Fostering Academic Resilience of Students at Risk of Failure at Secondary School Level

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This study aimed at fostering academic resilience of non-resilient at-risk students through an intervention program using an activity based module aiming at fostering protective factors-creativity, internal locus of control, self-concept, self-esteem, self-efficacy, autonomy, sense of purpose in life, optimism, a good sense of humor and teacher student relationship. Sixty four (*N*=64) at risk of failure, 9th and 10thgrade students from a public secondary school were identified which were later randomly assigned to experimental and control groups. A Resilience Assessment Scale developed by the researchers was administered to measure specific risk indicators like socio economic status, academic issues, homelessness, health issues and negative life events. One of the researchers played as a resilience teacher. The treatment continued for three months. The pre-test and post-test analysis revealed that the intervention was significantly effective in enhancing students' academic resilience in overall and by each selected protective factor.

Keywords. At risk of failure, protective factors, resilience, academic resilience, students

Mostly school failures happen due to occurrence of specific risk factors causing psychological difficulties and poor academic performance of students. Risk usually involves presence of risk antecedent situation creating vulnerabilities in an individual's surroundings that are likely to lead to behavioral and health problems (Wilson, 2003). Sagor and Cox (2004) mentioned that any child who is unable to perform well in his studies and has poor self-esteem, self-efficacy and other capabilities necessary to perform better in work, studies and relationships is on at risk child. Baruth and Manning (2007) stated that these students may fail to

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meet their actual potential. However, in academic setting 'at risk' means low academic performance and dropping out of school.

Bowlby (2008) suggested that family conditions may have a strong impact on children's psychological and emotional development. One such risk factor is low socioeconomic status (SES) established as a valid and reliable indicator of adverse outcomes in a child's life (Schoon, Parsons, & Sacker, 2004). Lack of financial resources, family disorganization, parents' low education and overcrowded conditions are also thought to affect children adversely. Such children do not perform well in their academics as well (Vanderbilt-Adriance, 2006).

Some children acquire the capacity to survive regardless of many unfavorable situations in their lives. Many not only survive but also prosper academically and socially (Bernard, 2004). The ability to survive in tough life circumstances defines the notion of resilience. The theory of resilience attempts to explain why some students perform better in their academics and achieve success in their lives despite of having negative environmental or psychological situations (Reis, Colbert, & Hebert, 2005).

Resilience is an individual's competence to bounce back from an unfavorable or stressful situation (Garland et al., 2010). It is the ability of an individual to stay competed in spite of adversities. It is the ability to spring back from psychological damage (Bernard, 2004). Exposure to risk factors and presence of protective factors are the two necessary elements while focusing on resilience phenomenon (Barrett & Turner, 2004).

Protective factors can moderate the effects of risk antecedents, or in some cases, off-set risk factors in children (Keogh, 2000). Research describing the role of protective factors shows that factors such as a child's self-confidence, self-esteem, self-efficacy, internal locus of control, sense of humor, autonomy and optimism, along with a child's warm and open relationship with teacher, a positive peer group, and high quality child care at an early age, often serve to mitigate the potentially harmful negative outcomes related to risk factors that are present in that child or in his/her environment (Lewis, 2000).

The presence of positive key adult relationships is important in the literature on resiliency. It is very hard for students to gain and sustain resiliency skills under difficult circumstances without supportive adults to provide guidance, support, and recognition (Pianta & Walsh, 2014). Several studies on resilience show a positive correlation between resilience and academic success. For example, a longitudinal study by

Scales (2006) showed that resilient students score higher in their academics as compared with non-resilient students. Walker and Cheney (2005) had similar findings in their study on resilient students. In another study on resilience designed by Sesma, Mannes, and Scales (2013), two groups of Latino students having similar risk factors of poverty, family disposition and low SES were identified. Results indicated that students performed well in their studies because of their resilient characteristics. Hanson, Austin, and Lee (2004) identified the students possessing higher levels of resilience, gained higher academic scores as compared to non-resilient students.

Along with resilience protective factors there is a significance of particular context of interventions. It is clear that a caregiver plays a vital role in the development of resilience. In child interventions, immediate family holds the most significance in the development of caring relationships in early years, however later on, schools and classrooms play a vital role for child interventions (Luthar & Cicchetti, 2000).

After an extensive literature review on resilience, it has been postulated that some school based programs and interventions effectively foster resilience by building specific individual characteristics like emotional regulation, empathy, optimism, self-esteem, self-efficacy and problem solving skills. For example an intervention programme "Psychosocial Structured Activities (PSSA)" for Elementary school students developed by Ager, Akeesson, McCollister, and Boothby (2011) showed greater resilience in intervention group than children in the control group. Another intervention programme titled "Penn Resiliency Program (PRP)" developed by Gillham, Reivich, and Freres (2007) for high school students showed that the children in the intervention group had greater resilience than children in the control group.

The study of resilience can be useful in providing the researchers and policy makers with essential information relevant to the conditions under which recognized risk factors are not linked with negative outcomes. In combination with research on vulnerability, such research can inform and guide prevention and intervention efforts in populations at high risk of school failure (Masten, 2012). Academic Resilience should be viewed as something we foster throughout students' development by strengthening protective processes for students at critical moments in their lives. Academic resilience is a context-specific form of individual psychological resilience as Colp and Nordstokke (2014) predicted specificity to resilience research. As individual psychological resilience deals with capacity for challenges and adversity, academic resilience is

also concerned with the capacity to overcome acute and chronic adversity, major threat, in a student's educational development. There are many students who perform poorly and continue to perform poorly. However, there are significant numbers of other students who manage to turn around their academic misfortunes, and thrive to flourish despite adversity (Martin & Marsh, 2013).

Most of the research in the field of resilience has been descriptive, comparative, or co relational. There have been very few experimental studies testing how resilience can be fostered (Obradović, 2010). However, research on interventions to create resilience is gaining importance as evidence builds from basic research and experimental data that resilience processes can be identified and changed, and that intervention methods are vital for testing resilience theory (Masten, 2012). Such research has established that resilience can be taught, even to students who considerably lack these skills and that everyone has a capacity for learning resiliency. Once recognized, these self-protective characteristics can be improved and strengthened over time (Bernard, 2004). Next to the family, teachers are the best positioned to provide the supportive conditions that promote resiliency in at risk students through meaningful relevant opportunities for students (Henderson, 2003).

This study aimed at fostering the academic resilience of non-resilient at risk of failure students. At risk of school failure students possess specific risk factors related to their academic issues, such as poor health, low socio-economic status, and negative life events. The study also intended to identify internal and external protective factors influencing academic resilience as latent independent variable, with academic achievement as dependent latent (outcome) variable. The protective factors were included to grasp the picture of academic resilience. To foster the academic resilience of at risk students, the researchers developed a training module for teachers to help them foster academic resilience among students by providing in-school protective mechanism.

Objectives

The study has following objectives:

- To identify students at risk of failure on the basis of selected risk factors.
- To measure the level of academic resilience of students at risk of failure on the basis of selected protective factors.

- To develop an intervention training manual for the teachers to promote academic resilience among non-resilient at risk students.
- To conduct an experiment to foster academic resilience among non-resilient at risk students through an intervention training of these students and find out its effect on their academic resilience.

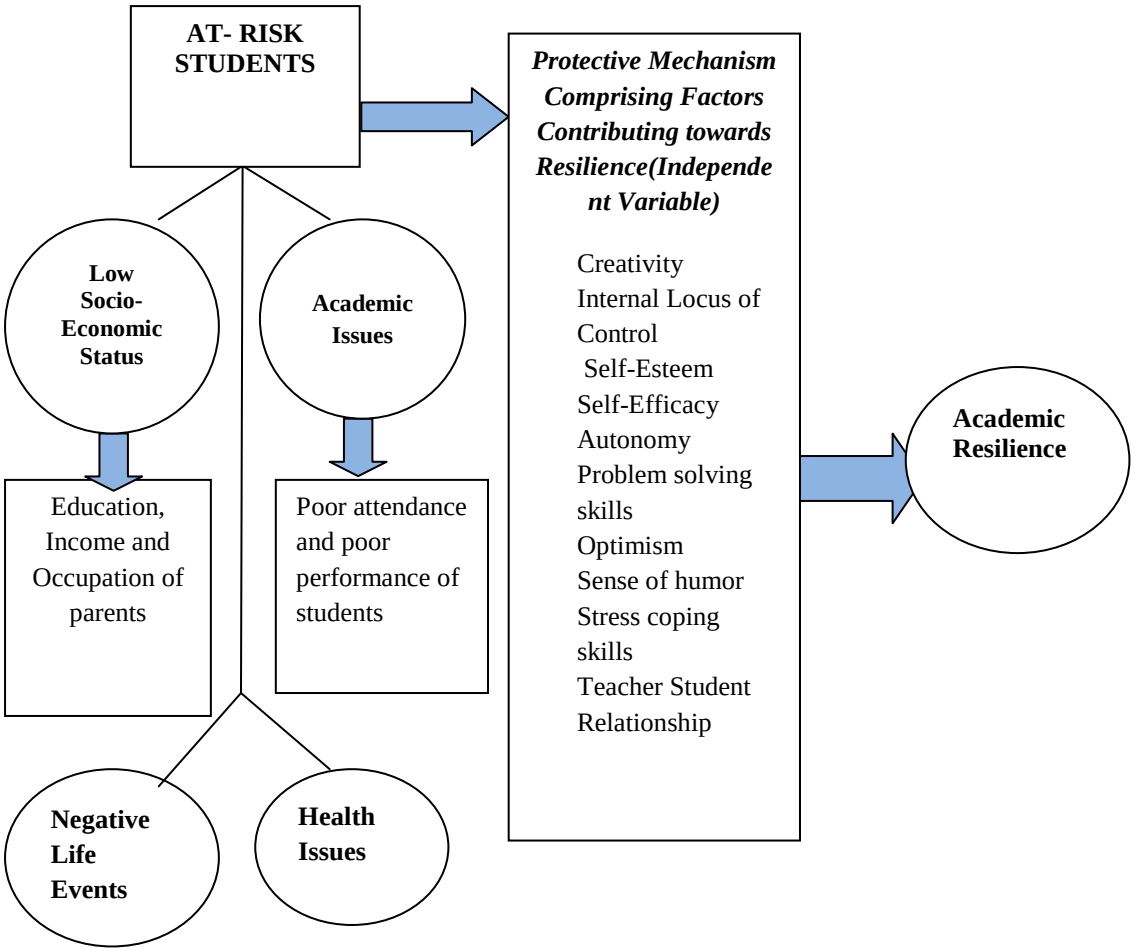
Hypotheses

- There is a significant difference between the overall resilience mean gain scores of non-resilient at risk students gone through intervention training and those not receiving the training.
- There is a significant difference between the mean gain scores of non-resilient at risk students gone through intervention training and those not receiving the training separately on various factor of resilience i.e. creativity, self-esteem, self-efficacy, internal locus of control, problem solving skills, autonomy/independence, sense of humor, stress copping skills, sense of purpose in life and teacher student relationship.

Conceptual framework of the study

This research study explored the factors contributing to and inhibiting from the development of resiliency in at-risk students. The independent variable for the purpose of this study was the protective mechanism manipulated through resilience fostering module, comprised of protective factors like creativity, internal locus of control , self-concept, self-esteem, self-efficacy, emotional resilience, autonomy, sense of purpose in life, optimism/ hopefulness, a good sense of humor, and teacher student relationship. The academic resilience of the students was the dependent variable. Students at-risk of failure were identified on the basis of specific macro and micro risk indicators like low socio economic status, academic issues, homelessness, health issues and negative life events (See Figure 1).

Figure 1. Conceptual Framework of the Study



Method

Research Design

The study was conducted with identified non-resilient at risk students with a true experimental research (pre-test post-test control group design) using random assignment (Fraenkel, 2006) of subjects to the control and experimental groups out of identified non-resilient at risk students.

Sample

The sample of the study was taken from a public secondary school of district Lahore. The sample consisted of 9th and 10th grade students of age range 14-16 years. The sampling was done in two phases. The researchers first identified students at risk of failure through administration of a demographic data survey about specific micro and macro risk factors. Macro risk factors included low socio economic status (poverty, low parental education), and negative life events (parental death, major accidents/ disasters, parental divorce/ separation, homelessness). Micro risk factors included health issues (chronic illness, obesity, poor health) and academic issues (poor grades, excessive absences).

Educational research has recognized various family, peer, and economic factors that contribute to academic failure (Schneider & Coleman, 1993). Research on adult populations has shown that mental and physical health problems negatively affect work performance (Dewa & Lin, 2000). Moreover, small-scale epidemiological studies have found that physical and mental health problems in childhood and adolescence impair academic functioning (Field, Diego,& Sanders, 2001).Applying this social epidemiological structure to the study of academic failure, a number of potential risk or protective factors for students' academic careers may be found. Significant family risk indicators include having low socioeconomic status, being born to a teenage mother, living in a single-parent family, and experiencing higher than average levels of stressful change, such as parental divorce or death (Alexander, Entwisle, & Kabbani 2001; Crosnoe, Mistry, & Elder 2002; Pungello et al., 1996). On the basis of these evidences the sample was taken in account to these risk antecedents of academic failure.

Out of 255 students of 9th and 10th grades, 115 (45%) were found at risk due to academic issues, health issues, low socio-economic background and negative life events with percent distribution of 35.7, 27.8, 23.5 and 13.0, respectively.

In the second phase non resilient at risk students were identified by administering a Resilience Assessment Scale (RAS) developed for the study. The Resilience Assessment Scale (RAS) was administered to 115 at risk students. Sixty four of the 115 at-risk students were found as non-resilient.

The description about the sample of the study is shown in the Table 1.

Table 1
Sample Characteristics

Sr.No	Phase Title	Instruments Used	Population	Students Identified	
1	Risk Identification Phase	Risk Identification Survey to identify at-risk students on the basis of Academic Issues, Health Issues, Socio Economic Status, Negative Life Events	255 Students	At Risk: 115	Not At Risk: 140
2	Resilience Measuring Phase	Resilience Assessment Scale (RAS)	115 At Risk Students	Resilient: 51	Non-Resilient: 64
3	Establishing of Experimental and control groups	Total Non-Resilient at Risk Students Identified: 64	Control Group: 32	Experimental Group: 32	

Measure

From amongst the available resilience scales to assess protective factors contributing to the resilience of at risk students, the researchers adapted items only from two resilience scales that best suited the operational definition of a resilient student i.e. Resiliency Attitude and Skill Profile (RASP) by Hurtes, and the Conor-Davidson Resilience Scale with the permission from the authors. The researcher developed the final scale titled as Resilience Assessment Scale (RAS) that comprised of forty statements regarding ten major protective factors contributing to resilience i.e. Creativity, Self Esteem, Self-Efficacy, Internal Locus of Control, Problem Solving Skills, Autonomy/Independence, Sense of Humor, Stress Coping Skills, Positive Future orientation/Sense of purpose in life and Teacher-Student Relationship. The degree of respondents' agreement was captured on five point Likert scale ranging from 1 to 5. A student could score from a minimum of 40 to a maximum of 200. Students scoring 120, the median, or above were considered as resilient and those scoring below it were labeled as non-resilient at risk students.

Procedure

A separate section of 32 non-resilient at risk students (experimental group) was established with the consent of the school principal and the teachers. The remaining 32 non resilient at risk students were taught under normal conditions with normal students. One of the researchers took part in the experiment independently as resilience teacher and spent one hour daily in the class of non-resilient at risk students. The researcher trained the students himself, because on the basis of extensive study of resilience phenomenon, the researcher understood the concept of resilience and resiliency traits well, and developed modules to be used by a teacher. Doing it first-hand provided the best evidence of its workability and usefulness. The researcher tried to deliver resiliency skills to the best possible level. It also helped in identifying the loopholes and weaknesses in the training material for further improvement.

The experiment was conducted to boost resiliency skills of students through an intervention program developed for the purpose of fostering resilience using an activity based resilience building module which was scripted by the researchers and validated through experts' opinion. The module comprised of several activities to foster protective factors contributing to the resilience of the students. The treatment continued for three months. The data were analyzed applying *t*-test and ANOVA on the gain scores and mean score of the two groups respectively.

Ethical Considerations

The participants were approached personally and the principle of informed consent was strictly followed by the researcher, the researcher clearly described the scope of research to all participants and stated that all information provided would be anonymous and confidential.

Results

Many of the statistical procedures including correlation, regression, *t* tests, and analysis of variance, namely the parametric tests, are based on the assumption that the data follows a normal distribution (Field, 2009). The assumption of normality needs to be checked for the validity of results as well (Razali & Wah, 2011).The normality tests are supplementary to the graphical assessment of normality (Elliott & Woodward, 2007). In this study the Shapiro-Wilk test was used as most of the researchers recommend it as the best choice for testing the normalil2ty of data (Thode, 2002). *p* values revealed.15 for control group

and .39 for experimental group which are greater than .05 showing that the data of both the groups had normal distribution.

Table 2

Means Scores and Mean Gain Scores of Non-Resilient at Risk Students on their Pre-Test and Post-Test of Resilience (N=64)

Sr. No	Protective Factor	No of Items	Mean scores					
			Control Group			Experimental Group		
			Pre Test	Post Test	Gain Score	Pre Test	Post Test	Gain Score
1	Creativity	4	8.75	10.20	1.45	9.12	15.74	6.62
2	Self Esteem	4	8.68	9.45	.77	9.25	17.32	8.07
3	Self-Efficacy	4	9.46	11.05	1.59	9.50	16.50	7.00
4	Internal Locus of Control	4	8.65	10.44	1.79	8.55	16.25	7.70
5	Problem Solving Skills	4	8.90	9.75	.85	9.32	16.20	6.88
6	Autonomy/Independence	4	8.96	10.88	1.92	9.05	16.32	7.27
7	Sense of Humor	4	10.25	11.56	1.31	9.75	17.50	7.75
8	Stress Coping Skills	4	8.75	9.59	.84	8.65	16.56	7.91
9	Sense of Purpose in Life	4	9.96	10.54	.58	9.28	16.22	6.94
10	Teacher Student Relationship	4	11.25	12.20	.95	10.50	17.25	6.75
Overall Mean Score on Resilience Scale		40	93.60	105.66	12.06	92.97	165.86	72.89

Table 2 shows the pre-test and post-test mean scores and mean gain scores of non- resilient at risk students in the control and experimental groups in the study on each protective factor and overall resilience scale as well.

Table 3

Difference between Mean Gain Scores of Non-Resilient At Risk Students Gone Through Intervention Training and Those Not Receiving the Training on Overall Resilience

Group	*N*	*M*	*SD*	*t*(62)	*p*
Control	32	12.06	1.49	166.62	.001
Experimental	32	72.89	1.43		

Table 3 indicates a significant difference between the mean gain scores of control and experimental groups' students on overall resilience. The value of $t_{62=}166.62$, p = .001 was significant at α= .05. The hypothesis stating a significant difference between the overall resilience mean gain scores of non- resilient at risk students gone through intervention training and those not receiving the training was accepted. The students gone through intervention training performed better on their test of overall resilience than those not receiving the intervention training.

Table 4

Difference between the Mean Gain Scores of Non-Resilient At Risk Students in the Experimental (n=32) and Control (n=32) Groups on Selected Factors of Resilience

	Environmental (*n*=32)		Control (*n*=32)			
Protective Factor	*M*	*SD*	*M*	*SD*	*t*(62)	*p*
Creativity	6.62	1.65	1.45	1.35	13.71	.001
Self- Esteem	8.07	1.25	.77	1.30	22.89	.001
Self-Efficacy	7.00	1.55	1.59	1.10	16.10	.001
Internal Locus of Control	7.70	1.40	1.79	1.20	18.13	.001
Problem Solving Skills	6.88	1.20	.85	1.75	16.08	.001
Autonomy/Independence	7.27	1.45	1.92	1.30	15.54	.001
Sense of humor	7.75	1.40	1.31	1.70	16.55	.001
Stress Coping Skills	7.91	1.30	.84	1.25	22.18	.001
Sense of Purpose in Life	6.94	1.80	.58	1.40	15.78	.001
Teacher Student Relationship	6.75	1.85	.95	2.50	10.55	.001

****p*=.001.

Table 4 indicates significant difference between the mean gain scores of the control and experimental groups' students on each of the ten factors of resilience. The second hypothesis was also accepted beyond

α=.05. The students of experimental group scored higher than the students of control group on each of the ten factors with the most significant difference in the gain scores on self-esteem and stress coping ability of the two groups. The difference though significant was comparatively less marked in developing student-teacher relationship and creativity factors of resilience.

It was found that majority of the at-risk students were non-resilient. The pre-test and post-test analysis exhibited that students gone through intervention training had significantly higher gain scores than those who did not receiving the training on RAS in overall and separately on each of the ten protective factors of resilience i.e. creativity, self-esteem, self-efficacy, internal locus of control, problem solving skills, autonomy, optimism, sense of humor, stress coping skills and teacher-students relationship. The remaining was, thus, effective in fostering academic resilience among students concluding that resilience can be fostered among non-resilient at risk of failure students.

It was also concluded that most of the students were at risk due to their academic issues followed by those having health issues, while the least number of students were at risk due to negative life events.

Table 5

Two Way ANOVA indicating Difference in Control (n=32) and Experimental Groups (n=32) Before and After Applying Interventions

	Experimental	Control
Variables	*M (SD)*	*M (SD)*
Pre	92.97 (1.45)	93.60 (1.49)
Post	165.86 (1.22)	105.66 (1.54)
$F_{\text{pre-post}}$ (1, 62)	2.74*	
$F_{\text{experimental-control}}$ (1,62)	8.95*	
$F_{\text{interaction}}$ (1, 62)	1.23*	

*p<.05.

Table 5 showing the two way ANOVA results indicate enormous variation between groups (adjusted for degrees of freedom). Table indicates a significant difference between both experimental and control group on their pre-test and post-test score with values $F_{\text{pre-post}}$ (1, 62) = 2.74, $F_{\text{experimental-control}}$ (1, 62) = 8.95, and $F_{\text{interaction}}$(1, 62) = 1.23**.** All three values of F with adjusted degree of freedoms indicate a significant difference at p<.05. The hypothesis, stating a significant difference between the overall resilience mean scores of non- resilient at risk

students gone through intervention training and those not receiving the training was accepted. The students gone through intervention training performed better on their test of overall resilience than those not receiving the intervention training.

Discussion

It was deduced from the results of the study that the students who were not performing well in their academics as reported by their class teacher, possessed specific risk factors like low socioeconomic status, health issues and negative life events. Such connection of school failure and risk factors have also been highlighted in the previous researches on at-risk students such as Arrington and Wilson (2004) mentioned that school failure is mostly caused due to the presence of specific risk factors that contribute to psychological and emotional difficulties and poor functioning of the students. There are always some risk antecedent conditions which create vulnerabilities in the individual's environment that are likely to lead to school failure and dropout (Arrington & Wilson, 2004).

On the assessment of resilience of at-risk students, it was found that some of the at-risk students possessed high level of resilience despite of having risk antecedents. These students were labeled as resilient students. This reality was also explored by Bernard (2004) that some children acquire the capacity to survive regardless of many unfavorable situations in their lives. The dropout and school failure phenomenon is real, and it affects the entire lives of students. In such situations, the school administration and school teachers must play their role in minimizing such risk of failure and dropout phenomena. The study revealed that the teacher can foster the resiliency characteristics among at-risk students by providing them a protective mechanism aiming at developing protective factors contributing towards the resilience of students.

In this research, specific protective factors were fostered to develop academic resilience among at-risk students. It was inferred that the development of these protective factors contributed towards the cultivation of students' resilience. Keogh (2000) also discussed about the importance of protective factors for at-risk students and said that protective factors can moderate the effects of risk antecedents, or even in some cases, off-set risk factors in children. Research describing the role of protective factors has shown that such factors as a child's self-confidence, self-esteem, self-efficacy, internal locus of control, sense of humor, autonomy and optimism, a child's warm and open relationship

with a teacher, a positive peer cluster group, or high quality child care at an early age, often can serve to mitigate the potentially harmful, negative outcomes related to risk factors in and around that child (Lewis, 2000).

The role of researcher as a resilience teacher, as a guide, as a mentor and as a facilitator was proved to be beneficial for the successful build-up of resiliency skills among at-risk students. The researcher as a resilience teacher developed a strong relationship with students of the study and remained successful in fostering their resilience through his positive motivational and inspiring attitude. Such role of relationships has also been confirmed by Pianta and Walsh (2014) as they suggested that the presence of key adult relationship is important in the literature on resiliency. It is very hard for students to gain and sustain resiliency skills under difficult circumstances without supportive adults to provide guidance, support, and recognition (Pianta & Walsh, 2014). This theme of supportive adult has been confirmed by the results of this study, that a resilience training teacher was only one supportive adult for non-resilient at-risk students throughout the experiment who played a vital role in fostering resiliency attitude among students.

Resiliency is fostered when teachers provide meaningful opportunities to students to contribute their skills and energies (Henderson & Milstein, 2003). The findings from the study revealed that the treatment in the experimental classroom exceeded that of the controlled classroom on some important aspects, such as providing explanations, encouraging extended student responses, encouraging student successes, and focusing on the task's learning processes. Students in the treatment classes reported a more positive classroom-learning environment than students in the controlled classes, and they had significantly higher resilience learning than students in the controlled classrooms. Although the control group of the study did not receive the resilience training and treated in the usual way to maintain the format of the experimental study, however after getting fruitful results of the resilience training program, the teachers of that school were provided by the resiliency module and were advised to train all other students of the school including the control group of the study on resiliency skills and foster resilience among all students of the school. The same is recommended for future school based intervention programmes on resilience building.

The educators should continue to develop strategies to engage all students in a meaningful learning process that develops young minds into successful and accomplished citizens as the results of the study revealed

that resilience fostering activities play a vital role in the development of students' resilience. Schlechty (2002) also highlighted that the key to school success should focus on the work which must be engaging and provide purposeful activities within instruction.

Limitations and Suggestions. As it happens with all empirical researches, this study is not beyond some limitations. Due to lack of time and financial resources the study was delimited to the secondary school level only and the selected protective factors of resilience. The intervention training on resilience continued only for three months with short activity sessions offered to the students by the researcher who was not their regular teacher. A training program over a longer period of time offered by regular teachers may develop stronger student-teacher relationship and may produce even better results.

Implications. In the present study three months intervention training on resilience showed good results. Better results can be gained if the duration of the intervention program is extended. So it is recommended to implement such resiliency training for a longer time period in order to develop the resilience of low profiled students such as non-resilient at-risk students. Although, a good number of protective factors were focused in the study, but due to tight time schedule we were unable to include some other protective factors of resilience in the study such as social competence and emotional intelligence. It is recommended to consider the remaining protective factors of resilience in future research that might also play a significant role in the development of students' resilience.

It is also recommended that schools adopt strategies and train teachers to teach youth about their innate resilience, and provide meaningful opportunities for communication among students and teachers, develop and promote positive student-teacher relationships, promote positive peer relations through activities in the classroom and in the school, foster academic self- determination, confidence and feelings of competence, promoting students' creativity, self –esteem, self-efficacy, internal locus of control, sense of humor, stress coping skills, autonomy, optimism etc. Schools should focus on students' strengths and find creative ways to engage students in continuous learning.

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