically resilient than students with poor self efficacy. This is found true specifically for 'Academic Confidence', 'Sense of Well being', 'Motivation and Ability to get goals', 'Relationship with peers and adults', 'Emotional Regulation & Physical Health'. This finding supports the existing literature that having positive self-efficacy beliefs is likely to contribute toward increased resilience in students (Liddle,1994; Pajares, 1996; Waxman et al.,2003; Riley and Masten, 2005). In both general and context-specific terms, findings support the relevance of self-efficacy beliefs to individual psychological resilience. In a same way, Siegle and McCoach (2007) offers one approach to build academic resilience in students. Illustrating how self-efficacy influences specific responses to adversity, and the propensity to advocate greater resilience for peers facing adversity.

Further, it has been found that senior secondary students with high self efficacy are found more academically resilient than students with average self efficacy specifically for 'Sense of Well being'. This supports the earlier report by Schwarzer and Warner (2013) & Sagonea and Carolia (2013) that highly resilient adolescents are resistant to adversity and stressful events, perceived themselves as more efficient both in general and in specific scholastic context, compared to the

scarcely resilient ones. Self efficacy also helps to predict the academic resilience among school students.

### 3.4.3 Influence of Learning Environment on Academic resilience of senior secondary students

The analysis for Influence of Learning Environment on Academic resilience of senior secondary students has been presented below. The Table 3.64 shows Means, Std. deviation and number of senior secondary students belonging to different levels of learning environment i.e. unfavourable, moderate and favourable.

**TABLE 3.64**

**SUMMARY OF MEAN AND S.D. OF VARIOUS DIMENSIONS AND TOTAL ACADEMIC RESILIENCE SCORES WITH RESPECT TO LEARNING ENVIRONMENT**

| Dimensions of Academic resilience | Learning Environment levels | N | Mean | Std. Deviation |
|---|---|---|---|---|
| Academic Confidence | Unfavourable | 175 | 30.49 | 3.278 |
| | Moderate | 816 | 31.26 | 3.30 |
| | Favourable | 209 | 31.9 | 2.817 |
| | Total | 1200 | 31.26 | 3.246 |
| Sense of Well being | Unfavourable | 175 | 38.46 | 4.64 |
| | Moderate | 816 | 39.79 | 4.80 |
| | Favourable | 209 | 41.02 | 5.254 |
| | Total | 1200 | 39.81 | 4.91 |
| Motivation and Ability to get goals | Unfavourable | 175 | 38.06 | 5.574 |
| | Moderate | 816 | 39.17 | 5.83 |
| | Favourable | 209 | 40.99 | 5.507 |
| | Total | 1200 | 39.32 | 5.798 |
| Relationship with peers and adults | Unfavourable | 175 | 36.02 | 5.329 |
| | Moderate | 816 | 37.43 | 5.92 |
| | Favourable | 209 | 39.20 | 5.139 |
| | Total | 1200 | 37.53 | 5.779 |
| Emotional regulation and physical health | Unfavourable | 175 | 50.31 | 7.068 |
| | Moderate | 816 | 52.97 | 6.40 |
| | Favourable | 209 | 55.07 | 6.133 |
| | Total | 1200 | 52.95 | 6.594 |
| Academic Resilience Total | Unfavourable | 175 | 193.33 | 18.092 |
| | Moderate | 816 | 200.62 | 17.34 |
| | Favourable | 209 | 208.18 | 17.713 |
| | Total | 1200 | 200.88 | 18 |

In order to find the significant differences in the academic resilience of senior secondary students from various levels of learning environment, one way ANOVA has been applied and results have been presented below in the Table 3.65.

**TABLE 3.65**

**SUMMARY OF ONEWAY ANOVA ON VARIOUS DIMENSIONS AND TOTAL ACADEMIC RESILIENCE SCORES WITH RESPECT TO LEARNING ENVIRONMENT**

| Variable | Source of Variance | Sum of Squares | df | Mean Square | F |
|---|---|---|---|---|---|
| Academic Confidence | Between Groups | 190.403 | 2 | 95.202 | 9.158** |
| | Within Groups | 12442.956 | 1197 | 10.395 | |
| | Total | 12633.359 | 1199 | | |
| Sense of Well being | Between Groups | 628.626 | 2 | 314.313 | 13.307** |
| | Within Groups | 28274.054 | 1197 | 23.621 | |
| | Total | 28902.680 | 1199 | | |
| Motivation and Ability to get goals | Between Groups | 875.282 | 2 | 437.641 | 13.287** |
| | Within Groups | 39427.264 | 1197 | 32.938 | |
| | Total | 40302.55 | 1199 | | |
| Relationship with peers and adults | Between Groups | 988.468 | 2 | 494.234 | 15.147** |
| | Within Groups | 39058.198 | 1197 | 32.630 | |
| | Total | 40046.67 | 1199 | | |
| Emotional regulation and physical health | Between Groups | 2162.198 | 2 | 1081.099 | 25.894** |
| | Within Groups | 49975.495 | 1197 | 41.751 | |
| | Total | 52137.693 | 1199 | | |
| Academic Resilience Total | Between Groups | 21154.278 | 2 | 10577.139 | 34.466** |
| | Within Groups | 367338.972 | 1197 | 306.883 | |
| | Total | 388493.3 | 1199 | | |

*Significant at 0.05 level

**Significant at 0.01 level

It has been observed from the Table 3.65 that the F-value for the five dimensions of Academic resilience i.e. Academic Confidence, Sense of Well being, Motivation and Ability to get goals, Relationship with peers and adults, Emotional regulation and total sore of academic resilience are 9.158, 13.307, 13.287, 15.147, 25.894 and 34.466 are found to be significant at 0.01 level of confidence. This indicates that learning environment has direct influence on

academic resilience of senior secondary students. Thus, the data provides sufficient evidence to reject the hypothesis 34, "There exists no significant influence of learning environment on academic resilience of senior secondary students".

In order to find the significant difference between groups, Scheffe post hoc test is applied and results are presented below in the Table 3.66.

**TABLE 3.66**

**SUMMARY OF POST HOC ANALYSIS (SCHEFFE TEST) OF VARIOUS DIMENSIONS AND TOTAL O ACADEMIC RESILIENCE WITH RESPECT TO LEARNING ENVIRONMENT**

| Dependent Variable | (I) Learning Environment Category | (J) Learning Environment Category | Mean Difference (I-J) | Std. Error | p-value |
|---|---|---|---|---|---|
| Academic Confidence | Moderate | Unfavourable | .778* | 0.269 | 0.011 |
| | | Favourable | -.636* | 0.25 | 0.03 |
| | Favourable | Unfavourable | 1.414* | 0.33 | 0 |
| Sense of Well being | Moderate | Unfavourable | 1.332* | 0.405 | 0.003 |
| | | Favourable | -1.235* | 0.377 | 0.003 |
| | Favourable | Unfavourable | 2.567* | 0.498 | 0 |
| Motivation and Ability to get goals | Moderate | Unfavourable | 1.105 | 0.478 | 0.055 |
| | | Favourable | -1.818* | 0.445 | 0 |
| | Favourable | Unfavourable | 2.923* | 0.588 | 0 |
| Relationship with peers and adults | Moderate | Unfavourable | 1.415* | 0.476 | 0.008 |
| | | Favourable | -1.764* | 0.443 | 0 |
| | Favourable | Unfavourable | 3.179* | 0.585 | 0 |
| Emotional Regulation and Physical health | Moderate | Unfavourable | 2.661* | 0.538 | 0 |
| | | Favourable | -2.102* | 0.501 | 0 |
| | Favourable | Unfavourable | 4.763* | 0.662 | 0 |
| Academic Resilience Total | Moderate | Unfavourable | 7.291* | 1.459 | 0 |
| | | Favourable | -7.554* | 1.358 | 0 |
| | Favourable | Unfavourable | 14.846* | 1.795 | 0 |

* The mean difference is significant at the 0.05 level.

It is clear from the Table 3.66 that either at 0.05 or at 0.01, pair wise comparison has been found significant for various dimensions and total Academic Resilience.

From the mean analysis, it is clear that for the 'Academic Confidence' dimension of Academic Resilience, senior secondary school students with favourable learning environment had scored more than students with moderate and unfavourable learning environment at home and at school. Similarly, it has also found that students with moderate learning environment had scored more

than students from unfavourable learning environment. From this it is concluded that students from favourable learning environment are more academically confident than students from moderate and unfavourable learning environment. The same is found true for other dimensions of Academic resilience i. e. 'Sense of well being', 'Relationship with peers and adults', 'Emotional regulation and physical health' and total Academic Resilience. However on 'Motivation and ability to get goals' dimension of Academic Resilience, senior secondary school students with favourable learning environment had scored higher than students with moderate and unfavourable learning environment. From this it can be concluded that students who are living in favourable learning conditions at home as well as at school are also found having better internal psychological drive to work with diligence in challenging and difficult tasks/situations than students from moderate and unfavourable learning environment.

**DISCUSSION ON RESULTS**

The findings of the study revealed that learning environment has influence on the academic resilience of senior secondary students. Supportive learning environment strengthens the resilient abilities in the school students. It has been revealed that students who perceive favourable learning environment are found more academically resilient than students who perceive moderate and unfavourable learning environment. In a similar fashion, students who perceive moderate learning environment are found more academically resilient than students who perceive unfavourable learning environment. The results from the present study are similar to other studies that have found dramatic differences in the classroom learning environment of resilient and non resilient students (Waxman and Huang, 1997; Waxman, Huang, and Padrón 1997; Waxman, Huang, and Wang, 1997; Padrón et al., 1999). Another study conducted by Padrón et al. (2014) reported that resilient students perceive their classrooms much more favorably than non resilient students. Resilient students have higher perceptions of Satisfaction, Teacher Support, Cohesion, Equity, and Self-esteem than average and non resilient students. On the other hand, non resilient students perceive their classrooms to be more difficult than do average and resilient

students. This shows that learning environment has direct influence on the academic resilience of the students.

Further, it also revealed that students who perceive favourable learning environment are found more academically resilient than students with moderate and unfavourable learning environment specifically in terms of 'Academic Confidence' and 'Sense of Well Being', 'Motivation and Ability to get goals', 'Relationship with peers and adults' and 'Emotional regulation and Physical Health'. Also students who perceive moderate learning environment are found academically resilient than students with unfavourable learning environment specifically in terms of 'Academic Confidence' and 'Sense of Well Being', 'Relationship with peers and adults' and 'Emotional regulation and Physical Health'. School environment can increase student's resilience by cultivating realistic expectations and strengthening self esteem, self-control, problem-solving skills and optimistic thinking pattern (Linke, 2010; Kirmayer et al., 2011; Zolkoski and Ballock, 2012). Further, Schools can strengthen resilience by developing social competence, increasing bonding between students and caring adults, and maximizing opportunities for meaningful participation of students in the school environment (Brooks, 2006). In addition, it is recommended that parents foster resilience in their children through empathy (Bernard, 1993), reasonable expectations (Grant et al., 2004), show flexibility during times of stress (Walsh, 2006), supportive relationships (Benzies and Mychasiuk, 2009), create opportunities for participation in social activities (Easterbrooks et al., 2011) and create a respectful and accepting family environment (Ungar et al., 2013).

## 3.5 Initiatives taken by school personnel for developing academic resilience among senior secondary school students.

In the present study, objective 6 was to assess the initiatives taken by school personnel for fostering academic resilience among senior secondary school students. In order to assess the initiatives taken by school personnel data was collected from twenty schools of Punjab by using self developed questionnaire.

Collected data were scored and tabulated in order to find out whether objectives are fulfilled or not, percentages were computed on tabulated data.

### 3.5.1 Results pertaining to the physical infrastructural facilities provided by schools to promote academic resilience among senior secondary school students.

Items pertaining to the various physical infrastructural facilities provided by schools to promote academic resilience among senior secondary school students are presented below in Table 3.67.

**TABLE 3.67**

**PHYSICAL INFRASTRUCTURAL FACILITIES PROVIDED BY SCHOOLS TO PROMOTE ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | Providing safe and inviting school environment to the students | 20 | 100 | 0 | 0 | 20 | 100 |
| 2 | Provision of adequate ventilation, lighting and proper seating arrangement in the classrooms | 14 | 70 | 6 | 30 | 20 | 100 |
| 3 | Provision of safe ramp roads for physically handicapped students | 16 | 80 | 4 | 20 | 20 | 100 |

It is evident from the above Table 3.67 that various physical infrastructural facilities have been provided by schools i.e. all school teachers (100% teachers) are of the opinion that safe and inviting environment is provided by their schools whereas 70% teachers agree that there are provision of adequate ventilation, lighting and proper seating arrangement in the classrooms of the school. On the

other hand, 30% teachers respond that there are inadequate facilities of ventilation, lighting and seating arrangement in the classrooms.

It is also evident from Table 3.67that 80% schools have provision of safe ramp roads for physically handicapped students whereas 20% teachers respond that in their school there is no provision of safe ramp roads for physically handicapped students.

### 3.5.2 Results pertaining to the support system available in schools to develop academic resilience among senior secondary school students.

Items pertaining to the support system available in schools to develop academic resilience among senior secondary school students are presented below in Table 3.68.

**TABLE 3.68**

**SUPPORT SYSTEM AVAILABLE IN SCHOOLS TO DEVELOP ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | Organize programmes/resources and support for students with special needs | 15 | 75 | 5 | 25 | 20 | 100 |
| 2 | Initiatives taken by school for the student's development and personal growth | 17 | 85 | 3 | 15 | 20 | 100 |
| 3 | Support services for children with acute social, emotional and behavioral problems | 16 | 80 | 4 | 20 | 20 | 100 |

It is clear from Table 3.68 that support system is provided by the schools i.e. 75% teachers respond that their school organize programs/resources and

support for students with special needs whereas 25% teachers respond that their school does not offer any programs/resources for students with special needs.

Table 3.68 also shows that 85% teachers respond that initiatives are taken by school for the development and personal growth of the students whereas 15% teachers respond that there is no initiative taken by the school for the development and personal growth of the student.

It is also revealed from the above Table 3.68 that support services are provided in majority of the schools. 80% teachers respond that support services for children with acute social, emotional and behavioral problems are provided by the school whereas 20% teachers respond that their school does not provide support services for children with acute social, emotional and behavioral problems.

### 3.5.3 Results pertaining to the medical facilities provided by schools to promote academic resilience among senior secondary school students.

Items pertaining to the medical facilities provided by schoolsto develop academic resilience among senior secondary school students are presented below in Table 3.69.

**TABLE 3.69**

**MEDICAL FACILITIES PROVIDED BY SCHOOLS TO PROMOTE ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | First aid facility in the school provided for students in case of emergency | 15 | 75 | 5 | 25 | 20 | 100 |
| 2 | School organizing medical checkups for students time to time | 17 | 85 | 3 | 15 | 20 | 100 |

It can be seen from the Table 3.69 that in majority of the schools, first aid facility is provided by the school in case of emergency. 75% teachers respond that first aid facility in the school is provided for students in case of emergency whereas 25% teachers respond that first aid facility for students is not provided in the school in case of emergency.

It is seen from the above Table 3.69 that school organizing medical checkups for students time to time. 85% teachers respond that medical checkups are organized by schools for students time to time whereas 15% teachers respond that their school does not organize medical checkups for students time to time.

### 3.5.4 Results pertaining to the health and recreation facilities provided by schools to foster academic resilience among senior secondary school students.

Items pertaining to the health and recreation facilities provided by schools to foster academic resilience among senior secondary school students are presented below in Table 3.70.

**TABLE 3.70**

**HEALTH AND RECREATION FACILITIES PROVIDED BY SCHOOLS TO FOSTER ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | Restroom facility for students in the school | 7 | 35 | 13 | 65 | 20 | 100 |
| 2 | Organizing pro social activities in the school | 18 | 90 | 2 | 10 | 20 | 100 |

Table 3.70 shows the restroom facilities available in the school for the students. 35% teachers respond that there is restroom facility for students in the

school whereas 65% teachers respond that there is no restroom facility for students in their school.

A look at the above Table 3.70 shows the pro social activities in the school for the students. 90% teachers respond that their school organizes pro social activities in the school whereas 10% teachers respond that their school does not organize pro social activities in the school.

### 3.5.5 Results pertaining to the games and sport facilities provided by schools to promote academic resilience among senior secondary school students.

Items pertaining to the games and sport facilities provided by schools to develop academic resilience among senior secondary school students are presented below in Table 3.71.

**TABLE 3.71**

**GAMES AND SPORT FACILITIES PROVIDED BY SCHOOLS TO PROMOTE ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | Safe outdoor spaces for involving students in outdoor activities | 15 | 75 | 5 | 25 | 20 | 100 |
| 2 | Engagement of students in a variety of games, sports and motor activities | 20 | 100 | 0 | 0 | 20 | 100 |

It is evident from the Table 3.71that school provides safe outdoor spaces for involving students in outdoor activities. 75% teachers respond that their school provides safe outdoor spaces for involving students in outdoor activities whereas 25% teachers respond that their school does not provide safe outdoor spaces for involving students in outdoor activities.

Table 3.71 shows that engagement of students in a variety of games, sports and motor activities. All the school teachers agreed that their school engage students in a variety of games, sports and motor activities.

### 3.5.6 Results pertaining to the psychological counseling facilities provided by schools to promote academic resilience among senior secondary school students.

Items pertaining to the psychological counseling facilities provided by schools to develop academic resilience among senior secondary school students are presented below in Table 3.72.

**TABLE 3.72**

**PSYCHOLOGICAL COUNSELING FACILITIES PROVIDED BY SCHOOLS TO DEVELOP ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | Professional counsellor in the school to advice students on personal problems | 7 | 35 | 13 | 65 | 20 | 100 |
| 2 | Professional counsellor in the school to advice students on career related issues | 6 | 30 | 14 | 70 | 20 | 100 |
| 3 | School counsellor understands the problems faced by students and ensure the privacy | 12 | 60 | 8 | 40 | 20 | 100 |

Table 3.72 shows that the availability of professional counselor in the school. 35% teachers respond that there is professional counselor in the school to advice students on personal problems and sometimes teachers act as a counselor in the absence of school counselor whereas 65% teachers respond that there is no professional counselor in the school to advice students on personal problems.

It is evident from Table 3.72 that30% school teachers respond that there is professional counselor in the school to advice students on career related issues whereas 70% schools do not have professional counselor in the school to advice students on career related issues.

It is clear from Table 3.72 that school counselor understands the problems faced by students and ensure the privacy. 60% teachers respond that school counselor understands the problems faced by students and ensure the privacy whereas 40% teachers respond that school counselor does not understand the problems faced by students.

### 3.5.7 Results pertaining to the parent teacher association facilities provided by schools to promote academic resilience among senior secondary school students.

Items pertaining to the parent teacher association facilities provided by schoolsto develop academic resilience among senior secondary school students are presented below in Table 3.73.

**TABLE 3.73**

**PARENT TEACHER ASSOCIATION FACILITIES PROVIDED BY SCHOOLS TO PROMOTE ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | School organize parent teacher association | 20 | 100 | 0 | 0 | 20 | 100 |

A look at the Table 3.73 shows that all schools organize parent teacher association. All the school teachers respond that their school provides parent teacher association facility for making parents aware about the progress made by their ward.

### 3.5.8 Results pertaining to the safety and supervision mechanism provided by schools to promote academic resilience among senior secondary school students.

Items pertaining to the safety and supervision mechanism provided by schoolsto develop academic resilience among senior secondary school students are as following in Table 3.74.

**TABLE 3.74**

**SAFETY AND SUPERVISION MECHANISM PROVIDED BY SCHOOLS TO PROMOTE ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | CCTV camera located within the school building or in school grounds | 5 | 25 | 15 | 75 | 20 | 100 |
| 2 | Safety from practices like truancy and bullying or ragging | 20 | 100 | 0 | 0 | 20 | 100 |

It is seen from the Table 3.74 that the safety and supervision mechanism provided by the schools. Only 25% teachers agreed that in their school CCTV camera is located within the school building or in school grounds whereas 75% respond that there is no CCTV camera located within the school building or in school grounds.

Table 3.74 also shows the safety practices for students present in the school. All the school teachers agreed that their school provide safety from the practices like truancy, bullying or ragging in the school.

### 3.5.9 Results pertaining to the motivation/feedback provided by schools to promote academic resilience among senior secondary school students.

Items pertaining to the motivation/feedback provided by schoolsto develop academic resilience among senior secondary school students are presented below in Table 3.75.

**TABLE 3.75**

**MOTIVATION/FEEDBACK PROVIDED BY SCHOOLS TO DEVELOP ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | School teacher motivating students to participate in extracurricular activities | 17 | 85 | 3 | 15 | 20 | 100 |
| 2 | Opportunities to students to express their views and opinions about the school | 15 | 75 | 5 | 25 | 20 | 100 |
| 3 | Involvement of students or parents in development of classroom rules, curriculum development and school policies | 10 | 50 | 10 | 50 | 20 | 100 |

Table 3.75 shows the facilities provided by the school to motivate students to participate in extracurricular activities. 85% teachers respond that school teachers motivate students to participate in extracurricular activities whereas 15% school teachers do not motivate students to participate in extracurricular activities.

Table 3.75 shows opportunities provided to students to express their views and opinions about the school. 75% teachers respond that opportunities have been provided to the students to know their views and opinions about the school whereas 25% respond that no opportunity is provided to the students to know their views and opinions about the school.

It is clear from the Table 3.75 that students and parents are involved in development of classroom rules, curriculum development and school policies. 50% teachers respond that students and parents are involved in development of classroom rules, curriculum development and school policies whereas 50%

teachers respond that students and parents are not involved in development of classroom rules, curriculum development and school policies.

### 3.5.10 Results pertaining to the teacher development programmes provided by schools to promote academic resilience among senior secondary school students.

Items pertaining to the teacher development programmes provided by schoolsto develop academic resilience among senior secondary school students are presented below in Table 3.76.

**TABLE 3.76**

**TEACHER DEVELOPMENT PROGRAMMES PROVIDED BY SCHOOLS TO DEVELOP ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | Organizing teacher development/training programmes for teachers | 10 | 50 | 10 | 50 | 20 | 100 |
| 2 | School staff understands the problems faced by students | 17 | 85 | 3 | 15 | 20 | 100 |

It is evident from the Table 3.76 that 50% teachers have an opinion that teacher development and training programs for teachers are organized by the schools whereas 50% respond that teacher development and training programs for teachers are not organized by the schools.

Table 3.76 revealed that school staff understands the problems faced by the students. 85% teachers respond that school staff understands the problems faced by the students whereas 15% teachers are of the opinion that school staff does not understand the problems faced by the students.

### 3.5.11 Results pertaining to the effective discipline and less work load provided by schools to promote academic resilience among senior secondary school students.

Items pertaining to the effective discipline and less work load provided by schoolsto develop academic resilience among senior secondary school students are presented below in Table 3.77.

**TABLE 3.77**

**EFFECTIVE DISCIPLINE AND LESS WORK LOAD PROVIDED BY SCHOOLS TO DEVELOP ACADEMIC RESILIENCE AMONG SENIOR SECONDARY SCHOOL STUDENTS**

| S. No. | Responses of teachers | Yes | | No | | Total | |
|---|---|---|---|---|---|---|---|
| | | Respondents | % | Respondents | % | Respondents | % |
| 1 | Strict discipline is followed in the school | 14 | 70 | 6 | 30 | 20 | 100 |
| 2 | Students do not have enough time to relax in this school | 11 | 55 | 9 | 45 | 20 | 100 |

It is evident from Table 3.77 that effective discipline is followed in majority of the schools. 70% teachers respond that strict discipline is followed in the school whereas 30% teachers are of the opinion that strict discipline is not followed in the school.

It is also seen from the Table 3.77 that 55% teachers respond that students do not have enough time to relax in this school whereas 45% teachers respond that students have enough time to relax in the school. It means that students remain busy in academic work and school activities/extracurricular activities in school and they do not get any time to relax.

**DISCUSSION ON RESULT**

Present study results revealed that some of the services are provided by all schools for promoting academic resilience among senior secondary school students. All schools agreed that there school provide facilities like safe and inviting school environment to the students, engagement of the students in a

variety of games, sports and motor activities, parent teacher association, and safety practices like truancy and bullying or ragging. Literature review suggest that schools increase students' resilience by cultivating realistic expectations and strengthening self esteem, self-control, problem-solving skills and optimistic thinking pattern (Linke, 2010; Kirmayer et al., 2011; Zolkoski and Ballock, 2012). Similarly, Administrators can foster students' resiliency by supporting positive relationships, encouraging positive attitudes and emotions, promoting students' self-control, fostering academic self-determination and feelings of competence (Harvey, 2007).

It has also been revealed that some of the services are provided by majority of the schools for developing academic resilience among school students. Majority of the schools agreed that their school provide physical infrastructural facilities to the students like adequate ventilation and lighting, proper seating arrangement in the classrooms, safe ramp roads for physically handicapped students; support system services like programmes/support for the students with special needs, initiatives for student's development and personal growth and support services for children with acute social, emotional and behavioural problems; medical facilities like first aid facility, time to time medical checkups for students; health and recreational facilities like Pro social activities; games and sport facilities like safe outdoor spaces for involving students in outdoor activities; psychological counselling facilities like school counsellor to understand the problems faced by the students and ensure privacy; motivation/feedback facilities like school teachers motivate students to participate in extracurricular activities, provide opportunities to express their views and opinions about the school, involvement of parents or students in development of school rules/regulations, curriculum and school policies; teacher development programmes like organize teacher training programmes for the betterment of the teachers, student problems understand by teachers; effective discipline services like that strict discipline is followed in the school and students do not have enough time to relax in the school. Newman (2004) reported that strong social support networks, positive school experiences, sense of mastery and a belief that

one's own efforts can make a difference, participation in a range of extra-curricular activities, opportunities to develop coping skills are some of the factors that promote academic resilience in children

It has also been revealed that there are some of the services which are not provided by majority of schools. Majority of the schools agreed some services are not provided in their school i.e. Safety and supervision services like CCTV cameras are not located within the school campus/building; health and recreational facilities like rest room facility for students; psychological counselling facilities like professional counsellor in the school to advice students on personal problems; and professional counsellor in the school to advice students on career related issues.

# CHAPTER IV

# CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS

This chapter is divided into three sections. Firstly, it includes the conclusions of study. Secondly, recommendations based on the findings of the study. Finally, it provides suggestions for further study in the event a similar study is undertaken in the state of Punjab or anywhere else for that matter.

## 4.1 CONCLUSIONS

On the basis of the results, objective wise following conclusions have been drawn for the study:

**Objective I: To explore the level of academic resilience among senior secondary students.**

1. Majority of boy and girl senior secondary students from rural and urban localities have average level of academic resilience.
2. Majority of senior secondary school students from least populated districts have above average level of academic resilience but students from highly populated districts have average level of academic resilience.
3. In total, majority of the senior secondary school students have average level of academic resilience.

**Objective II: To identify the metacognition, self efficacy and learning environment of the senior secondary students.**

1. On the basis of gender, locality and population, majority of the senior secondary school students having average level of metacognition.
2. Majority of the senior secondary school students have average level of self efficacy on the basis of gender, locality and population.
3. In total, majority of the senior secondary students perceived moderate level of learning environment.

**Objective III: To find out significant difference among senior secondary students in their academic resilience, metacognition, self efficacy, and learning environment in relation to gender, locale and population.**

1. Urban senior secondary students have better sense of well being than rural senior secondary students. Gender does not have influence on academic resilience of senior secondary students.
2. Senior secondary school students from least populated districts are more academically resilient than students from highly populated districts.
3. Senior secondary school girls from urban locality are better in their emotional regulation and physical health than senior secondary school girls from rural localities.
4. Urban students from highly populated districts have greater sense of well being than senior secondary students from rural highly populated districts.
5. Senior secondary girls from least populated districts are more academically resilient than boys from highly populated districts and senior secondary boys from least populated districts are more academically resilient than girls from highly populated districts.
6. Locality has no influence on the metacognition of senior secondary students which means that senior secondary students from rural and urban areas do not differ in their metacognitive abilities.
7. Senior secondary girl students are more aware of their own cognitive abilities and their application for learning than senior secondary boys.
8. Senior secondary students from least populated districts are better in applying their procedural knowledge for the purposes of completing a task/ assignment efficiently than students from highly populated districts.
9. Urban students from least populated districts are better in managing their declarative knowledge and cognitive skills than students from rural highly populated districts.
10. Senior secondary students from urban least populated districts are better in their metacognitive abilities than senior secondary students from rural highly populated districts.
11. An interaction of locality, gender and population has influence on the declarative knowledge and evaluation dimension of metacognition of senior secondary students.

12. Urban senior secondary school students are more self efficacious than the rural senior secondary students specifically in terms self confidence, efficacy expectations and positive attitude than rural counter parts.
13. Senior secondary boys are better in terms of efficacy expectation and outcome expectation than senior secondary girls.
14. Senior secondary students from least populated districts are more self confident in their own abilities to perform a task and are better in their efficacy expectation than students from highly populated districts.
15. Senior secondary boys from urban localities are having more positive attitude than girls from rural localities. Similarly, girls from urban localities are having more positive attitude than boys from rural localities. However, girls from urban localities are having less outcome expectation than boys from rural localities.
16. Senior secondary students from urban least populated areas are more self efficacious than senior secondary students from urban highly populated districts.
17. Senior secondary girls from highly populated districts and boys from least populated districts are more self efficacious than senior secondary girls from least populated districts.
18. Gender, locality and population have influence on efficacy expectation and positive attitude dimension of self efficacy of senior secondary students.
19. Learning environment at home is perceived better by students belonging to urban areas than belonging to rural areas. Specifically in terms of 'Independence and Conformity', 'Recreational Orientation', 'Learning through Computer Technology' is found better in students from urban localities than students from rural localities.
20. Senior secondary girls are getting effective and better learning environment at home than boys specifically in terms of 'Parental Care and Nurturance'. Similarly, girls perceived better learning environment at school that promote positive attitude towards learning at school than senior secondary boys specifically in terms of 'Peer influence on Learning'. Also, this has been

found true in the case of girls from urban localities than boys. Results also revealed that girls from least populated are getting better recreational orientation at home than boys from least populated districts.

21. Senior secondary students from least populated districts are getting more secure and stimulating environment at home specifically in terms of 'Independence and Conformity', 'Parental Care and Nurturance', 'Recreational Orientation' and they are getting whole range of activities and opportunities at school to maximize their learning like reading material, proper guidance by teachers, efficient teachers etc specifically in terms 'Cognitive Encouragement', 'Teaching through Technology', 'Reward and Punishment' and 'Physical Infrastructure' than students from highly populated districts. It has also been found that senior secondary students from urban least populated districts are better in their Independence and Conformity than students from urban highly populated districts.
22. Gender and locality has direct influence on the 'Learning environment at School' of senior secondary school students specifically in terms of 'Teaching through Technology', 'Reward and Punishment' and 'Physical Infrastructure'.
23. Girls from least populated districts are getting more recreational or interesting activities at home like books, puzzles, educational tours, and educational games etc that stimulate child's thinking and arouse their curiosity than boys from highly populated districts.
24. Locality, gender and population have direct influence on the 'Learning environment' of senior secondary school students.

**Objective IV: To study the influence of metacognition, self efficacy and learning environment on academic resilience of senior secondary school students.**

1. Metacognition has influence on academic resilience of senior secondary school students. Senior secondary students with high metacognitive abilities are found having good relationship with peers and adults and emotional

regulation & physical health than the students with below average, average and above average metacognitive abilities.

2. Senior secondary students with high metacognitive abilities are found more academically confident, sense of well being and more motivated to get goals than the students with average and below average metacognitive abilities.
3. Senior secondary students with above average metacognitive abilities are found more academically confident, more motivated to get goals and good in emotional regulation and physical health than the students with below average and average metacognitive abilities.
4. Senior secondary students with above average metacognitive abilities are found having good sense of well being and relationship with peers and adults than the students with average metacognitive abilities.
5. Senior secondary students with high metacognitive abilities are found having good relationship with peers and adults and good in emotional regulation & physical health than the students with above average, average and below average metacognitive abilities
6. Self efficacy also has influence on academic resilience of senior secondary students. Senior secondary students with average and high self efficacy are found more academically resilient than students with poor self efficacy.
7. Senior secondary students with high self efficacy are found more academically resilient than students with average self efficacy.
8. Students who perceive favourable learning environment are found more academically resilient than students who perceive moderate and unfavourable learning environment. It is found true for 'Academic Confidence' and 'Sense of Well Being', 'Motivation and Ability to get goals', 'Relationship with peers and adults' and 'Emotional regulation and Physical Health'.
9. Students who perceive moderate learning environment are found more academically resilient than students who perceive unfavourable learning environment. It is found true for 'Academic Confidence' and 'Sense of Well Being', 'Relationship with peers and adults' and 'Emotional regulation and Physical Health'.

**Objective V: To analyze the relationship between academic resilience of the senior secondary students with their metacognition, self efficacy and learning environment.**

1. The relationship between academic resilience and metacognition is found positive and significant. This shows that there is reciprocal relation between academic resilience and metacognition of students.
2. Relationship between academic resilience and different dimensions of self efficacy of senior secondary students is found positive and significant. It implies that more an individual is self efficacious, the more are the chances that he will be academically resilient or vice versa.
3. Relationship between academic resilience and learning environment of senior secondary students is found significant. It can be concluded that more effective and favourable learning environment at home and at school students gets, more the students will be academically resilient or vice versa.

**Objective VI: To find out the initiatives taken by school personnel in developing academic resilience among senior secondary students.**

1. Some facilities like safe and inviting school environment to the students, engagement of the students in a variety of games, sports and motor activities, parent teacher association, and safety practices like truancy and bullying or ragging are provided by all schools.
2. Majority of the schools provide physical infrastructural facilities to the students like adequate ventilation and lighting, proper seating arrangement in the classrooms, safe ramp roads for physically handicapped students.
3. Majority of the schools provide support system services like programmes/support for the students with special needs, initiatives for student's development and personal growth and support services for children with acute social, emotional and behavioural problems.
4. Majority of the schools provide medical facilities like first aid facility, time to time medical checkups for students; health and recreational facilities like Pro

social activities; games and sport facilities like safe outdoor spaces for involving students in outdoor activities.

5. It has been found that majority of the schools provide psychological counselling facilities like school counsellor to understand the problems faced by the students and ensure privacy.
6. Majority of the schools provide motivation/feedback facilities like school teachers motivate students to participate in extracurricular activities, provide opportunities to express their views and opinions about the school, involvement of parents or students in development of school rules/regulations, curriculum and school policies.
7. Majority of the schools provide teacher development programmes like organize teacher training programmes for the betterment of the teachers, student problems understand by teachers.
8. Majority of the schools agreed that effective discipline services like that strict discipline is followed in the school and students do not have enough time to relax in the school.
9. Majority of the schools agreed that some services are not provided in their school i.e. Safety and supervision services like CCTV cameras are not located within the school campus/building; health and recreational facilities like rest room facility for students; psychological counselling facilities like professional counsellor in the school to advice students on personal problems; and professional counsellor in the school to advice students on career related issues.

## 4.2 RECOMMENDATIONS

In the light of conclusion drawn and the importance of the study, the following recommendations are put forth for different stakeholders i.e. school students, school counsellors, child psychologists, government officials, policy makers, parents and teachers as means to improve the learning environment conditions in schools to strengthens the resilience abilities in the senior secondary students.

1. In the present study, it has been found that majority of boy and girl senior secondary students from rural and urban localities possessed average level of academic resilience except students from least populated districts who possessed above average level of academic resilience. This indicates that Government should frame programmes and policies for facilitating schools in highly populated districts forfulfilling the educational demands of the students promoting academic resilience abilities in the students.
2. Present study indicated that urban senior secondary students from have better sense of well being than rural senior secondary students. Also, urban students from highly populated districts have greater sense of well being than senior secondary students from rural highly populated districts. Thus in order to improve the sense of well being among students from rural highly populated districts teachers should ensure the encouraging atmosphere in the classroom.
3. The present study showed that learning environment at home is perceived better by students belonging to urban areas than belonging to rural areas and also senior secondary students from urban least populated districts are better in their Independence and Conformity than students from rural least populated districts. This suggests that parents should pay attention towards their children regarding motivating them to take their decisions independently and provide resources at home for fulfilling their educational needs. Rural parents must also be familiar with the problems faced by their children at school and involve themselves actively with school authority to understand their ward's progress.
4. For strengthening the metacognitive, self efficacy and resilient abilities in the students it is important teachers should pay individual attention. It can only be achieved if there will be ideal pupil teacher ratio in the class. There is need to control the overcrowding of the students in the schools.
5. Learning environment at home as well as at school plays a crucial role in the development of academic resilience as the study has confirmed that with the betterment of learning environment academic resilience becomes

better. Therefore, the importance of learning environment shall be discussed in the parent teacher meetings organized by the schools as well as the principals should explore the ways to enrich the learning environment in schools. Teachers shall be given training to enrich the learning environment of their classrooms.

6. Present study revealed that some of the facilities are not provided by the schools like CCTV cameras are not located within the school campus/building; rest room facility for students; professional counsellor in the school to advice students on personal problems and career related issues.This indicates dire need to strengthen the safety and supervision needs on the part of schools.
7. The findings of the study suggest the need for high quality school activities that help to protect children from the hazards of their environment. High-quality programs provide children important opportunities to develop confidence and social skills. However, it is critical that parents and children feel that these programs are provided in a safe and secure environment to strengthen their resilience abilities.

## 4.3 EDUCATIONAL IMPLICATIONS

The present study throws light on the present scenario academic resilience, metacognition, self efficacy and learning environment of the senior secondary students in Punjab state. Thus, the produced results have clear implication for school counselors, teachers, principals and parents. Counselors need to understand that academic resilience is instrumental for a child's success. Therefore, They can consult teachers, staff, administrators to identify and implement school based programs or policies designed to enhance resilience, metacognition, self efficacy and learning environment.

The study findings also provide insights into parenting practices like supervising school work or activities, to recognize the qualities of the children, to provide resources, opportunities or services in home to promote resilient abilities in the students.Another practical implication of the present study is to assess the resilient abilities of the students in particular situation by using academic

resilience scale. Similarly student's learning environment at home as well as at school can also be analyzed by using Learning environment scale i.e. developed and standardized for this purpose accordingly efforts can be put forward for improving their resilient abilities and learning environment.Teachers can help the students believe on their abilities. Teachers should take steps to teach different types of skills needed to overcome or tackle difficult situations in student's life.

## 4.4 SUGGESTIONS FOR FURTHER RESEARCH

Though the present investigator has taken every care to make the study as scientific as possible in terms of representativeness of the sample, validity of the tools and appropriateness of statistical design for the analysis of the data, yet there are many pitfalls and bottlenecks which have been beyond the control of the problem of the present investigator. Therefore, there are many aspects of the problem, which could be covered in the study. Although the results obtained are very enlightening in the light of the problem undertaken there is need for further research. Being cognizant of all such limitations, some personal and some related with space and time, the present investigator gives certain suggestions which can be helpful for more through investigations in the development of policies related to the senior secondary school students and education sector.

a. Because of the limitations of the time, the investigator could not cover more districts in the study. Moreover, the investigator had to choose the sample from the six cities of Punjab (i.e. Ludhiana, Barnala, Amritsar, Tarntaran, Jalandhar, Nawashahr)on the basis of literacy and population rate. Therefore, replica studies can be taken up choosing the sample from other districts of the state on the basis of growth rate.

b. Another similar study can be conducted on Talented and Gifted students rather than senior secondary students to study the effect of metacognition on academic resilience of talented and gifted students in all streams (Arts, Commerce and Science).

c. Similar longitudinal studies can be conducted on school students to explore the development of resilience abilities in particular age and its effect on their academic achievement.

d. As academic resilience among senior secondary school students is being studied in the study, the possible resilience fostering strategies used by the schools or schools as protective factors can also be a research area for future investigators at different levels of the education sector.

e. Like in the present study, academic resilience, metacognition, self efficacy and learning environment has been explored, in a same way these variables can be studied for college going students qualitatively or quantitatively.

f. Similar experimental study can be conducted to compare the resilience and metacognitive abilities of the students studying in government and private sectors. This could also facilitate future research in this area.

## BIBLIOGRAPHY


Abbaspour, T. (2011). The relationship of metacognitive strategies & creativity with resiliency in students. *Journal of new findings in Psychology*, 6 (4), 109-122.

Abdullah, A. H., Rahman, S. N. S., and Hamzah, M. H. (2017). Metacognitive Skills of Malaysian Students in Non-Routine Mathematical Problem Solving. *Bolema, Rio Claro (SP)*, 31(57), 310 - 322,

Abolmaali, K. H., Hashemian, K., & Anari, F. (2011).Contribution of perception of classroom environmental components in predicting students' academic engagement. *Journal of Modern Thoughts In Education*, 5 (3), 33-19.

Adell, M. A. 2002. Strategies for improving performance in adolescents. Madrid: Piramide.

Adeoye, H. and Emeke, E. A. (2010). Emotional intelligence and self-efficacy as determinants of academic achievement in English language among students in Oyo State senior secondary schools. *IFE PsychologIA : An International Journal*, 18(1), 206-220.

Agbaje, R. O. and Awodun, A. O. (2014). Impact of School Location on Academic Achievement of Science Students in Senior Secondary School Certificate Examination. *International Journal of Scientific and Research Publications*, 4, 9.

Ajayi, M. A. (2001). Effect of learning environment on students' academic achievement in Lagos State secondary schools. Unpublished MED Thesis University of Nigeria.

Akram, B.& Ghazanfar, L. (2014). Self-Efficacy and Academic Performance of the students of Gujarat University, Pakistan. *Academic Research International*, 5(1).

Alldred, C. (2013). A Study of Eighth Grade Students' Self-Efficacy as it Relates to Achievement, Gender, & Socioeconomic Status. *Doctoral Dissertations & Projects.* 680. http://digitalcommons.liberty.edu/ doctoral/ 680

Alessandria, K., & Nelson, E. (2005). Identity development & self-esteem of first-generation American college students: An exploratory study. *Journal of College Student Development*,46 (1), 3-12.

Alva, S. A. (1991). Academic invulnerability among Mexican-American students: The importance of protective resources & appraisals. *Hispanic Journal of Behavioral Sciences*, 13, 18-34.

Amutha, S. and Sudha, A. (2016). Metacognitive Awareness of Tertiary level Chemistry students. *Caribbean Journal of Science and Technology*, 4, 914-919.

Anderman, E. M.,& Midgley, C. (1997). Changes in achievement goal orientations, perceived academic competence, & grades across the transition to middle level schools. *Contemporary Educational Psychology*, 22, 269-298.

Anita, K., Jairo, K.M., Odhiambo, O. & Mary, E.A. (2013). Influence of Teacher Characteristics on Students' Academic Achievement Among Secondary Schools, *Journal of Education and Practice,*4(3).

A'rabian, A.(2004). The effect of self-efficacy beliefson students' mental health & academic achievements. Tehran (M.A Dissertation): Shahid Beheshti University- Faculty of educational sciences& Psychology.

Arhar, J. M., Holly, M. L., & Kasten, W. C. (2001). *Action research for teachers: Traveling the yellow brick road.* Upper Saddle River, NJ: Merrill/Prentice Hall

Artiles, A. J., Harry, B., Reschly, D. J., & Chinn, P. C. (2002). Over-identification of students of color in special education: A Critical overview. *Multicultural Perspectives*, 4, 3-10.

Asikhia, O.A. (2010). Students' and teachers' perception of the causes of poor academic performance in Ogun State Secondary Schools (Nigeria): Implications for Counseling for National Development. *European Journal of Social Sciences*, 13(2), 229.

Ayoo, S. J. (2002). *Factors affecting students' performance in KCSE in public secondary schools in Maseno Division*. Unpublished, MED Thesis, University of Nairobi.

Baker, L. (1989). Spontaneous versus instructed use of multiple st&ards for evaluating comprehension: Effects of age, reading proficiency & type of standard. *Journal of Experimental Child Psychology*, 38, 289-311.

Baker, J. A., Dilly, L. J., Aupperlee, J. L., & Patil, S.A. (2003). The developmental context of school satisfaction: School as psychologically healthy environment. *School Psychology Quarterly*, 18(2), 206-221.

Bakker, J.,& Denessen, E. (2007). The concept of parent involvement. Some theoretical & empirical considerations, *International Journal about Parents in Education*, 188-199.

Baltaci, H. S. and Karatas, Z. (2014). Validity and Reliability of the Resilience Scale for Early Adolescents. *Procedia - Social and Behavioral Sciences*, 131, 458 – 464.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.

Bandura, A. (1982). Self efficacy mechanism in human agency. *American Psychologist*, 37, 122-147.

Bandura, A. (1986). Social Foundations of Thought & Action: A Social Cognitive Theory. NJ: Prentice-Hall Inc, Englewood Cliffs.

Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), Annals of child development, 6, Six theories of child development. Greenwich, CT: JAI Press.

Bandura, A. (1993). Perceived self-efficacy in cognitive development & functioning. *Educational Psychologist*, 28, 117–149.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior*,4. New York: Academic Press, 71-81.

Bandura, A. (1995). Comments on the crusade against the causal efficacy of human thought, *Journal of Behavior Therapy and Experimental Psychiatry*, 26, 179-190.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W.H. Freeman& Company.

Bandura, A. and Adams,N.(1977). Analysis of Self–Efficacy theory of Behavioural Change. *Cognitive theory and research*, 1(4), 287-310.

Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations can career trajectories. *Child Development*, 72 (1), 187-206.

Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C.(1999). Self-efficacy pathways to childhood depression. *Journal of Personality & Social Psychology*, 76 (2), 258-269.

Bartley M., Schoon M. R., Blane M. (2010). "Resilience as an asset for healthy development," in Health Assets in a Global Context, eds Morgan A., Davies M., Ziglio E., editors. (New York, NY: Springer), 101–115. 10.1007/978-1-4419- 5921-8_6 [Cross Ref] [Ref list]

Barton, P.E., & Coley, R.J. (2007). The family: America's smallest school. Retrieved from http://www.ets.org/Media/Education_Topics/pdf/5678_ PERCReport_School.

Bettenhausen, S. (1998). Make proactive modifications to your classroom. *Intervention in School & Clinic, 33*(3), 182-183.

Beauvais, F., & Qetting, E. R. (1999). Drug use, resilience, & the myth of the golden child. In Glantz, M. D. & Johnson, J. L. (Eds), *Resilience &*

*development: Positive life adaptations* (101-107). New York: Kluwer Academic/Plenum Publishers.

Bellin, M.,& Kovacs, P. (2006). Fostering resilience in siblings of youths with a chronic health condition: A review of the literature. *Health & social work,* 31 (3).

Benard, B. (1991). *Fostering resiliency in kids: Protective factors in the family, school, & community.* Portl &, OR: Northwest Regional Educational Laboratory.

Bernard, B. (1993). Fostering resiliency in kids. *Educational Leadership*, 51 (3), 44–48.

Bernard, B. (1995*). Fostering Resilience in Children*. Retrieved September 3, 2013 from http://crahd.phi.org/papers/Fostering.pdf

Benard, B. (1997). Drawing forth resilience in allour youth. *Reclaiming Children & Youth*, 6,29-32.

Benard, B. (1998). How to Be a Turnaround Teacher/Mentor. Reaching Today's Youth, Spring 1998. Retrieved 12.5.2016 from http://www.resiliency. com/htm/ turnaround.htm

Benard, B. (2004). *Resiliency: What we have learned*. San Francisco, CA: WestEd.

Bennett, A., Bridglall, B., Cauce, A., Everson, H., Gordon, E., Lee, C., ... Steward, J. (2004). All students reachingthe top: Strategies for closing the academic achievement gaps. Retrieved from http://www.ncrel.org/gap/ studies/allstudents.pdf.

Benzies, K., & Mychasink, R. (2009). Fostering family resiliency: a review of the key protective factors. *Child & Family Social Work*, 14 (1), 103-114..

Best, J. W.,& Kahn, J. V. (2012). Research in Education. P H I Learning Private Limited, New Delhi.

Bereiter, C.,& Scardamalia, M. (1987). *The Psychology of Written Composition*.

Hillsdale, NJ: Erlbaum.

Bialeschki, D. and Henderson, K. (1986). Leisure in the common world of women. *Leisure Studies*,5 (3), 299-308.

Birdsall, J. (2013).*Middle grade saved my life. The Hornbook*. Retrieved from www.hbook.com/2013/05/featured/middle-grade-saved-my-life.

Boddy, N., Watson, K.,& Aubusson, P.(2003). A trial of the five Es: a referent model for constructivist teaching & learning. *Research in Science Education*, 33, 27–42.

Bong, M. (1998). Personal Factors Affecting the Generality of Academic Self-Efficacy Judgments: Gender, Ethnicity, & Relative Expertise. *Journal of Experimental Education*, 67(4), 315-331.

Bong, M. (2001). Role of self-efficacy & task-value in predicting college students' course performance & future enrollment intentions. *Contemporary Educational Psychology*, 26(4), 553–570.

Borkowski, J. G., Johnston, M. B., & Reid, M.(1987). Metacognition, motivation, and thetransfer of control processes. In S. J. Ceci (Ed.),Handbook of cognitive, social and neuropsychological aspects of learning disabilities, 2, 147-173. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc

Borman, G., & Overman, L. (2004). Academic resilience in mathematics among poor & minority students. *The Elementary School Journal*, 104, 177-195. http://dx.doi.org/10.1086/499748

Boylan, C. & McSwan, D. (1998). Long-Staying Rural Teachers: Who are to Blame? *Australian Journal of Education*, 42, 1.

Bradley, R. H. and Corwyn, R. F. (2001), Home Environment and Behavioral Development During Early Adolescence: The Mediating and Moderating Roles of Self-Efficacy Beliefs. Merrill-Palmer Quarterly, 47, (2), 165-187.

Bransford, J. D., Brown, A. L.& Cocking, R. R. (1999). How people learn: Brain, mind, experience & school. Washington D C: National Academic Press.

Braxton, J. M., Bray, N. J., & Berger, J. B., (2000). Faculty teaching skills & their influences on the college student departure process. *Journal of College Student Development, 41,* 215-227.

Bremner, J., Patterson, K. P., & Yavinsky, R. (2015). Building Resilience through Family Planning: A Transformative approach for Women, Families and Communities. *Population Reference Bureau*, 1-8. www.prb.org

Bresó, E., Schaufeli, W. B. & Salanova, M. (2011). Can a self-efficacy-based intervention decrease burnout, increase engagement, and enhance performance? A quasi-experimental study. *Higher Education,* 61, (4), 339-355.

Bronfenbrenner, U. (1979). The ecology of human development. Cambridge, MA: Harvard University Press.

Brooks, J. E. (2006). Strengthening resilience in children & youths: Maximizing opportunities through the schools. *Journal of Children & Schools*, 28, 69–76. Retrieved from http://www.naswpress.org Google Scholar

Brown, A. L., Bransford, J., Ferra, R., & Campione, J. (Eds.). (1983).*Learning, remembering & understanding. In: P Mussen (ed) H & book of child psychol*. Vol**3** 515-629. New York:Wiley.

Brown, A. L. (1987). Metacognition, executive control, self-regulation, & other more mysterious mechanisms. In F. E. Weinert & R H Kluwe (Eds.), Metacognition, motivation, & understanding. 65-116. Lawrence Erlbaum Associates. Hillsdale, New Jersey.

Brown, A.L., & Palincsar, A.S. (1989). Guided, cooperative learning & individual knowledge acquisition. In L.B.Resnick, ed., *Knowing & Learning: Essays in Honor of Robert Glaser,* 393–451, Hillsdale, NJ: Erlbaum.

Brown, S. D., Lent, R. W., & Larkin, K. C. (1989). Self-efficacy as a moderator of scholastic aptitude: Academic performance relationships. *Journal of Vocational Behavior* 35(1): 64–75.

Bryan, J. (2005). Fostering Educational Resilience and Achievement in Urban

Schools Through School-Family-Community Partnerships. *Professional School Counseling*, 8 (3), 219-227.

Bull, A., Brooking, K., & Campbell, R. (2008). Successful home-school partnerships. Report to the Ministry of Education by the New Zeal& Council for Educational Research. Wellington, New Zealand: Ministry of Education.

Byoung-suk, K. (2012). Landscape Performance Research; School Environment & Students' Performance, Paper from Landscape Architecture Foundation.

Caliskan, M. and Sunbul, A. M. (2011). The Effects of Learning Strategies Instruction on

Metacognitive Knowledge, Using Metacognitive Skillsand Academic Achievement. *Educational Sciences: Theory & Practice*, 11(1), 148-153.

Carey, J., & Gregory, V. (2002). Student's perceptions of academic motivation, interactive participation,& selected pedagogical & structural factors in web- based distance learning. *Journal of Education for Library & Information Science*, 43 (1), 6-15.

Carlton, J. F. (2011). *The Relationship between Academic Resilience & Sources of Self Efficacy: Investigation, Intervention & Evaluation. MA Dissertation*, The University of Texas at Austin. https://repositories.lib.utexas.edu/ bitstream/h&le/2152/ETD-UT-2011-05-3352/FONG-MASTERS-REPORT. pdf?sequence=1&isAllowed=y

Ceci, S.J., & Papierno, P.B. (2005). The rhetoric & reality of gap closing: When the "havenots" gain but the "haves" gain even more. *American Psychologist*, 2, 149- 160.

Chapin III, F. S., Kofinas, G., & Folke, C. 2009. Principles of ecosystem stewardship: resilience for based resource management in a changing world. Springer, New York, USA.

Chiu M. (2005). A national survey of students conceptions in chemistry in Taiwan. *Chemical Education*, 6 (1).

Chuma, P. C. (2012). *Challenges Affecting Teaching-Learning in Primary Schools in Kenya.* A case study of Central Division Mandera East District Executive Med Project, Moi University.

Concannon, J. P. and Barrow, L. H. (2009). A Cross-Sectional Study of Engineering Students' Self-Efficacy by Gender, Ethnicity, Year, and Transfer Status. Journal of Science Education and Technology, 18, (2), 163-172.

Cracolice, M.S., Deming, J.C. & Ehlert, B. (2008). Concept learning versus problem solving: a cognitive difference. *Journal of Chemical Education*. 85 (6), 873-878.

Cross, D. R.,& Paris, S. G. (1988). Developmental & instructional analyses of children's metacognition & reading comprehension. *Journal of Educational Psychology*,80, 131–142.

Cummins, S. C., Diez-Roux, A.V. and Macintyre, S. (2007). 'Understanding and representing place in health research: A relational approach, *Social Science & Medicine*, 65, 1825–1838.

Cunnigham, M., & Phillips, D. S. (2010). Educational Resilience in African American Adolescents. *Journal of Negro Education*, 74(4), 473-487.

Danielsen, A.G., Wiium, N., Wilhelmsen, B., & Wold, B. (2010). Perceived support provided by teachers & classmates & students' self-reported academic initiative. *Journal of School Psychology*, *48*, 247–267.

Dass-Brilsford, P. (2005). Exploring resiliency: Academic Achievement among Disadvantaged black youths in South Africa. *South Africa Journal of Psychology*, 35(3), 574-591.

Davey, M., Eaker, D., & Walters, L. (2003). Resilience processes in adolescents: Personality profiles, self-worth, and coping. *Journal of Adolescent Research*, 18(4), 347-362.

Dehghani, M., Sani, H.J., Pakmehr, H., & Malekzadeh, A. (2011). Relationship between Students' Critical Thinking & Self Efficacy Beliefs in Ferdowsi

University of Mashhad, Iran. *Procedia Social & Behavioural Science*, 15, 2952-2955. Retrieved from www.sciencedirect.com

Deireh, E., & Banijamali, S. (2009). Investigating the contribution of motivational factors in using cognitive and metacognitive strategies in the process of learning. *Psychological Studies*, 5(3).

Delcols, V. R.,& Harrington, C. (1991). Effects of strategy monitoring & proactive instruction on children's problem-solving performance. *Journal of Educational Psychology,*83, 35–42.

Dev, M. (2016). Factors Affecting the Academic Achievement: A Study of Elementary School Students of NCR Delhi, India. *Journal of Education and Practice*, 7(4), 70-74.

Di Iorio, C. (1997). Epilepsy self-management. In D.S. Gochman (Eds), *Handbook of health behavior research (Vol. 2, pp. 213-230).* New York: Plenum Press.

Dinthera, V., Mart, D., and Filip, S. M. (2011). Factors Affecting Student's Self-Efficacy in Higher Education. *Educational Research Review* 6, 95-108.

Dittrich, R., Francis, B., Hatzinger R. & Katzenbeisser, W. (2007). A paired comparison approach for the analysis of sets of Likert-scale responses. *Statistical Modelling*, 7 (1), 3 -28. doi: 10.1177/1471082X0600700102

Doll, E., & Lyon, M. A. (1998). Risk & resilience: Implications for the delivery of educational & mental health services in schools. *School Psychology Review, 27*, 348-363.

Dorman, J. P. (2001). Associations between classroom environment and academic efficacy. *Learning Environments Research*, 4(3), 243–257. doi:10.1023/ A:1014490922622

Douglas, I. (2004). 'Urban green space and mental health'. UK MAB Urban Forum.

Downey, J. A. (2008). Recommendations for Fostering Educational Resilience in the Classroom. *Preventing School Failure,*5d(l), 56-64.

Downing, K. J. (2009). Self-Efficacy & Metacognitive Development. *The International Journal of Learning*, 16(4), 185–199.

Duckworth, K., Akerman, R., Morrison Gutman, L., & Vorhaus, J. (2009).*Influences & leverages on low levels of attainment: a review of literature & policy initiatives*. Institute of Education, University of London. Available: http://www.learningbenefits.net/ Publications/ Res Rep Intros/ ResRep31intro.htm,

Dzever, L. T. (2015). The Impact of Home Environment Factors on Academic Performance of Senior Secondary School Students in Garki Area District, Abuja –Nigeria. *Bulgarian Journal of Science and Education Policy (BJSEP),* 9(1), 66- 92. http://bjsep.org/getfile.php?id=186

Easterbrooks, M. A., Chaudhuri, J. H., Bartlett, J. D.,& Copeman, A. (2011). Resilience in parenting among young mothers: Family & ecological risks & opportunities. *Children & Youth Services Review*, 33, 42-50.

Eccles, J. (2011). Gendered education & occupational choices: Applying Eccles et al. model of achievement-related choices. *International Journal of Behavioural Development*, *35*, 195–201.

Eccles,J. S., & Roeser, R. W. (2011). Schools as developmental contexts during adolescence. *Journal of Research on Adolescence*, *21*, 225–241.

Epstein, J.,& Sheldon, S. (2006). Moving forward: Ideas for research on school, family, & community partnerships. In C. Conrad & R. Serlin (Eds.), *Handbook for research in education: Engaging ideas & enriching inquiry.*

Eshiwani, G. S. (1993) *Factors influencing performance among primary & secondary school pupils in Western province*, Nairobi Kenya.Unpublished research report. A Bureau of Educational Research, Kenyatta University.

Evans, G. W. (2004). The environment of childhood poverty. *American Psychologist*. 59, 77-92.

Everson, H. T. and Tobias, S. (1998). The ability to estimate knowledge and performance in college: A metacognitive analysis. *Instructional Science*, 26, 65- 79.

Ezike, B.U. (1997). *The Effect of Resource Distribution & Utilization on the Performance of Students in Chemistry*. M.Ed Dissertation, University of Ibadan.

Faramarzi, M. and Khafri, S. (2017). Role of Alexithymia, Anxiety, and Depression in Predicting Self-Efficacy in Academic Students. *The Scientific World Journal*,17, 7. https://doi.org/10.1155/2017/5798372

Fayyaz, W. and Kamal, A. (2014). Role of Gender, Age and Geographical locality in Metacognitive Listening skills of English as a Foreign Language. *Pakistan Journal of Psychological Research*, 29(2), 265-276.

Fazey, I. (2010). Resilience & higher order thinking. *Ecology & Society*,15, 9.

Fazey, I., Fazey, J. A.,& Fazey, D. M. A. (2005). Learning more effectively from experience. *Ecology & Society*, 10, 4.

Fazey, I., Fazey, J. A., Fischer, J., Sherren, K., Warren, J., Noss, R. F.,& Dovers, S. R. (2007). Adaptive capacity & learning to learn as leverage for social-ecological resilience. *Frontiers in Ecology & the Environment*, 5, 375–380.

Fenning, P., & Rose, J. (2007). Overrepresentation of African American students in exclusionary discipline: The role of school policy. *Urban Education*, 42, 536- 559.

Ferreira, S., Akay, A., Brereton, F., et al. (2013). Life satisfaction and air quality in Europe, *Ecological Economics*. 88, 1-10.

Fetler, M. (2001). Student mathematics achievement test scores, dropout rates, & teacher characteristics. *Teacher Education Quarterly*, 151–168.

Finn, K. V.& Frone, M. R. (2004). Academic performance & cheating: Moderating role of school identification & self-efficacy. *Journal of Educational Research*, 97, 115–122.

Finn, J.D., & Rock, D.A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology, 82,* 221-234.

Flavell, J.H. (1979). Metacognition & cognitive monitoring: A new area of cognitive developmental inquiry. *American Psychologist, 34*(10), 906-911.

Flavell, J.H. (1987). Speculations about the nature & development of metacognition. In: Weinert, F.E., & Kluwe, R.H. (1987). *Metacognition, motivation & understanding.* Hillsdale, NJ: Lawrence Erlbaum.

Fonagy, P., Steele, M., Steele, H., Higgitt, A., & Target, M. (1994). The Emanuel Miller memorial lecture 1992: The theory & practice of resilience. *The journal of child psychology & psychiatry*, 35 (2).

Fraser, M. W. (2004). The ecology of childhood: A multisystems perspective. In M. W. Fraser (Ed.), *Risk & resilience in childhood: An ecological perspective* (2nd ed., 1-12). Washington, DC: NASW Press.

Fraser, M.W., Kirby, L.D., & Smokowski, P.R. (2004). Risk & resilience in childhood. In M. W. Fraser. *Risk & resilience in childhood: An ecological perspective,* (13- 66). Washington, DC: NASW Press.

Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention & thought-action repertoires. *Cognition & Emotion*, 19 (3), 313–332.

Foshee, C. M. (2013). Conditions that promote the academic performance of college students in a remedial mathematics course: academic competence, academic resilience, and the learning environment. Ph.D. doctoral thesis, Arizona State Universtiy.

Foster, T. A. (2013). An exploration of academic resilience among rural students living in poverty. *Dissertation Abstracts International*, 74-09A(E).

Frydenberg, E., & Lewis, R. (1993). Boys play sport & girls turn to others: age, gender & ethnicity as determinants of coping. *Journal of Adolescence*, 16(3), 253-266.

Gana, E, S. (1997). *Effects of Using Visual Designed Training Models on the Learning of Mathematics at J.S.S*. Unpublished Ph,D. Thesis, University of Ibadan.

Gardner, D. M. (2011). Parents' Influence on Child Social Self-Efficacy and Social Cognition. *Master's Theses (2009-),*116.

http://epublications.marquette.edu/theses_open/116

Gist, M.E. (1987). Self-efficacy: Implications for organizational behavior & human resource management. *Academy of Management Review*, 12(3), 472-485.

Gizir, C. A., & Aydın, G. (2009). The adaptation of the resilience & youth development module: validity &reliability studies. *Turkish Psychological Counseling & Guidance Journal*, 3(26), 87-99.

Glaser, R., Schauble, L., Raghavan, K., & Zeitz, C. (1992). Scientific reasoning across different domains. Pages 345–371 *in*E. de Corte, M. C. Linn, H. M&l, & L. Verschaffel, editors. *Computer-based learning environments & problem solving*. Springer Verlag, Heidelberg, Germany.

Gonzalez, R., & Padilla, A. M. (1997). The academic resilience of Mexican American High School Students. *Hispanic Journal of Behavioral Sciences*, 19(3), 301-317.

Good, T. E.,& Brophy, J. (1986b). School effects. In M. Wittrock (Ed.), Handbook of research on teaching (570-602). New York: Macmillan.

Grant, B. F., Stinson, F. S., Hasin, D. S., Dawson, D. A.,Chou, S. P., &Anderson, K. (2004). Immigration &lifetime prevalence of DSM-IV psychiatric disorders among Mexican Americans & non-Hispanic Whites in the United States: Results from the national Epidemiologic Survey on Alcohol & Related Conditions. *Archives of General Psychiatry,* 61, 1226–1233.

Greene, R., & Conrad, A. P. (2002). Basic assumptions & terms. In R. Greene (Ed.), *Resiliency: An integrated approach to practice, policy, & research* (29-62). Washington, DC:NASW Press.

Greene, B. A., Miller, R. B., Crowson, M., Duke, B. L., and Akey, K. L. (2004). Predicting high school students' cognitive engagement and achievement: contributions of classroom perceptions and motivation. *Contemporary Educational Psychology*, 29, 462-482.

Grotberg, E. (2003). *Gaining strength from adversity*. Westport: Praeger.

Gutman, L. M. (2006). How student & parent goal orientations & classroom goal student influence the math achievement of African American during the high school transition, *Contemporary Educational Psychology*, 44, 31-63.

Gutman, L., & Midgley, C. (2000). The role of protective factors in supporting the academic achievement of poor African American students during the middle school transition. *Journal of Youth & Adolescence,* 20(2), 223-248.

Hackett, G., Betz, N. E., Casas, J. M., & Rocha-Singh, I. A. (1992). Gender, ethnicity, & social cognitive factors predicting the academic achievement of students in engineering. *Journal of Counseling Psychology*, 39, 527–538.

Hall, M. A. (1980). Rarely Have We Asked Why: Reflections on Canadian Women's Experience in Sport. *Atlantis: A Women's Studies Journal*, 1 (1), 51-60.

Hamill, S. K. (2003) Resilience & self-efficacy: The importance of efficacy beliefs & coping mechanisms in resilient adolescents. *Colgate University Journal of the Sciences*, 35, 115-146. http://groups.colgate.edu/cjs/student_papers/2003/Hamill.pdf

Hampel, P., & Petermann, F. (2005). Age & Gender Effects on Coping in Children & Adolescents. *Journal of Youth & Adolescence*, 34(2), 73–83.

Hanson, T. L., & Austin, G. A. (2003).*Student health risks, resilience, & academic performance in California: Year 2 report, longitudinal analyses*. San Francisco: West Ed. Retrieved from http://www. wested.org/hks

Henderson, N. (2012). Resilience in schools and curriculum design. In M. Ungar (Ed.), *The social ecology of resilience: A handbook of theory and practice* (297- 306). New York, NY: Springer.

Henderson, A. T., & Berla, N. (Eds.), (1994). *A new generation of evidence: The family is critical to student achievement* (A report from the National Committee for Citizens in Education).Washington, DC: Center for Law & Education.

Henderson, A.,& Mapp, K. (2002). A new wave of evidence. The impact of school, family, & community connections on student achievement. *Southwest Educational Development Laboratory (SEDL).* Available: http://www.sedl.org/connections/resources/evidence.pdf

Henderson, N.,& Milstein, M.M. (1996). Resiliency in schools: Making it happen for students& educators. Thousand Oaks, CA: Corwin Press.

Henderson, N., & Milstein, M. (2003). *Resiliency in schools: Making it happen for students and educators*. Thousand Oaks, CA: Corwin Press.

Higgins, G.O. (1994). *Resilient adults: Overcoming a cruel past.* San Francisco, CA: Jossey-Bass.

Hijon, A. C. (2017). Academic resilience: a transcultural perspective. *Procedia - Social and Behavioral Sciences*, 237, 594 – 598.

Hill, N. E. (2010). Parent-school involvement & school performance: Mediated pathways among socioeconomically comparable African American & Euro- American families. *Journal of Educational Psychology*. 96, 74–83.

Hill, N. E., Tyson, D. F., & Bromell, L. (2009). *Parental involvement in middle school: Developmentally appropriate strategies across SES & ethnicity*. In N. E. Hill & R. K. Chao (Eds.), Families, schools, & the adolescent:

Connecting research, policy, & practice, 53–72, New York: Teachers College Press.

Hodder, R. K., Daly, J., Freund, M., Bowman, J. Hazell, T., et al. (2011). A school-based resilience intervention to decrease tobacco, alcohol and marijuana use in high school students. *BMC Public Health*, 11, 722.

Hoover-Dempsey, K.V., Walker, J.M.T., Sandler, H.M., Whetsel, D., Green, C.L., Wilkins, A.S., & Closson, K.E. (2005). Why do parents become involved? Research findings and implications. *Elementary School Journal,* 106(2), 105-130.

Howard, S.,& Johnson, B. (2000). What makes the difference? Children & teachers talk about resilient outcomes for children at risk. *Educational studies*, 26, 321-337.

Hsieh, P.H., Sullivan, J.R., & Guerra, N.S. (2007). A closer look at college students: Self efficacy & goal orientation. *Journal of Advanced Academics*, 18(3), 454-476. Retrieved February 10, 2016, from EBSCOhost.

Huang, C. (2013). Gender differences in academic self-efficacy: a meta-analysis. *European Journal of Psychology of Education*, 28(1), 1-35.

Hudson, W. E. (2007). *Relationship between Academic Self Efficacy & Resilience to Grades of students Admitted under Special Criteria*, Ph.D Thesis, Department of Childhood Education, Reading, & Disability Services, Florida State University. http://diginole.lib.fsu.edu/isl&ora/object/fsu: 181940/datastream/PDF/view

Jacob, J. E., & Paris, S. G. (1997). Children's metacognition about reading: Issues in definition, measurement, & instruction. *Educational psychologist*, 22, 255-278.

Jagadeeswari, A. S. & Chandrasekaran, V. (2014). Promoting Metacognitive Awareness Among Higher Secondary Students. *Scholarly Research Journal of Interdisciplinary Studies*, 2(14), 1888-1897.

Jagannadhan, K. (1986). Home environment & academic achievement. *Journal of Educational Research & Extension*, 23, 19-21.

Jaleel, S.,& Premachandran, P. (2016). A Study on Metacognitive Awareness of Secondary School Students. *Universal Journal of Educational Research* 4(1), 165-172.

Jew, C., Green, K., & Kroger, J. (1999). Development and validation of a measure of resiliency. *Measurement and Evaluation in Counseling and Development,* 32(2), 75-90.

Jeynes, W. H. (2007). The relationship between parental involvement & urban secondary school student achievement. *Urban Education*, 42, 82-110.

Joseph, J. (1994). *The Resilient Child*. New York, NY: Insight Books.

Kadivar, P (2008). *Educational psychology*. Tehran:Samt.

Kapikiran, S. (2012). Validity and Reliability of the Academic Resilience Scale in Turkish High School. *Education*, 132 (474-483).

Kannapel, P. J., & Clements, S. K. (2005). Inside the Black Box of High-Performing High- Poverty Schools. Lexington, KY: Prichard Committee for Academic Excellence.

Kelemen, W. L., Frost, P. J.,& Weaver, C. A. (2000). Individual differences in metacognition: evidence against a general metacognitive ability. *Memory & Cognition*, 28, 92–107.

Kemjika, O.G. (1989). Urban & Rural Differences in Creativity Talents among Primary School Pupils in Lagos state. *Lagos Education Review*, 5(1).

Kendall, S., Straw, S., Jones, M., Springate, I.,& Grayson, H. (2008). Narrowing the gap in outcomes for vulnerable groups: A review of the research evidence. *National Foundation for Education Research.* Retrieved 14 July, 2016 from http://www.nfer.ac.uk/nfer/publications/LNG01/ LNG01. pdf

Kilei, J. K. (2012) Factors Influencing Quality Training in Public Primary TTC in

Rift Valley Zone, Kenya. Executive Med project, Moi University.

Kirmayer, L., Dandeneau, S., Marshall, E., & Williamson, K. J. (2011). Rethinking Resilience from Indigenous Perspectives. *Canadian Journal of Psychiatry*. 56(2), 84-91.

Kishore, N. (2016). Influence of Gender, Locality and Type of School on Home Environment of Secondary School Students. *International Journal of Scientific Research*, 5(5), 366-368.

Klassen, R. M. (2010). Confidence to Manage Learning: The Self-Efficacy for Self- Regulated Learning of Early Adolescents with Learning Disabilities. *Learning Disability Quarterly*, 33, (1), 19-30.

Klassen, R.M., Krawchuk, L.L., & Rajani, S. (2008), Academic procrastination of undergraduates: low self-efficacy to self-regulate predicts higher levels of procrastination, *Contemporary Educational Psychology*, 33 (4), 915-931.

Kluwe, R.H. (1982). Cognitive knowledge & executive control: Metacognition. In D.R. Griffin (Ed.), Animal mind- human mind(201-224). New York: Springer-Verlag.

Kober, N. (2001) It takes more than testing: Closing the achievement gap. A Report of the Center on Education Policy. Washington D.C. (ERIC Reproduction Service Number ED454358)

Kolo, A. G., Jaafar, W. M. B. W., and Ahmad, M. B. (2017). Relationship between Academic Self-efficacy Believed of College Students and Academic Performance. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)*, 22(1), 75-80.

Koutsoulis, M. (1995). Home Environment & its relationship to self-concept, attitudes towards school education, aspiration, career expectation & achievement of school students in Cyprus, *Dissertation Abstracts International*, 56,(6), 2194.

Ku, N. (2002). *A Cross cultural Study on Students' Belief in Self-Efficacy for Self-Regulated Learning & Academic Achievement*. (ERIC Document

Reproduction Service No. ED464118).

Kumar, R., & Lal, R. (2006). The Role of Self-Efficacy & Gender Difference among the Adolescents. *Journal of the Indian Academy of Applied Psychology*, 32(3), 249- 254.

Kummin, S., & Rehman, S. (2010). The Relationship between the use of Meta cognitive strategies & Achievement in English. *Social & Behavioural Sciences*, 7, 145-150.

Kurtz, B. E., & Borkowski, J. G. (1987). Development of strategic skills in impulsive and reflective children: A longitudinal study of metacognition. *Journal of Experimental Child Psychology*, 43, 129-148.

Lavasani, M., Ezhehei, J., & Afshari, M. (2009). The relationship among academic self-efficacy, academic involvement, and academic achievement. *Journal of Psychology*, 13(3).

Lee, D. D. (2009). Impact of Resilience on Academic Achievement of At Risk students in the Upward Bound Program in Georgia. *Electronic Theses & Dissertations*, 202. http://digitalcommons.georgiasouthern.edu/etd/202

Lent, R. W., Brown, S. D., & Larkin, K. C. (1984).Relation of self-efficacy expectations to academic achievement & persistence. *Journal of Counseling Psychology* 31(3), 356–362.

Lent, R. W., Brown, S. D., & Larkin, K. C. (1986). Self-efficacy in the prediction of academic performance & perceived career options. *Journal of Counseling Psychology* 33(3): 265–269.

Lent, R. W., Brown, S. D., & Larkin, K. C. (1987). Comparison of three theoretically derived variables in predicting career & academic behavior: Self-efficacy, interest congruence, & consequence thinking. *Journal of Counseling Psychology*, 34, 293–298.

Liddle H. A. (1994). *Contextualizing resiliency, in Educational Resilience in Inner-city America: Challenges & Prospects*, eds Wang M. C., Gordon E. W., editors. (Hillsdale, NJ: Erlbaum), 167–177.

Linke, P. (2010). Promoting Resilience in Young Children. *Educating Young Children: Learning & Teaching in the Early Childhood Years*, 16 (2), 35-38.

Livaditis, M., Zaphiriadis, K., Samakouri, M., Tellidou, C., Tzavaras, N.,& Xenitidis, K., (2003). Gender differences, family & psychological factors affecting school performance in Greek secondary school students. *Educational Psychology*, 23(2), 223-231.

Liq, P. (1993).” Relationship between Home Environment & Academic Achievement among Italian, Canadian Pre-school children in Toranto”. *Dissertation Abstract International*, 55(6), 2934A.

Lohfink, M., & Paulsen, M. (2005).Comparing the determinants of persistence for first-generation & continuing generation students. *Journal of College Stud ent Develop ment*,46 (4), 409 – 428.

Lugg, C.,& Boyd, W. (1993). Leadership for collaboration: Reducing risk & fostering resilience. *Phi Delta Kappan*, 75 (3), 253-260.

Lunenburg, F. (2011). Self-efficacy in the workplace: implications for motivation & performance. *International Journal of Management, Business, & Administration*, *14*(1).

Luster, T., & McAdoo, H. P. (1996). Family & child influences on educational attainment: A secondary analysis of the High/Scope Perry Preschool data. *Developmental Psychology*, 32, 26–39.

Luszczynska, A., Gutiérrez-Doña, B., & Schwarzer, R. (2005). General self-efficacy in various domains of human functioning: Evidence from five countries. *International Journal of Psychology*, 40(2), 80-89.

Luther, K. (2015). Examining Social Support Among Adult Children of Incarcerated Parents. *Journal of Family Relations*, 64 (4), 505–518.

MacAulay, D.J. (1990). Classroom environment: A literature review. *Educational Psychology*, *10*(3), 239-253.

Macintyre, S., Ellaway, A., & Cummins, S. (2002). Place effects on health: How can we conceptualise, operationalise and measure them? Social Science & Medicine, 55, 125-139. doi:10.1016/S0277-9536(01)00214-3

Malhotra, T., & Malhota, M. (2016). Demographic Correlates of Self Confidence: A Study of Adolescents. *International Journal of Science & Research*, 5(10), 65-69.

Marsden, P. V. (2005) Handbook of Survey Research (2nd ed) Bingley UK: Emerald Group Publishing.

Martin, A. (2002). Motivation & academic resilience: Developing a model for student enhancement. *Australian journal of education*, 46 (1).

Masten, A. S. (1994). Resilience in individual development: Successful adaptation despite risk & adversity. In M. Wang & E. Gordon's (Eds.). *Educational resilience ininner-city America.* (3-26). Mahwah, NJ: Lawrence Earlbaum.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56 (3),227–238.

Masten, A. S., Best, K. M., & Garmezy, N. (1990).Resilience & development: Contributions from the study of children who overcome adversity. *Development &Psychopathology*, 2, 425–444.

Masten, A. S., & Coastworth, J. D. (1998). The development of competence in favorable & unfavorable environments: Lessons from research on successful children. *American Psychologist*, *53*, 205-220.

Masten, A. S., & Reed, M. J. (2002). Resilience in development. In C. R. Snyder & S. J. Lopez (Eds.), The handbook of positive psychology(74-88). Oxford University Press.

McCabe, K., Clark, R., & Barnett, D. (1999). Family protective processes among urban, African American Youth. *Journal of Clinical Child Psychology*, 28 137-150.

McWayne, C., Hampton, V., Fantuzzo, J., Cohen, H.L.,& Sekino, Y. (2004) A multivariate examination of parent involvement & the social & academic competencies of urban kindergarten children, *Psychology in the Schools,* 41, 363–377.

Melhuish E., Phan, M.B., Sylva, K., Sammons, P., Siraj-Blatchford, I.,& Taggart, B., (2008). Effects of the home learning environment & preschool center experience upon literacy & numeracy development in early primary school. *Journal of Social Issues,* 64(1), 95-114.

Meichenbaum, D., Burland, S., Gruson, L.,& Cameron, R. (1985). Metacognitive assessment. In :Yussen (ed) *The Growth of Reflection in Children.* 1-30. FL: Academic Press, Orlando.

Meera, K.P. and Jumana, M.K. (2016). Self-efficacy and academics performance in English. *Imperial Journal of Interdisciplinary Research*, 2(2), 79-83.

Metcalfe, J.,& Shimamura, A. P. (1994) *Metacognition : Knowledge about knowing*. MA: MIT Press, Cambridge.

Motala, E. & Pampalis, J. (2001). *Education & Equity. The impact of State Policies on South African Education*. Sandown: Heinemann Publishers (Pty) Ltd.

Motlagh, S. E., Amrai, K., Yazdani, M. J., Abderahim, H. A., & Souri, H. (2011). The relationship between self-efficacy and academic achievement in high school students. *Procedia-Social and Behavioural Sciences*, 15, 765-768.

Morrison, G.M., & Allen, M.R. (2007).Promoting student resilience in school contexts. *Theory Into Practice*, 46,162–167.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, 38, 30–38.

Murry, V. M., & Brody, G. H. (1999). Self-Regulation & self-worth of black children reared in economically stressed, rural, single mother-headed families. *Journal of Family Issues, 20*, 458-484.

Murray, C. (2003). Risk factors, protective factors, vulnerability & resilience: A framework for understanding & supporting the adult transitions of youth with high incidence disabilities. *Remedial & Special Education, 24*, 16-26.

Mwangi, C. N., Okatcha, F. M., Kinai, T. K. and Ireri, A. M. (2015).Relationship between Academic Resilience and Academic Achievement among Secondary School Students in Kiambu County, Kenya. *Int J Sch Cog Psychol*, S2: 003. doi: 10.4172/24-37.S2-003.

Narad, Anshu (2007). A Study of Personal Values of Senior Secondary School Students in Relation to School Environment & Home Environment, Ph. D thesis, Punjab University.

Narang, D and Saini, S. (2013). Metacognition and Academic Performance of Rural Adolescents. *Stud Home Com Sci*, 7(3), 167-175.

Narayanan, A. (2009). Resilience, Metacognition & Complexity. *Journal of the Indian Academy of Applied Psychology*, 35, 112-118.

Nasim, S. and Tahere, E. (2017). Relationship between Student's Self-Directed-Learning Readiness and Academic Self-Efficacy and Achievement Motivation in Students. *International Education Studies*, 10(1), 225-232.

Nettles, S. M., Mucherach, W., & Jones, D. S. (2000). Understanding resilience: The role of social resources. *Journal of Education for Students Placed at Risk*, 5, 47-60.

Newman, T. (2004).*What Works in Building Resilience*. Ilford: Barnardo

Niesel, R., & Griebel, W. (2005). Transition Competence & Resiliency in educational institutions. *International Journal of Transitions in Childhood, 1,* 4-11.

Noam, G. G., & Hermann, C. A. (2002). Where education & mental health meet: Developmental prevention & early intervention in schools. *Development & Psychopathology, 14*, 861–875.

Obe, E.O. (1984). Urban –Rural & Sex Differences in Scholastic Aptitude of

primary School Finalists in Lagos State. *Education & Development*, 4 (1 & 2).

Ochieng, W. (2015). Self-Efficacy and Academic Achievement among Secondary Schools in Kenya: Mathematics Perspective. M.Ed. (Measurement and Evaluation) Dissertation, University of Nairobi.

Ogunkola, B. J. and Fayombo, G. A. (2009). Investigating the combined and relative effects of some student-related variables on science achievement among secondary school students in Barbados. *European Journal of scientific Research*, 37(3), 481-489.

Oguz, S. (2013). Exploring Personal well being and Place. *Office of National Statistics, 1-53.* Retrieved on 29 June 2017 from *http://www.ons.gov.uk/ons/dcp171766_365871.pdf*

Olonade, G. B. (2000). Influence of School Location, School Size, Sex Difference and Teachers' variables on Mathematics Achievement of Secondary student in Kwara State. Unpublished Masters Dissertation. University of Ilorin.

Ong, A. D., Bergeman, C. S., Bisconti, T. L., & Wallace, K. A. (2006). Psychological resilience, positive emotions, & successful adaptation to stress in later life. *Journal of Personality & Social Psychology*, 91 (4), 730–49.

Orlu, C. (2013). Environmental Influence on the Academic Performance of Secondary School Students in Port Harcourt Local Government Area of River State. *Journal of Economic and Sustainable Development*, 4(12).

Osoro, B. K., Amundson, N. E., & Borgen, W. A. (2000). Career decision-making of high school students in Kenya. *International Journal for the Advancement of Counselling*, 22(4), 289–300.

O'Sullivan, G. (2011). The Relationship Between Hope, Eustress, Self-Efficacy, and Life Satisfaction Among Undergraduates. *Social Indicators Research*, 101 (1), 155- 172.

Owoeye, J. S. & Yara, P. O. (2011). School Location & Academic Achievement of Secondary School in Ekiti State. *Nigeria Asian Social Science* 7(5), 170-175.

Ozer, E. M. & Bandura, A. (1990). Mechanisms governing Empowerment effects: A self efficacy analysis. *Journal of Personality & Social Psychology*, 58(3), 472-486.

Padron, Y., Waxman, H., & Huang, S. (1999). Classroom behavior & learning environment difference between resilient & non-resilient elementary school students. *Journal of education for students placed at-risk*, 4 (1), 65-79.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66, 543–578.

Pandhi, J. (1989). Home environment, parent child relationship & child's competence during adolescence in M.B. Buch's survey in Education. 2, 1018.

Patrick, H., Ryan, A. M., & Kaplan, A.(2007). Early adolescents' perceptions of the classroom social environment, motivational beliefs, & engagement. *Journal of Educational Psychology*, *99*, 83–98.

Peat, J., Mellis, C., Williams, K. and Xuan, W. (2002).*Health Science Research: A Handbook of Quantitative Methods,* London: Sage.

Peklaj, C., & Pecjak, S. (2002). Differences in students' self-regulatedl earning according to their achievement & sex. *Studia Psycholgic*, Abstract retrieved from http://www.psychologia.sav.sk/sp/2002/sp1-02.htm

Perham, N., & Vizard, J. (2011). Can Preference for Background Music Mediate the Irrelevant Sound Effect. *Applied Cognitive Psychology*, 25, 625-631.

Phillips, D. A., & Zimmerman, M. (1990). The developmental course of perceived competence &incompetence among competent children. In R. J. Sternberg & J. Kolligian, Jr. (Eds.), Competence considered. New Haven, CT: Yale University Press.

Polit, D.F., Beck, C.T. and Hungler, B.P. (2001).*Essentials of Nursing Research: Methods, Appraisal and Utilization.* 5th Ed., Philadelphia: Lippincott Williams & Wilkins.

Pomerantz, E. M., Moorman, E. A., & Litwack, S. D. (2007). The how, whom, & why of parents' involvement in children's academic lives: More is not always better. *Review of Educational Research,* 77(3), 373–410.

Pintrich, P.R., & Schunk, D.H. (2002), Motivation in education: theory, research & application, 2nd ed. Englewood Cliffs (NJ: Prentice-Hall, Inc).

Pressley, M., & Ghatala, E.S. (1990). Self-regulated learning: Monitoring learning from text. *Educational Psychologist,*25, 19–33.

Puklek Levpuscek, M., & Zupancic, M. (2009). Achievement in math in early adolescence: The role of parental involvement, teachers' behaviour, & students' motivational beliefs about math. *Journal of Early Adolescence*, *29*, 541–570.

Rani, R. and Govil, P. (2013). Metacognition and its correlates: A study. International *Journal of Advancement in Education and Social Sciences,* 1(1), 20-25.

Rao, N., Pearson, E., Cheng, K. and Taplin, M. (2013). Teaching in Primary Schools in China and India: Contexts of Learning. New York: Routledge.

Rahman,F. et al.(2011). Effects of some students related factors on their metacognitive awareness. *Language of India*,11(4).

Reis, S. M.,& Mc Coach, D. B.(2000).Gifted underachievers: What do we know& where do we go?*Gifted Child Quarterly*,44, 152-170.

Reyes, O. and Jason, L. A. (1993). Pilot study examining factors associated with academic success for Hispanic high school students. *Journal of Youth and Adolescents*, 22(1), 57-71.

Richardson, G.E., Neiger, B.L., Jensen, S., & Kumpfer, K.L. (1990). The resiliency model. *Health Education*, 21(6), 33-39.

Riley, J. R., Masten, A. S. (2005). *Resilience in context, in Resilience in Children, Families, & Communities: Linking Context to Practice & Policy*, eds Peters R. D., Leadbeater B., McMahon R., editors. (New York, NY: Kluwer Academic/Plenum), 13–25.

Rio, J. F., Cecchini, J. A., Gimenez, A. M., Alonso, D. M., and Prieto, J. A. (2017). Self- Regulation, Cooperative Learning, and Academic Self-Efficacy: Interactions to Prevent School Failure. *Front Psychol*, 8, 22.

Rivera, H., & Waxman, H. (2011). Resilient and non resilient hispanic English language learners' attitudes toward their classroom learning environment in mathematics. *Journal of Education for Students Placed at Risk*, 16, 185-200. doi: 10.1080/10824669.2011.5885100

Roberts, M. J., & Erdos, G. (1993). Strategy selection& metacognition. *Educational Psychology*, 13,259-266.

Robert H., Stephen L., Bettye M. (2010). Home Environment and school Performance among black elementary school children, *Journal of Negro Education*, 56(4), 499-509.

Rouse, K. (2001). Resilient students' goal & motivation. *Journal of Adolescence*,24, 461-472.

Roy, R. R. (2017). Efficacy of Motivational Interviewing On Improving Resilience among Students with Below Average Academic Performance: A Case Study. *The International Journal of Indian Psychology*, 4,(2), 126-139.

Rutter, M., Maughan, B., Mortimore, P, Ouston, J., & Smith, A. (1979). Fifteen thousand hours: Secondary schools & their effects on children. Cambridge, MA: Harvard University Press.

Rutter, M. (1987). Psychosocial resilience & protective mechanisms. In J. Rolf, A. Masten, D. Cichetti, K. Neuchterlein, & S. Weintraub (Eds.), Risk & protective factors in the development of psychopathology(181-214). New York: Cambridge University Press.

Rutter, M. (1990). Psychosocial resilience & protective mechanisms. In J. E. Rolf, A.S. Masten, D. Cicchetti, K. Nuechterlein, & S. Weintraub (Eds.), Risk & protective factors in the development of psychopathology(181-214). New York: Cambridge University Press.

Ryan, A. M., & Patrick, H. (2010). The classroom social environment & changes in adolescents' motivation &engagement during middle school. *American Educational Research Journal*, 38, 437-460.

Sabna, E. P. and Hameed, A. (2016). Metacognitive Awareness for Ensuring Learning Outcomes among Higher Secondary School Students. *IOSR Journal Of Humanities And Social Science*, 21(4), 101-106.

Sagone, E.,& Caroli, M. E. (2013). Relationship between Resilience, Self efficacy & Thinking Styles in Italian middle adolescents. *Procedia-Social & Behavioural Sciences*, 92, 838-845.

Sammons, P., Elliot, K., Sylva, K., Melhuish, E. C., Siraj-Blatchford, I., & Taggart, B. (2004). The impact of pre-school on young children's cognitive attainments at entry to reception. *British Educational Research Journal*, 30, 691–712.

Sammons, P., Sylva, K., Melhuish, E., Siraj-Blatchford, I., Taggart, B., Hunt, S. & Jelicic, H., (2008). Effective pre-school & primary education 3-11 project: Influences on children's cognitive & social development in year 6. Research Brief DCSF-RB048- 049, London: Department for Children, Schools & Families.

Santiago, A.M.,& Einarson, M.K. (1998). Background Characteristics as Predictors of Academic Self Confidence & Academic Self-Efficacy among Graduate Science & Engineering Students. *Research in Higher Education*, 39(2), 163-98.

Saarni, C. (1999). The development of emotional competence. New York: Guildford Press.

Sarwar, M., Inamullah, H., Khan, N.,& Anwar, N. (2010). Resilience &

Academic Achievement of male & female secondary level students in Pakistan. *Journal of College Teaching & Learning*, 7(8).

Saunders, J., Davis, L., Williams, T. et al. (2004). Gender Differences in Self-Perceptions and Academic Outcomes: A Study of African American High School Students *Journal of Youth and Adolescence*, 33(1), 81-90. doi:10.1023/A:1027390531768

Sawhney, N and Bansal, S. (2015). Metacognitive Awareness of Undergraduate Students in Relation to their Academic Achievement. *The International Journal of Indian Psychology*, 3(1), 8.

Schraw, G., Crippen, K. J., & Hartley, K. (2006). Promoting self-regulation in science education: Metacognition as part of a broader perspective on learning. *Research in Science Education, 36*, 111-139.

Schraw, G.,& Dennison, R. S. (1994). Assessing metacognitive awareness. *Contemporary Educational Psychology,*19, 460–475.

Schraw, G., & Moshman, D. (1995). Metacognitive theories. *Educational Psychology Review*,7(4), 351-371.

Schwarzer, R., & Warner, L. M. (2013). *Perceived self-efficacy & its relationship to resilience.* In S. Prince-Embury & D. H. Saklofske (Eds.), The Springer series on human exceptionality: Resilience in children, adolescents, & adults: Translating research into practice (pp. 139-150). doi: 10.1007/978-1-4614-4939-3_10

Shah, B. (1989). Home adjustment of adolescent students: Effects of Family climate. In M.B. Buch. 5th Survey of Education Research, Vol. II.

Sharei, M., Kazemi, F., & Jafari, M. (2012). Investigation the effect of emotional intelligence skills & metacognitive capabilities on student's mathematical problem solving, *Educational Research*, 3(11), 844-850.

Sharkey J. D., You S., & Schnoebelen, K. (2008) Relations among school assets, individual resilience, & student engagement for youth grouped by level of family functioning. *Psychology in the School*, 45(5), 402–418. doi:

10.1002/pits.20305

Sharma, H. L., & Rani, R. (2014). Self Efficacy – A Comparison among University Postgraduates in Demographic Profiles. *Research Journal of Educational Sciences*, 2(1), 1-7.

Shazadi, T., Khatoon, S., Aziz, S., & Hassan, H. (2011). Determining Factors Affecting Teachers' Self-Efficacy at Secondary School Level. *Language in India*, 11(10), 385-395.

Sheldon, S. B., & Epstein, J. L. (2005). Involvement counts: Family & community partnerships & mathematics achievement. *Journal of Educational Research.* 98, 196–206.

Shim, S. S., Ryan, A., & Anderson, C. J. (2008). Achievement goals & achievement during early adolescence: Examining time-varying predictor & outcomes variables in growth-curve analysis. *Journal of Educational psychology*, *100*, 655– 671.

Siegle D., & McCoach, D. B. (2007). Increasing student mathematics self-efficacy through teacher training. *Journal of Advanced Academics*. 18, 278–312.

Simmons, A., Stein, M. B., Winkielman, P., Hitchcock, C., & Paulus, M. P.(2012). Association between individual differences in self-reported emotional resilience & the affective –perception of neutral faces. *Journal of Affective Disorders.* 3(15), 212-216.

Singh, Y.K.,& Bajpai, R.B. (2009). *Research Methodology: Data Presentation*. Ansari road, Darya Ganj, New Delhi: A P H Publishing Corporation 4435-36/7.

Singh, R., & Katlana, S. T. (2015).Measuring level of self-efficacy of Male & Female teachers of colleges. *GJRA-GLOBAL Journal for Research Analysis*, 4(10), 73- 79.

Singh, K. & Kumar, J. (2015). *Metacognition among senior secondary students in relation to their problem solving ability & self esteem*. Ph.D thesis,

Maharshi Dayan & University, Rohtak. Retrieved from http: // hdl.h&le.net/10603/37316

Spada, M. M., Nikčević, A. V., Moneta, G. B, & Wells, A. (2013). Metacognition, perceived stress, & negative emotions. *Personality & Individual Differences*, 44, 1172–1181.

Spellman, K. V. (2015). Educating for resilience in the north: building a toolbox for teachers. *Ecology & Society*, 20, 46.

Sperling, R. A., Howard, B. C., Staley, R., & DuBois, N. (2004). Metacognition & self- regulated learning constructs. *Educational Research & Evaluation*, 10, 117–139.

Steinhardt, M., and Dolbier, C. (2008). Evaluation of a Resilience Intervention to Enhance Coping Strategies and Protective Factors and Decrease Symptomatology. *Journal of American College Health*, 56 (4), 445-453.

Sternberg, R. J.,& Kaufman, J. C. (1998). Human abilities. *Annual Review of Psychology*, 49, 479-502.

Stewart, D., & Sun, J. (2007). Resilience and Depression in Children: Mental Health Promotion in Primary Schools in China. *International Journal of Mental Health Promotion*, 9(4), 37–46.

Stumblingbear, G. and Romans, J. C. (2012). Resilience Among Urban American Indian Adolescents: Exploration Into The Role Of Culture, Self-Esteem, Subjective Well-Being, And Social Support. *American Indian and Alaska Native Mental Health Research*, 19 (2), 1-19.

Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2004). *The Effective Provision of Pre-School Education (EPPE) project: Final report. A longitudinal study funded* by the DfES 1997–2004. London: Institute of Education, University of London, Department for Education & Skills Sure Start.

Tella, A., Tella, A. &Adika, L. O. (2008). Self-Efficacy and Locus Of Control as Predictors of Academic Achievement among secondary school students in

Osun State Unity Schools. *African Journals Online*, 16(2), 120-130.

Theron, L. C., & Engelbrecht, P. (2012). Caring teachers: Teacher-youth transactions to promote resilience. In M. Unger (Ed.), The social ecology of resilience: A handbook of theory & practice (265–280). New York: Springer.

Thomas, D. M., Love, K. M., Roan-Belle, C., Tyler, K. M., Brown, C. L. & Garriott, P.O. (2009). Self-Efficacy, Motivation, and Academic Adjustment among African American Women Attending Institutions of Higher Education. *The Journal of Negro Education.* 78, (2), 159-171.

Thomsen, K. (2002). *Building Resilient Students*. Thousand Oaks, CA: Corwin Press, Inc.

Toldson, I. A. (2008). Breaking Barriers: Plotting the Path to Academic Success for School-age African-American Males. Washington, D.C.: Congressional Black Caucus Foundation, Inc.

Torres, J. B., & Solberg, V. S. (2001). Role of self-efficacy, stress, social integration, & family support in Latino college student persistence & health. *Journal of Vocational Behavior*, 59, 53-63. doi:10.1006/ jvbe.2000.1785

Ungar, M., Ghazinour, M., & Richter, J. (2013). Annual Research Review: What is resilience within the social ecology of human development? *Journal of Child Psychology & Psychiatry*. 54 (4), 348–66.

Urquiola, M.,& Verhoogen, E. (2009). Class-size caps, sorting, & the regression discontinuity design. *American Economic Review*, 99(1).

Uwah, C. J., McMahon, H. G., & Furlow, C. F. (2008). School Belonging, Educational Aspirations,& Academic Self-Efficacy Among African American Male High School Students: Implications for School Counselors. *Professional School Counseling*, 11(5), 296-305.

Vaijayanthi, P. D. (2012). Awareness on Metacognition among the higher secondary school students in Trichy. Retrieved Dissertation from

http://ijsrme.rdmodernresearch.com/wp-content/uploads/2016/04/TP004.pdf

Valle, A., Nunez, P.J.C., Gonzalez, C.R., Gonzalez-Pienda, G.J.A., Rodriguez, S., Rosario, P., Munoz Casavid, M.A., & Cerezo, R. (2009). Academic goals and learning quality in higher education students. *Spanish Journal of Psychology*, 12(1), 96-105.

Van der Bijl, J. J., & Shortridge-Baggett, L. M. (2002). The theory & measurement of the self-efficacy construct. In E. A. Lentz & L. M. Shortridge-Baggett (Eds.), Self-efficacy in nursing: Research & measurement perspectives (9-28). New York: Springer. Retrieved from http://books.google.com/books?id=J6ujWyh_4_gC

Vasimalairaja, M.,& Gowri, J. (2016). A Study on Relation Between Retain Mental Health to endorse the Resilience Skill Of Women B.Ed. Trainees. International *Journal of Informative & Futuristic Research*, 4(4), 5907-5913.

Veenman, M.V.J., & Spaans, M.A. (2005). Relation between intellectual & metacognitive skills: Age & task differences. *Learning & Individual Differences*, 15, 159-176.

Walberg, H. J., & Walberg III, H. J. (1994). Losing local control. *Educational Researcher*, 19-26.

Waller, M. A. (2001). Resilience in ecosystemic context: Evolution of the concept. *American Journal of Orthopsychiatry*, 71, 290-297.

Walker, B., Cheney, D., Stage, S., & Blum, Craig. (2005). School wide screening & positive behavior supports: Identifying & supporting students at risk for school failure. *Journal of Positive Behavior Interventions*, 7, 194-204.

Walsh, F. (2006). *Strengthening family resilience* (2nd ed.).New York, NY: Guilford.

Walsh, F. (2012). *Families in later life: Challenges, opportunities, & resilience.* In M. McGoldrick, B. Carter, & N. Garcia-Preto (Eds.), The expanded

family lifecycle (4th ed., pp. 261–277). Boston: Allyn & Bacon.

Wang, M. C., & Gordon, E.W. (1994). Educational resilience in inner-city America: Challenges & prospects. Hillsdale, NJ: Lawrence Erlbaum Associates.

Wang, M.C., Haertel, G.D., & Walberg, H.J. (1994). Educational resilience in inner cities. In M.C. Wang & E.W. Gordon (Eds.), Educational resilience in inner-city America: Challenges &prospects(45-72). Hillsdale, NJ: Erlbaum.

Wang, M., & Holcombe, R. (2010). Adolescents' perceptions of school environment, engagement, & academic achievement in middle school. *American Educational Research Journal*, 47(3), 596-632.

Wasonga, T., Christman, D. E.,& Kilmer, L. 2003. Ethnicity, gender & age: predicting resilience & academic achievement among urban high school students. *American secondary education,* 32(1): 62-75.

Waxman, H. C., & Huang, S. L. (1997). Classroom instruction & learning environment differences between effective & ineffective urban elementary schools for African American students. *Urban Education*, 32, 7-44.

Waxman, H. C., Huang, S. L., & Padrón, Y. N. (1997). Motivation & learning environment differences between resilient & non-resilient Latino middle school students. *Hispanic Journal of Behavioral Sciences*, 19, 137-155.

Waxman, H. C., Huang, S. L., & Wang, M. C. (1997). Investigating the multilevel classroom learning environment of resilient & non-resilient students from inner- city elementary schools. *International Journal of Educational Research*, 27, 343- 353.

Waxman H. C., Gray J. P., & Padron Y. N. (2003). Review of Research on Educational Resilience: Research Report. Washington, DC: Institute of Education Sciences.

Wayman, J. C. (2002). The Utility of Educational Resilience for Studying Degree Attainment in School Dropouts. *The Journal of Educational Research*, 95

(3), 167-178.

Weiner, B. (1985). An attributional theory of achievement motivation & emotion. *Psychological Review*, 92, 548-573.

Werner, E. (1982). Vulnerable but invincible: A longitudinal study of resilient children & youth. New York: McGraw-Hill.

Werner, K. (2003). Learning Style Awareness & The Appropriate Prescription of Study Strategies to Improve Student Understanding of Work/Study Habits. Doctoral Dissertation, University of Alaska Anchorage, Alaska: United States.

Werner, E. E., & Smith, R. S. (1992). Overcoming the odds: high risk children from birth to adulthood. Ithaca, NY: Cornell University Press.

Weinstein, C.S. (1992). Designing the instructional environment: focus on seating. *Resources in Education.* 885.

White, B. Y.,& Frederiksen, J. R. (1998). Inquiry, modelling & metacognition: Making science accessible to all students. *Journal Cognition & Instruction* 16(1), 3-118.

White, M. P., Alcock, I., Wheeler, B. W. & Depledge, M. H. (2013). Would you be happier living in a greener urban area? A fixed-effects analysis of panel data. *Psychology Science*, 24, 920-928.

Wigfield, A., Eccles, J., MacIver, D., Reuman, D., & Midgley, C. (1991). Transitions at early adolescence: Changes in children's domain-specific self-perceptions & general self- esteem across the transition to junior high school. *Developmental Psychology*, 27, 552-565.

Williams, J. W. (2014). Gender differences in school children's self-efficacy beliefs: Students' and teachers' perspectives. *Educational Research And Review*, 9(3), 75-82.

Williams, J., Turner, P., & Persaud, D. (2008). School Plant Planning as Correlate of Students' Academic Performance in South West Nigeria. *International*

*Journal of Business Administration*, 12 (2).

Williams, T., Kirst, M., Woody, E., Levin, J., Perry, M., Haertel, E.,… Brazil, N. (2004). Similar students, different results: Why do some schools do better? A large-scale survey of California elementary schools serving low-income students. Mountain View, CA:Ed Source. Retrieved from: http://www.edsource.org/pdf/SimStu05.pdf

Winfield, L. F. (1991). Resilience, schooling, & development in African American: A conceptual framework. *Education & Urban Society*, *24*, 5-14.

Winfield, L. (1994). NCREL monograph: Developing resilience in urban youth. NCREL's Urban Education Monograph Series. [Online] Retrieved June 24, 2016, from http://www.ncrel.org/sdrs/ areas/issues/educatrs/ leadershp/ le0win.htm.

Wood, R., &B&ura, A. (1989). Social Cognitive Theory of Organisational Management. *Academy of Management Review*, 14 (3), 361-384.

Wolf, S. J.,& Fraser, B. J. (2007). Learning environment, attitudes & achievement among middle-school science students using inquiry-based laboratory activities. *Research in Science Education,* (in press).

Wolfer, A. J. (2000). Understanding of stoichemistry: connections between conceptual and computational understanding and instruction. Ph.D. Thesis. Oregon State University.

Wolin, S.J.,& Wolin, S. (1993). The resilient self: How survivors of troubled families arise above adversity. New York, NY: Villard.

Young, A. and Fry, J. D. (2008). Metacognitive awareness and academic achievement in college students. *Journal of the Scholarship of Teaching and Learning*, 8(2), 1- 10.

Zajacova et al.(2005). Self-efficacy, Stress and Academic Success in College. *Research in Higher Education*, 46(6).

Zandvliet, D. and Broekhuizen, A. (2017). Spaces for learning: development and validation of the School Physical and Campus Environment Survey. *Learning Environments Research*, 20(2), 175-187.

https://link.springer.com/article/10.1007/s10984-017-9228-y

Zhao, Li (2010). Socio-Cultural Adjustment of International Students as Expatriates in America. *Masters Theses & Specialist Projects. 15(4), 45-48.*

Zhang, Z., & Ri Charde, R. S. (1998). Prediction & analysis of freshman retention. Minneapolis, MN: Paper presented at the Annual Forum of the Association for Institutional Research.

Zimmerman, B. J. (2000). Self efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25, 82-91.

Zimmerman, B. J., & Bandura, A. (1994). Impact of self-regulatory influences on writing course attainment. *American Educational Research Journal*, 31, 845–862.

Zhou, W.J., Gao, W.B., Sun, X.Y, & Luo, J. (2011). Psychological resilience features of urban migrant children & rural left-behind children in Sichuan province of China. *Beijing Da Xue Xue Bao*, 43(3), 386-390.

Zolkoski, S. M., & Bullock, L. M. (2012). Resilience in children & youth: A review. *American Journal of Education*, 35 (12), 2295-2303.

Zulkiply, N. 2006. *Metacognition & its Relationship with Students Academic Performance.* Retrieved from http://eprints.utm.my5651, on 15th September, 2016.

Zulkosky, K.(2009). Self-Efficacy: A Concept Analysis. *Wiley Periodicals, Inc.*

## APPENDICES

### ACADEMIC RESILIENCE SCALE

**Instructions**: Read each statement carefully. Each statement has five responses namely: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) & Strongly Disagree (SD). Put a tick mark only that option which you find that is most appropriate and true in your case. Do not leave any statement unattempted.

**Before opening the next page kindly fill up the below given information:**

Name:……. Gender: Male/Female

Name and address of the School:……

Class:……

Locality of the School: Urban/Rural

**Scoring TABLE**: Scoring TABLE will be filled by the Researcher:

| Dimensions | Scores | Interpretation |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |

| S.no. | STATEMENTS | SA | A | U | D | SD |
|---|---|---|---|---|---|---|
| 1. | I try to do well on school assignments. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. | I believe I can do my school work without others help. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. | I do not lose my confidence when I get less mark. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. | I hope that one day I will achieve my goals. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. | I know that if I try hard, I can excel in my exams. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. | I like to see myself successful at school. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. | It becomes difficult for me to take right | ☐ | ☐ | ☐ | ☐ | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| | decision. | | | | | |
| 8. | I feel nervous when I appear in examination or class test. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. | I think that behaviors like hitting or bullying are not good at school. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. | At school we share each other's happy and sorrowful moments. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. | I respect the school rules and regulations. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. | I actively engage in play and doing things that I enjoy. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13. | Most people see me as loving and affectionate. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 14. | I understand my responsibilities and manage them sincerely. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. | I feel with time things will be all right. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. | I let others help me when I need to. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 17. | I become frustrated when other students get high marks or grades. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 18. | I do not fit very well with the people around me. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 19. | My teachers hold the opinion that I can do better in higher education. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 20. | I feel very pleased when I understand what I am taught at school. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 21. | I know the goal of my life and try my best to achieve it. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 22. | I try my best to make arrangement of certain things, so as to study in a better way. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 23. | I prefer to study in places where I can concentrate. | ☐ | ☐ | ☐ | ☐ | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| 24. | In problematic situations I try to find out the possible solution. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 25. | I get disturbed when I cannot finish my homework. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 26. | People I admire in the class are good at academic work. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 27. | I like my school but sometimes fear of study make me stay at home. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 28. | I have doubt in my ability to succeed in the examination. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 29. | Teachers of my school help in the matters of study even out of class. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 30. | I and my friends trust each other. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 31. | I enjoy personal and mutual conversation with friends. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 32. | I respect and care for the feelings and emotions of others. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 33. | I like to be along with other students rather than being alone. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 34. | I do not feel bad when my friends oppose to my opinion. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 35. | I do not let my work suffer even if there is groupism in my class. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 36. | I freely consult my teacher if something wrong happens with me. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 37. | I and my classmates remain displeased with the partial behavior of our teachers. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 38. | I have not experienced warm and trusting relationship with others. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 39. | I am clear about my feelings and emotions in every situation. | ☐ | ☐ | ☐ | ☐ | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| 40. | I do not let study stress intervene in achieving my academic targets. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 41. | I view problems as challenges. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 42. | After getting less mark in class test I try to improve my performance. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 43. | I think positively and try to find a way to eventually feel better in challenging situation. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 44. | I am flexible and adapt to changes. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 45. | In a stressful situation at school, I try to remain calm. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 46. | I get irritated because of high work pressure in my school. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 47. | I am afraid of doing school work when I know it will be graded. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 48. | I start arguing with friends and even with teachers when things do not work according to me. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 49. | I sleep around 6-8 hours every night during school work to keep myself active. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 50. | I often participate in recreational activities like dance, sports and games. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 51. | I regularly play outdoor games to keep myself physically fit. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 52. | When I feel stressed due to academic work I do yoga and meditation. | ☐ | ☐ | ☐ | ☐ | ☐ |

## METACOGNITIVE AWARENESS INVENTORY

**Instructions:** Read each statement carefully. Each statement has two options: True/ False. Put a tick mark only that option which you find that is most appropriate and true in your case.

**Before opening the next page kindly fill up the below given information:**

Name:……. Gender: Male/Female

Name and address of the school:……

Class:……

Locality of the School: Urban/Rural

**Scoring TABLE**: Scoring TABLE will be filled by the Researcher:

| Raw Score | Interpretation |
|---|---|
| | |

| S. No. | STATEMENTS | TRUE | FALSE |
|---|---|---|---|
| 1. | I ask myself periodically if I am meeting my goals. | ☐ | ☐ |
| 2. | I consider several alternatives to a problem before I answer | ☐ | ☐ |
| 3. | I try to use strategies that have worked in the past. | ☐ | ☐ |
| 4. | I pace myself while learning in order to have enough time. | ☐ | ☐ |
| 5. | I understand my intellectual strengths and weaknesses. | ☐ | ☐ |
| 6. | I think about what I really need to learn before I begin a task | ☐ | ☐ |
| 7. | I know how well I did once I finish a test. | ☐ | ☐ |
| 8. | I set specific goals before I begin a task. | ☐ | ☐ |
| 9. | I slow down when I encounter important information. | ☐ | ☐ |
| 10. | I know what kind of information is most important | ☐ | ☐ |

to learn.

| | | | |
|---|---|---|---|
| 11. | I ask myself if I have considered all options when solving a problem. | ☐ | ☐ |
| 12. | I am good at organizing information. | ☐ | ☐ |
| 13. | I consciously focus my attention on important information. | ☐ | ☐ |
| 14. | I have a specific purpose for each strategy I use. | ☐ | ☐ |
| 15. | I learn best when I know something about the topic. | ☐ | ☐ |
| 16. | I know what the teacher expects me to learn. | ☐ | ☐ |
| 17. | I am good at remembering information. | ☐ | ☐ |
| 18. | I use different learning strategies depending on the situation. | ☐ | ☐ |
| 19. | I ask myself if there was an easier way to do things after I finish a task. | ☐ | ☐ |
| 20. | I have control over how well I learn. | ☐ | ☐ |
| 21. | I periodically review to help me understand important relationships. | ☐ | ☐ |
| 22. | I ask myself questions about the material before I begin. | ☐ | ☐ |
| 23. | I think of several ways to solve a problem and choose the .best one. | ☐ | ☐ |
| 24. | I. summarize what I've learned after I finish. | ☐ | ☐ |
| 25. | I .ask others for help when I don't understand something. | ☐ | ☐ |
| 26. | I can motivate myself to learn when I need to. | ☐ | ☐ |
| 27. | I am aware of what strategies I use when I study. | ☐ | ☐ |
| 28. | I find myself analyzing the usefulness of strategies while I study. | ☐ | ☐ |
| 29. | I use my intellectual strengths to compensate for my weaknesses. | ☐ | ☐ |

| | | | |
|---|---|---|---|
| 30. | I focus on the meaning and significance of new information. | ☐ | ☐ |
| 31. | I create my own examples to make information more meaningful. | ☐ | ☐ |
| 32. | I am a good judge of how well I understand something. | ☐ | ☐ |
| 33. | I find myself using helpful learning strategies automatically. | ☐ | ☐ |
| 34. | I find myself pausing regularly to check my comprehension. | ☐ | ☐ |
| 35. | I know when each strategy I use will be most effective. | ☐ | ☐ |
| 36. | I ask myself how well I accomplish my goals once I'm finished. | ☐ | ☐ |
| 37. | I draw pictures or diagrams to help me understand while learning. | ☐ | ☐ |
| 38. | I ask myself if I have considered all options after I solve a problem. | ☐ | ☐ |
| 39. | I try to translate new information into my own words. | ☐ | ☐ |
| 40. | I change strategies when I fail to understand. | ☐ | ☐ |
| 41. | I use the organizational structure of the text to help me learn. | ☐ | ☐ |
| 42. | I read instructions carefully before I begin a task. | ☐ | ☐ |
| 43. | I ask myself if what I'm reading is related to what I already know. | ☐ | ☐ |
| 44. | I reevaluate my assumptions when I get confused. | ☐ | ☐ |
| 45. | I organize my time to best accomplish my goals. | ☐ | ☐ |
| 46. | I learn more when I am interested in the topic. | ☐ | ☐ |
| 47. | I try to break studying down into smaller steps. | ☐ | ☐ |
| 48. | I focus on overall meaning rather than specifics. | ☐ | ☐ |

| | | | |
|---|---|---|---|
| 49. | I ask myself questions about how well I am doing while I am learning something new. | ☐ | ☐ |
| 50. | I ask myself if I learned as much as I could have once I finish a task. | ☐ | ☐ |
| 51. | I stop and go back over new information that is not clear. | ☐ | ☐ |
| 52. | I stop and reread when I get confused. | ☐ | ☐ |

## SELF EFFICACY SCALE

**Instructions:** Read each statement carefully. Each statement has five responses namely: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) & Strongly Disagree (SD). Put a tick mark only that option which you find that is most appropriate and true in your case.

**Before opening the next page kindly fill up the below given information:**

Name:……. Gender: Male/Female

Name and address of the school:……

Class:……

Locality of the School: Urban/Rural

**Scoring TABLE**: Scoring TABLE will be filled by the Researcher:

| Raw Score | Interpretation |
|---|---|
| | |

| S.No. | STATEMENTS | SA | A | N | D | SD |
|---|---|---|---|---|---|---|
| 1. | I feel confident about my capabilities that with little efforts I can resolve difficult problems. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. | I am confident that I can achieve all targets that I set for myself. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. | I am so confident of my capabilities that I can finish tasks on time. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. | Despite work, I feel I will not succeed. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. | I feel I can keep self control even at difficult times. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. | In any circumstance, I can achieve what i desire. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. | I have enough self confidence to finish any work. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. | With my efforts, I can achieve anything. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. | My own potential and capabilities are responsible for all my achievements so far. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. | It is usually not possible for me to achieve any targets. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. | I am able to balance myself even in most | ☐ | ☐ | ☐ | ☐ | ☐ |

difficult times.

| | | | | | | |
|---|---|---|---|---|---|---|
| 12. | I am unable to face difficulties without any help and support. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13. | Even in most difficult situations, I can strategise to resolve and deal with it. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 14. | I try my level best to achieve my targets. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. | I can keep myself cool even when others try to take up fight with me. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. | If I get stuck in some work, with little efforts I can resolve it. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 17. | If I try sincerely, I am confident I shall be able to succeed. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 18. | Despite concentrating on my aim, I will fail. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 19. | If I am determined to succeed, I shall be able to achieve success. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 20. | If work as per plan, I shall be able to reap results quickly. | ☐ | ☐ | ☐ | ☐ | ☐ |

## LEARNING ENVIRONMENT SCALE

**Instructions**: Read each statement carefully. Each statement has five responses namely: Mostly (M), Usually (U), Seldom (S), Very Less (VL) & Never (N). Put a tick mark only that option which you find that is most appropriate and true in your case. Do not leave any statement unattempted.

**Before opening the next page kindly fill up the below given information:**

Name:……. Gender: Male/Female

Name and address of the School:……

Class:……

Locality of the School: Urban/Rural

**Scoring TABLE**: Scoring TABLE will be filled by the Researcher:

| Dimensions | Scores | Interpretation |
|---|---|---|
| Subscale I | | |
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| Subscale II | | |
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |

| S.No. | STATEMENTS | M | U | S | VL | N |
|---|---|---|---|---|---|---|
| 1. | I follow a fixed study time schedule at home. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. | I do not go to the friend's home without permission of my parents. | ☐ | ☐ | ☐ | ☐ | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3. | When I get good marks, my parents appreciate me. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. | My parents encourage me to participate in different types of competitions. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. | I freely express my opinions or views regarding my educational matters to my parents. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. | All my decisions regarding my education are accepTABLE to my parents | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. | My parents introduce me with high ideals in the field of art, science, literature, history etc. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. | My parents expect that I should respect teachers and obey them. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. | My parents encourage me to obey school rules and regulations. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. | My parents provide me separate space for my study. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. | My parents adopt sympathetic attitude towards my mistakes and pay regular attention. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. | My parents allow me to take part in co-curricular activities (e.g. music, painting, art & craft activities etc). | ☐ | ☐ | ☐ | ☐ | ☐ |
| 13 | I get moral support from my parents in solving my difficulties. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 14. | My parents go to see my games and other co-curricular activities in school. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. | Books and study material of my choice for reading are provided to me by my parents. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. | I and my parents go together for the movies during free time | ☐ | ☐ | ☐ | ☐ | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| 17. | My parents do not oppose me to go for an educational tours and trips | ☐ | ☐ | ☐ | ☐ | ☐ |
| 18. | My parents accompany me to the educational fairs and exhibitions | ☐ | ☐ | ☐ | ☐ | ☐ |
| 19. | I am encouraged regularly to play outdoor games after school or study hour. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 20. | I am allowed to use computer at home for my study purposes. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 21. | I use mobile phone for educational games and quizzes. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 22. | Students are encouraged by teachers to listen to each other's responses and opinions. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 23. | Teachers give us verbal reward (Good, Fine idea, Great etc.) who score good marks. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 24. | Students are encouraged by teachers for special studies in their own areas of interest. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 25. | Teachers always make effort to reinforce student's knowledge. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 26. | Students are motivated by teachers to participate in different school activities. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 27. | Encouraging questions are asked by teachers to discover special interest of the students. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 28. | Teachers use computers for making teaching effective and improving class climate. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 29. | Teachers have adequate knowledge and skills of using computers in teaching. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 30. | Computer laboratories are maintained and updated regularly in my school. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 31. | In computer laboratory, there are computers with internet access for using educational purposes. | ☐ | ☐ | ☐ | ☐ | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| 32. | Teachers use computers to motivate students to get more involved in learning activities. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 33. | In my school, teachers recommend students to use online study or learning resources. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 34. | Students get punishment when they break school rules. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 35. | Teachers praise students who possess high educational abilities. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 36. | Creating indiscipline in the class is discouraged by teachers. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 37. | Teachers reward me when I secure any position in competitive activities or exams. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 38. | Students and teachers act according to the regulations, policies and criteria of the school. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 39. | Teachers praise me in front of other students when I solve any problem in different ways. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 40. | Adequate reading material and books are available in our school library | ☐ | ☐ | ☐ | ☐ | ☐ |
| 41. | Both science and other exhibitions are held in my school from time to time. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 42. | In my school, Science laboratory has all the scientific equipments. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 43. | Exterior noise and surrounding environment do not affect our studies | ☐ | ☐ | ☐ | ☐ | ☐ |
| 44. | School atmosphere in my school is calm and stimulating for learning | ☐ | ☐ | ☐ | ☐ | ☐ |
| 45. | I use to enjoy studying in groups. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 46. | I discuss assignments with others in my class. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 47. | My classmates help me a lot in | ☐ | ☐ | ☐ | ☐ | ☐ |

understanding important concepts.

48. I feel free to express doubts and feelings to my class fellows. ☐ ☐ ☐ ☐ ☐

**Questionnaire for assessing Initiatives taken by School**

**(To be filled by School Personnel)**

**Instructions:** This is a questionnaire that attempts to explore the initiatives taken by your school for developing academic resilience among students *(academic resilience involves students' ability to succeed in academics despite challenging circumstances in the academic setting)*. There are in all 25 statements given in question form. You are requested to read each item carefully and give your response in right hand side of either in Yes or No form. Please respond to each item. Don't leave any one un-attempted. Your responses will be used for research purpose only and kept confidential. Your cooperation will be highly acknowledged.

**Please fill up the following information:**

Nameof theSchool…….

Address of the School……

District……

Name of the Informant…….

Gender: Male……..……., Female……..

Locality of the School: Urban……., Rural……

| **S.No** | **Statements** | **Yes** | **No** |
|---|---|---|---|
| 1. | Do you feel that your school provides a safe and inviting school environment for all students? | ☐ | ☐ |
| 2. | Does your school have provision of adequate ventilation, lighting and proper seating arrangement in the classrooms? | ☐ | ☐ |
| 3. | Is there any provision of safe ramp roads for physically challenged students? | ☐ | ☐ |
| 4. | Is there any first aid facility in your school provided for students in case of emergency? | ☐ | ☐ |

| | | | |
|---|---|---|---|
| 5. | Does your school organize medical checkups time to time for students (e.g. immunization programs, health screenings, oral health care etc.)? If yes, how often do the medical checkup camps are organized? …… | ☐ | ☐ |
| 6. | Is there any restroom facility for students in your school? | ☐ | ☐ |
| 7. | Does your school encourage pro-social organizations including school clubs & scouts etc? | ☐ | ☐ |
| 8. | Does your school have safe spaces for involving students in outdoor activities? | ☐ | ☐ |
| 9. | Do your school students engage themselves in a variety of games, sports and motor activities? | ☐ | ☐ |
| 10. | Does your school have a professional counselor in the school to advice students on personal problems? If yes, Is she/he a full time/part time employee of the school?<br>i. Full time ii. Part time | ☐ | ☐ |
| 11. | Does your school have a professional counselor in the school to guide students on career related issues? If yes, Is she/he a full time/part time employee of the school?<br>i. Full time ii. Part time | ☐ | ☐ |
| 12. | Does your school counselor understand the problems faced by students and ensure privacy? | ☐ | ☐ |
| 13. | Does your school have a Parent Teacher Association? If yes, how often does the association meet? …… | ☐ | ☐ |
| 14. | In your school, is there any CCTV camera located within the school building or in school grounds? | ☐ | ☐ |
| 15. | Do you think that your school is safe from practices like truancy and bullying or ragging? | ☐ | ☐ |
| 16. | Does your school teacher motivate students to participate in extracurricular activities? | ☐ | ☐ |
| 17. | Does your school provide opportunities to students to express their views and opinions about the school? | ☐ | ☐ |

18. Does your school involve students or parents in development of classroom rules, curriculum development and school policies? ☐ ☐
19. Does your school organize teacher development/training programs for teachers? ☐ ☐
20. Do you think that school staff members really understand the problems faced by students? ☐ ☐
21. Do you feel that proper discipline is followed in your school? ☐ ☐
22. Do you think that students do not have enough time to relax in this school?
23. Does your school organize programs/resources and support for students with special needs (e.g. economic advantages, behavioral problems or special talents)?
24. Is there any initiative taken by school for development and personal growth of the students? ☐ ☐
25. Does your school provide support services for children with acute social, emotional and behavioral problems? ☐ ☐

**Your Personal Remarks**:

…….....….

……

……