SELF REGULATION OF ACADEMIC PERFORMANCE THROUGH GOAL SETTING IN ADOLESCENTS – AN INTERVENTIONAL STUDY

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Abstract

This study investigated the effects of a goal-setting intervention on students' academic performance and use of different phases of self-regulatory skills (Fore thought, Performance and Self Reflection). Educators at all levels continually seek ways in which to advance student learning in the classroom. Eighty eight Class X students were devided into ex experimental and control groups, in three rural Government social welfare residential high schools of Telangana. The experimental received instruction (intervention) and utilized Specific, Measurable, Achievable, Realistic, and Time bound (SMART) goals during their academic year in two phases between quarterly and final exams. The researcher prepared Goal setting Module, conducted intervention programme, data was collected and analyzed. Results showed a significant increase in academic performance using goal setting as a strategy for self regulation. Their academic performance was most influenced by the use of student-selected goals using the self regulated learning strategies. Based on these results, educators would benefit from integrating goal setting into their classrooms.

Introduction

Success is the status of having achieved and accomplished an aim or objective. Being successful means the achievement of desired visions and planned goals. In today's world of competitiveness there is not a single individual who is devoid of ambition in some or other form. The Process of becoming successful starts with elaborated Goal setting. Goals prepare any individual for the next level. Goals Prepare Students for Adulthood. Through goal setting, students learn that hard work and good habits almost are the keys to success. Because of this, they discover a level of respect for the dedication and determination required to achieve further important goals in life. Not only is goal setting important for helping students get more out of their academic experiences, but it also means that they will continue to use the same skills in the future to apply for a high-ranking job or achieve a new promotion. For this to happen the goal setting habit should be inculcated in their adolescence period of life.

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Adolescence

Adolescence is a transitional stage of physical and mental human development that occurs between childhood and adulthood. It is usually accompanied by an increased independence allowed by the parents or legal guardians and with lesser supervision. Adolescence is known as being a gangly, awkward, and troublesome individual. This period of life was seen as a time of "storm and stress". It is a time of great change on many levels. Probably most dramatic are the biological changes associated with puberty. These changes include dramatic shifts in the shape of the body, increase in hormones, and changes in brain architecture. These biological shifts are directly linked to changes in sexual interest, cognitive capacities and physical capacities. There are various major social changes associated with the school-linked transitions and with changes in the roles adolescents are expected to play with all those around them, the period becomes highly stressful and full of conflicts, at times extremely joyous and at times rather low in moods. Finally there are major psychological changes linked to increasing social and cognitive maturity. With rapid transformation in all areas, comes a heightened potential for both positive and negative outcomes.

Adolescence is also a time when individuals make many choices and engage in a wide range of behaviours which are crucial for the rest of their lives. For example, adolescents have to decide about the typical courses or stream that they have to opt for in the high school, they have to decide about which after school activities they must participate in and which peer group to join and so on. They begin to make future educational and occupational plans with the help of their teachers and parents as well as with their peers and try to implement these plans through secondary school course work and out of school vocational and volunteer activities. All these decisions are to be preferably taken by the youngster and it should also be his decision finally. However though parents and other elders may facilitate the decision making progress, if they unnecessarily interfere or impose their ideas on the youngster it may have disastrous consequences. One of the important aspects that may be influenced by the interference is Academic performance of the adolescents.

Academic Performance

This refers to the performance that falls within specified standard. The specified standard is usually called pass mark and the pass mark is score above average which students are considered having passed and below which students are considered having failed. This also includes performance in both curricular and co-curricular activities in the schools.

Potential Causes of the crisis in Academic performance

Many of the changes on the transition from Childhood to Adolescence school life can negatively influence students' Academic Performance. Few causes include:

a) Increased emphasis on success versus failure,
b) Heightened level of academic competition,
c) Pressure to excel,
d) Frequency of academic failure,
e) Decreased familiarity level with academic assignments,
f) More specific association of decisions with impact on career, and
g) Transformation and disruption of social networks.

Not all the teenagers successfully accomplish the developmental tasks of adolescence when faced with the complexities pressures of modern society and competitions with peer groups and thus they may exhibit feeling of futility or hopelessness among which depression is a common emotion that is experienced by many adolescents. They have a pervasive feeling of helplessness, worthlessness, hopelessness and apprehension. Other probable reasons are the loss of love objects, stress that occur due to family life events, academic failures and complexes that are formed out of unfulfilled wishes in day to day life events. All these lead to many adolescence problems such as teenage suicides, drug abuse, juvenile delinquency which is a result of emotional turmoil that effect young people from all levels of society.

Goal Setting

Goal setting theory began with the early work on levels of aspiration developed by Kurt Lewin and has since been primarily developed by Dr. Edwin Locke, who began goal setting research in the 1960s. The research revealed an inductive relationship between goal setting and improved production performance. A goal is the aim of an action or task that a person consciously desires to achieve or obtain (Locke & Latham, 2002; Locke & Latham, 2006).

Principles of Goal Setting: There are five major Principles of Goal setting. The goals must have the following Characteristics: 1) Clarity. 2) Challenge. 3) Commitment. 4) Feedback. 5) Task complexity.

Goal Mechanisms: Goals affect performance through four mechanisms.

1. **Directive Function:** First, goals serve a directive function; they direct attention and effort toward goal-relevant activities and away from goal-irrelevant activities. This effect occurs both cognitively and behaviorally. For example, Rothkopf and Billington (1979) found that students with specific learning goals paid attention to and learned goal-relevant prose passages better than goal-irrelevant passages. Locke and Bryan (1969) observed that people who were given feedback about multiple aspects of their performance on an automobile-driving task improved their performance on the dimensions for which they had goals but not on other dimensions.

2. **Energising Function:** Second, goals have an energizing function. High goals lead to greater effort than low goals. This has been shown with tasks that (a) directly entail physical effort, such as the ergometer (Bandura & Cervone, 1983); (b) entail repeated performance of simple cognitive tasks, such as addition; (c) include measurements of subjective effort (Bryan & Locke, 1967a); and (d) include physiological indicators of effort (Sales, 1970).

3. **Persistence:** Third, goals affect persistence. When participants are allowed to control the time they spend on a task, hard goals prolong effort (LaPorte & Nath, 1976). There is often, however, a trade-off in work between time and intensity of effort. Faced with a difficult goal, it is possible to work faster and more intensely for a short period or to work more slowly and less intensely for a long period. Tight deadlines lead to a more rapid work pace than loose deadlines in the laboratory (Bryan & Locke, 1967b) as well as in the field (Latham & Locke, 1975).

4. **Arousal of action:** Fourth, goals affect action indirectly by leading to the arousal, discovery, and/or use of task-relevant knowledge and strategies (Wood & Locke,

1990). It is a virtual axiom that all action is the result of cognition and motivation, but these elements can interact in complex ways.

Below is a **summary of what has been found in goal-setting research and their mechanisms:**

1. When confronted with task goals, people automatically use the knowledge and skills they have already acquired that are relevant to goal attainment. For example, if the goal involves cutting logs, loggers use their knowledge of logging without the need for additional conscious planning in their choice to exert effort and persist until the goal is attained (Latham & Kinne, 1974).

2. If the path to the goal is not a matter of using automatized skills, people draw from a repertoire of skills that they have used previously in related contexts, and they apply them to the present situation. For example, Latham and Baldes (1975) found that truck drivers who were assigned the goal of increasing the weight of their truck loads made modifications to their trucks so that they could better estimate truck weight before driving to the weighing station.

3. If the task for which a goal is assigned is new to people, they will engage in deliberate planning to develop strategies that will enable them to attain their goals (Smith, Locke, & Barry, 1990).

4. People with high self-efficacy are more likely than those with low self-efficacy to develop effective task strategies (Latham, Winters, & Locke, 1994; Wood & Bandura, 1989). There may be a time lag between assignment of the goal and the effects of the goal on performance, as people search for appropriate strategies (Smith et al. , 1990).

5. When people are confronted with a task that is complex for them, urging them to do their best sometimes leads to better strategies (Earley, Connolly, & Ekegren, 1989) than setting a specific difficult performance goal. This is because a performance goal can make people so anxious to succeed that they scramble to discover strategies in an unsystematic way and fail to learn what is effective. This can create evaluative pressure and performance anxiety. The antidote is to set specific challenging learning goals, such as to discover a certain number of different strategies to master the task (Seijts & G. P. Latham, 2001; Winters & Latham, 1996).

6. When people are trained in the proper strategies, those given specific high-performance goals are more likely to use those strategies than people given other types of goals; hence, their performance improves (Earley & Perry, 1987). However, if the strategy used by the person is inappropriate, then a difficult performance-outcome goal leads to worse performance than an easy goal (Audia, Locke, & Smith, 2000; Earley & Perry, 1987).

7. Goal setting is not an innate skill. Persons who are successful at reaching their goals have learned to set realistic goals and to plan to attain them. Studies have shown that goal setting is a behavior, elementary-age children can accomplish (e.g., Murawski & Wilshinsky, 2005).

Early studies on the relationship between goal setting and efficacy beliefs typically employed proximal goals in the form of some expected performance, such as number of problems to be solved (Bandura & Schunk, 1981), employee productivity standards (Bandura & Wood, 1989), or expected course grades (Zimmerman, Bandura, & Martinez-Pons, 1992). Subsequent research in the classroom setting has explored the nature of

students' goals and the relationship between goals and students' beliefs and actions. Of importance for instructors interested in facilitating student goal setting is that mastery-oriented goals were positively related to persistence (Ames, 1992; Dweck, 1989; Meece & Holt, 1993), achievement outcomes (Schunk, 1996; McNeil & Alibali, 2000; Morgan, 1987), and the deep processing of course materials (Elliott, McGregor, & Gable, 1999).

Self regulation

Self-regulation has been described as 'the process whereby students activate and sustain cognitions, behaviours, and affects, which are systematically oriented toward attainment of their goals'- Zimmerman (1989). Zimmerman was the first Social Psychologist and academician to propose the construct of Self Regulation and self-regulated learning in educational psychology (1989). There are four Key ingredients of Self regulation.

- The first ingredient is standards.
- Second, self-regulation requires monitoring.
- The third ingredient is self-regulatory strength.(Colloquially known as willpower).
- The fourth ingredient is motivation – specifically, motivation to achieve the goal or meet the standard, which in practice amounts to motivation to regulate the self.

Key features of Self Regulation:

- **First,** Systematic use of metacognitive, motivational and/or behavioural strategies.
- **Second**, Self-Oriented feedback.
- **Third**, Selection of Strategies and Responses.

Academic self-regulation:

Academic self-regulation is an active, constructive process.

1. Learners set goals for their learning and then attempt to monitor, regulate and control their cognition, motivation and behavior.
2. Guided and constrained by their goals and the contextual features of the environment.
3. The above activities can mediate the relationships between individuals and the context, and their overall achievement. (Pintrich, 2000)

There are majorly three Models of Self Regulated Learning are available: Models by Pintrich, Zimmerman's Cyclical Model of Academic Regulation, Boekaerts Model of Self Regulation.

All the models view learners as active, constructive participants in the learning process. Learners can potentially monitor, control and regulate certain aspects of their own cognition, motivation and behaviour. All the models recognize that there are biological, developmental, contextual and individual differences that can impede or interfere with individual efforts at regulation.

Zimmerman's Cyclical Model of Academic Self-Regulation

Phases of Cyclical Self-Regulation	Feedback Loop Processes	Main description of the factor
Forethought/ Pre-action Phase	Goal Setting	Daily Goal setting
	Task strategies	Plans and strategies for achieving goals
	Imagery	Visualisation of outcome effects
Performance Control	Attention focusing	Paying attention on performance and meta cognitive abilities
	Self instruction	Helping oneself to complete the task, inner talk/self talk.
	Time management	Effective usage of time for achieving goals in time
	Self monitoring	Monitoring one's own performance
Self- Reflection Phase	Self Evaluation	Evaluating one's performance on daily, weekly and monthly basis
	Self Consequences	Reflecting upon the consequences of doing and NOT doing the set tasks for the day
	Environmental restructuring	Reflecting upon the changes that needed to bring in order to facilitate the goal task accomplishment
	Help seeking	Identification and getting help from the experts/ family members and others who facilitate the goal accomplishment.

Rationale behind the study

In recent times the Adolescents are not acting according to their wishes. The aspirations and Goals of parents are becoming the aspirations and goals of them. Sometimes the parent's aspirations may not be same as their wishes to be, this leads to frustration in the child. This result in non performance in academics as the goal is imposed rather than self determined. So, realistic aspirations and goals are very important for the future development of the child. If their aspirations are realistic and according to their abilities, they will be successful in their life but, if their aspirations are unrealistically high and not according to their abilities, they may not achieve their goals and it leads to low self confidence and frustrations which sometimes leads to suicidal tendencies. On the other hand if their aspirations are very low, they may not perform according to their abilities. Aspirations of students have an effect on their achievement. Researches in psychology found that students' perceptions of their capabilities often are inaccurate (e.g., Beyer, 1999; Hacker, Bol, Horgan, & Rakow, 2000; Robins & Beer, 2001; Isaacson & Fujita, 2001). The extent of congruence between students' estimates of their capabilities and their actual performance can be referred to as 'achievement calibration'. One study indicated that more accurate calibration is related to more efficient in academic performance. (Horgan, 1990).

By the time the child leaves the school, if he is able to set his own goal, he would continue to be successful in the future with complete mental health. Hence regulating the behaviour is required and that can be made possible with Goal setting. As students go through the cycle of goal setting, regulating and attaining, they will become proficient in evaluating their capabilities to engage in these tasks and develop their self regulatory competencies, which is one of the key skills for 21st century learners.

Without proper intervention, a cycle can form between subpar school performance and decreased motivation, ultimately leading to lower grades and school departure or expulsion. A change if brought about which is attributed to the youngster's own efforts and decision making, may lead to a positive self confidence of the adolescent youngster.

To facilitate and help the adolescents in the light of researches in the field and the researcher has taken up a study with the following title.

Statement of the Problem:

Self Regulation of Academic Performance through Goal Setting in Adolescents – An Interventional Stud

Objectives of the study

1. To study goal setting behavior of Class X students.
2. To develop a suitable intervention programme based on Goal setting with self regulatory strategies**.**
3. To study the differences in academic performance, Gender, Class (Standard), Subjects, experimental and Control groups.
4. To study the effectiveness of the intervention programme and its impact in their lives.

Hypotheses of the Study

1. There will be no significance difference between the performance of Class X experimental group before and after goal setting Programme.
2. There will be no significance difference between academic performance of experimental and control group of Class X students with respect to pre intervention and post intervention.
3. There will be no significance difference between boys and girls of Class X with respect to their performance after goal setting.
4. There will be no effect of Goal setting Programme with Self Regulation on academic performance of the Students of Class X.

Method

The study was conducted using Experimental Design. For that True experimental design has been used. The pretest posttest equivalent (control) group design is denoted as follows –

$$
\begin{array}{l}
\text{E: M R O1 X O3} \\
\text{C: M R O2 C O4}
\end{array}
$$

Where,

E - Experimental Group, C – Control Group, M- Matching, R- Randomization,

X- Treatment, O1 O2 - Pretest scores, O3 O4 - Posttest Scores.

Participants: A total of 88 students from Class X of Telangana Social Welfare Residential Educational Institutions Society (TSWREIS) from three remote rural residential schools

TSWREIS

Name of the School, Location	Class	No. of Students
TS Social Welfare Residential School (Girls), Pochampad, Dist: Nizamabad.	Class X	38
TS Social Welfare Residential School (Boys), Armoor, Dist: Nizamabad.	Class X	24
TS Social Welfare Residential School (Boys), Maidpally, Dist: Karimnagar.	Class X	26
	Total	88

Tools

1. Goal Setting Tool (Modified and Standardised for the Study).
2. Goal Setting Module with self regulation prepared for the study.
3. Goal Self Regulator (GSR) - A self regulation worksheet for daily Goal setting.
4. To measure the academic performance, aggregate marks obtained by the subjects in 10th class in both Half Year and final exams were taken. (Only Curricular Performance was taken for Analysis)
5. Follow up check list.

Data Collection

Data collected at different Phases of Intervention (Pre Intervention, Intervention and Post Intervention). Total 48 Hours of Intervention extended for the Experimental group as part of Training on Goal setting and self regulatory strategies. (16*3=48)

Flow of Participants through Each Stage of the Intervention:

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                          ┌──────────────────────────┐
                          │     Available Sample     │
                          │         (n=96)           │
                          └──────────────────────────┘
                                      │
                                      ▼
                          ┌──────────────────────────┐
                          │    Enrollment (n=88)     │
                          │ (Excluding those who were not │
                          │ present at the time of pre test) │
                          └──────────────────────────┘
                                      │
                                      ▼
                          ┌──────────────────────────┐
                          │       Assignment         │
                          └──────────────────────────┘
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Assigned to Experimental group (n=44) Received Experimental manipulation	←→ Treatment/ Intervention ←→	Assigned to Control/ Comparison group (n=44) Did NOT Receive Experimental manipulation
Lost to follow up (n=0) Discontinued Participation (n=0)	←→ Follow Up I ←→	Lost to follow up (n=0) Discontinued Participation (n=0)
Lost to follow up (n=0) Discontinued Participation (n=0)	←→ Follow Up II ←→	Lost to follow up (n=0) Discontinued Participation (n=0)
Analysed (n=44) Excluded from analysis (n=0)	←→ Analysis ←→	Analysed (n=44) Excluded from analysis (n=0)

	Stage	Activity
Data Collection	Pre Intervention	1.Recording of Demographical data. 2.Collection of their Half yearly Marks
	Intervention	**Phase-I** 1.My Goal Sheet-I 2.Goal setting Module (Whole group Activity) • Introduction, Importance & Characteristics of Goals • Presentation on SMART goals • Different Goal setting Behaviours-Types • Training on Self Regulatory Strategies for Effective Goal accomplishment. 3.Sub Group wise Orientation (Based on the Quadrants) 4.My Goal Sheet-II (re-setting the goal as per their Goal setting type limited to academic context only.) 5.Goal Self Regulator and Behavioural Contract. **Phase-II (After 15 days)** Interaction with participants (Sub Group wise) Re-Orienting participants on Goal setting and Self Regulatory strategies.
	Post Intervention	1.Re-administering of Goal Setting tool. 2.feedback 3.Collection of their Annual Marks.

Statistics Used

Data was Analysis Using SPSS 20.0. The Various Statistical Techniques used were:

• Mean and SD
• Percentages, STEN Scores
• t- test
• ANOVA (used only for test of testing of Normality and Homoscedasticity)
• ANCOVA
• Wolf's formula

1. **Testing of Hypothesis1 (H_0): There will be no significance difference between the performance of Class X experimental group before and after goal setting Programme.**

Table 1. Analysis of Performance of Class X students- Before and After Intervention

	N	Mean	S.D	SE_M	t-value	Result
Before intervention	44	6.52	1.32	0.20	7.27**	Significant at both levels
After intervention	44	7.85	0.94	0.14		

There was a significant difference in the scores of Class X students for before intervention (M=6.52, SD= 1.32) and in the scores of Class X students for after intervention (M=7.85, SD= 0.94), under the conditions, t (86) =7.27**, p>0.01.

The findings from the above table indicated that the calculated t (7.27) was greater than the tabulated t (2.56) hence there was a significant difference of class X students before and after intervention (P>0.01). It means that the class X students had better performance after intervention when compared to before intervention. The findings showed that there was a significant difference in the performance of class X students after the Goal Setting intervention.

2. **Testing of Hypothesis2 (H$_0$): There will be no significance difference between academic performance of experimental and control group of Class X students with respect to pre intervention and post intervention.**

    Table No. 2. Analysis of Performance of Class X students – Experimental and Control groups

		N	Mean	S.D	t-value	Result
Experimental	Post Score	44	7.85	0.94	4.74	Significant at both levels
Control	Post Score	44	7.30	1.10		

There was a significant difference in the Post Scores of Class X Experimental Group (M=7.85, SD= 0.94) and in the Post scores of Class X Control Group (M=7.30, SD= 7.30), under the conditions, t (86) =4.74**, p>0.01. The findings from above table indicated that the calculated t (4.74) was greater than the tabulated t (2.56) hence there was a significant difference of Class X students before and after intervention (P>0.01). It means that the Class X Experimental Group had better performance after intervention when compared to Controlled Group. The findings showed that there was a significant difference in the performance of Class X experimental group after the Goal Setting intervention.

In this regards, it has to be shown the mean difference between the experimental and control groups final results of academic performance in terms of post test and controlling for their pre-test results. So, statistical model that can be used for the analysis of these types of hypothesis is the Analysis of Covariance (ANCOVA) which has certain assumption that should be met. These assumptions are;

Table 3: Normality and Homoscedasticity test for ANOVA

Independent Variables	N	Normality Test (KS-test)			Homoscedasticity Test (Levene's test)			
		Sts.	df	Sig.	F	df1	df2	Sig.
Experimental Group	44	.083	44	.200*	0.235	1	86	0.629
Control Group	44	.099	44	.200*				

Since the both the groups having comparable number of participates that shows that the data is normally distributed and Levene's test also indicates that both the groups having equal variance (sig. 0.629>0.05). Therefore, normality and homoscedasticity test for the ANCOVA met.

Table No 4: Normality and Homoscedasticity for ANOVA.

Independent Variables	N	Normality Test (KS-test)			Homoscedasticity Test(Levene's test)			
		Sts.	df	Sig.	F	df1	df2	Sig.
Experimental Group	44	.095	44	.200*	1.250	1	86	.850
Control Group	44	.105	44	.200*				

1. Data should be normally distributed and the groups which have to be evaluated should be equal variance.
2. Covariate should effects equally to both treatments i.e., results should be not significant.
3. Overall relationship between the dependent variable and the covariate should be less than 0.8.

If these assumptions are fulfilled then ANCOVA model of statistical analysis can be considered as the analysis of above mentioned types of hypotheses.

The second assumption of applying ANCOVA is the experimental and control groups should be insignificant by taking covariate as the outcomes variable. Therefore, the above table indicates that normality and homoscedasticity for the ANOVA for testing the above the same. It the same way as mentioned in above that the both the groups having equal number of participants so it is also normal data for the ANOVA and Levene's test also indicates that these two groups are equally variant.

Since the normality and homoscedasticity test also met for the ANOVA, therefore ANOVA can be applied which is described in the following table.

Table 5 shows Analysis of Variance (ANOVA) Results.

Groups	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	0.409	1	0.409	0.06	0.937
Within Groups	5515.545	86	64.134		
Total	5515.955	87			

Above table indicates that difference between experimental and control the groups are insignificant by taking covariate as the outcomes (sig. 0.937>0.05). Therefore, the second assumption of ANCOVA also met.

Table 6 shows the overall relationship between outcomes variable and covariate

Variables	N	Mean	Std. Deviation	r-value
Covariate	88	7.85	0.94	0.411
Dependent Variable	88	7.30	1.10	

Homogeneity Regression Slop.

The above table shows overall relationship between outcomes variables and covariate which also known as the homogeneity of regression slop assumption for the ANCOVA. It indicates that there is no strong correlation between covariate and outcomes variables as the whole (r-value = 0.41<0. 8). Therefore, this assumption also met as the applying ANCOVA.

Since all the assumption checked carefully which is described in above mentioned table and all are met. So, for the testing above hypothesis, ANCOVA can be used.

Table 7   Tests of Between-Subjects Effects

Dependent Variable: Academic Scores as Obtained in Post Test

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	819.990[a]	2	409.995	13.083	.000
Intercept	3737.497	1	3737.497	119.264	.000
Pre-Intervention	581.069	1	581.069	18.542	.000
Programme $SS_{Between}$	232.529	1	232.529	7.420	.008
Error SS_{within}	2663.726	85	31.338		
Total	185211.000	88			
Corrected Total	3483.716	87			

a. R Squared = .235 (Adjusted R Squared = .217)

ANCOVA results for Class X

The above table intimate that the null hypothesis "There is no significance difference between academic performance of experimental and control group of Class X students with respect to pre intervention and post intervention." is fail to accept [F (1,85)=31.338, p<0.05]. It can be concluded that there is significance difference between experimental and control group on their academic performance with respect to Goal setting through self regulation.

Table 8   shows estimated marginal means.

Independent Variables	Covariate Measure	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Experimental Group	39.09	47.09	5.648	45.37	48.81
Control Group		43.08	6.608	41.79	45.80

Estimated Marginal Means

While the above table shows estimated marginal mean which indicates that the students of experimental group performed (mean=47.09) better than control group (mean=43.08).

Findings: the null hypothesis which stated as "There is no significance difference between academic performance of experimental and control group of Class X students with respect to pre intervention and post intervention." is fail to be accepted [F (1,85)=31.338, p<0.05]. Thus, there is significance difference between experimental and control group on their academic performance controlling their pre-test results. Whereas students of experimental group performed (mean=47.09) better than control group (mean=43.08).

Results: Goal setting through Self Regulation is more effective in terms of achievement in the academic setting.

3. **Testing of Hypothesis 3 (H_0): There will be no significance difference between boys and girls of Class X with respect to their performance after goal setting.**

Table 9. Comparison of performance of Boys and Girls of Class X Students

		N	Mean	S.D	t-value	Result
Boys	Post Score	25	8.47	0.57	7.20**	Significant at both levels
Girls	Post Score	19	7.02	0.65		

There was a significant difference in the score for Boys of Class X (M=8.47, SD=0.57and Girls of Class X (M=7.02, SD=0.65), under the conditions, t (42) =7.20, p>0.01. The findings from table indicated that the calculated t (7.20) was greater than the tabulated t (2.56) hence there was a significant difference between Boys and Girls of class X with respective Post scores in intervention (P>0.05). The results indicated that Male students had greater performance than female students.

4. **Testing of Hypothesis 4 (H$_0$): There will be no effect of Goal setting Programme with Self Regulation on academic performance of the Students of Class X.**

Calculation of Effectiveness of Intervention Programme: (Using Wolf's Formula)

The Experimental design was

E: M   O1   X   O3 (Experimental Group)

C: M   O2   O4 (Control Group)   M- Matching

The Pre and Post Intervention scores for Experimental and Control Groups are:

E: M 6.52 X 7.85 (Experimental Group)

C: M 6.49   7.30 (Control Group)

The formula for computing effect size is as follows.

$$d = \frac{X_E - X_C}{SD_C}$$

Where d = Magnitude of effectiveness of the experiment.

X_E = Mean score of the dependent variable of the experimental group

X_C = Mean score of the dependent variable of the control group

SDc = Standard Deviation of the dependent variable of the control group

The following criteria provided by wolf have been used for interpreting the results.

Table 4.22: Magnitude Effect size

If d is more than 0.80	Maximum Effect
'd' between 0.50- 0.79	Moderate Effect
'd' between 0.20- 0.49	Minimum Effect

$$d = \frac{X_E - X_C}{SD_C}$$

d = (7.85-7.30)/ 1.10= 0.5 from the above table the value is between 0.50 – 0.79 hence the intervention has moderate effect on Class X experimental group as a whole.

Findings and Conclusions

The major conclusions which were drawn from the study are:

- The programme facilitated them in setting their goals and is reflected in the regulation of academic performance.

- There was a significant difference in the scores of Class X students for before intervention (M=6.52, SD= 1.32) and in the scores of Class X students for after intervention (M=7.85, SD= 0.94), under the conditions, t (86) =7.27**, p>0.01.
- The findings showed that there was a significant difference in the performance of class X students after the Goal Setting intervention.
- There was a significant difference in the Post Scores of Class X Experimental Group (M=7.85, SD= 0.94) and in the Post scores of Class X Control Group (M=7.30, SD= 7.30), under the conditions, t (86) =4.74**, p>0.01.
- The Class X Experimental Group had better performance after intervention when compared to Controlled Group. The findings showed that there was a significant difference in the performance of Class X experimental group after the Goal Setting intervention.
- There was significance difference between experimental and control group on their academic performance controlling their pre-test results. Whereas students of experimental group performed (mean=47.09) better than control group (mean=43.08). [F (1,85)=31.338, p<0.05].
- There was a significant difference in the score for Boys of Class X (M=8.47, SD=0.57and Girls of Class X (M=7.02, SD=0.65), under the conditions, t (42) =7.20, p>0.01. The results indicated that Male students had greater performance than female students.
- The Class X Students had better performance after intervention when compared to before intervention.
- The intervention has moderate effect on Class X experimental group as a whole. (d=0.51 for wolf's formula).

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