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Effect of Mindfulness-Based Intervention on Self-Regulation among Adolescents

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Abstract: The purpose of the present experimental work is to study the effect of mindfulness-based intervention on the self-regulation behaviour among adolescents. The pretest-posttest control group experimental design has been employed. The sample for the current study consists of sixty-two IX class students from two senior secondary government schools affiliated to the Punjab School Education Board. The Adolescent Self-Regulatory Inventory has been used to measure self-regulation at both the pretest and post-test levels. Mindfulness-based intervention was given to the experimental group, and no treatment was given to the control group. The independent sample t-test was used to analyse the collected data. It has been found that the mindfulness-based intervention has resulted in improving the self-regulation abilities among experimental group in comparison to the control group.

Keywords: Mindfulness-based Intervention, Self-Regulation and Adolescents.

Introduction

The concept of Self-regulation is conceptualised as the ability to activate, monitor, maintain, control, and adapt one's attention, emotions, behaviour, and cognitive strategies in response to internal and external stimuli to accomplish personal goals (Moilanen, 2007). In Self-regulated learning, learners exhibit active and volitional behaviours that regulate their learning, such as setting their own learning objectives, developing strategies to accomplish tasks, managing time and structuring the environment. All these strategies motivate the individuals to succeed in the tasks in hand. Thus, these self-regulatory skills are functions of skill and will of individuals (Woolfolk et al., 2000). The self-regulation enables an individual to concentrate on the self as an agent who actively acts in their environment (Martin, 2004). Learners with high self-regulation are more likely to attain higher academic achievements in comparison to those with low self-regulatory behaviours (Barnard-Brak et al., 2010). The Zimmerman three phase model of self-regulation clearly represent the development process of self-regulation. The first phase namely, forethought include the processes such as goal setting, self-efficacy and intrinsic motivation to perform the tasks. The second phase, performance control includes the processes such as attention, monitoring of actions, and time management during the performance. In the third phase i.e. Self-reflection, the individuals are involved in the evaluation of their task outcomes ((Zimmerman, 1998). These phases clearly the crucial of individuals in their own learning. they need to responsible for their actions. This role becomes more important in the digital learning environments. As the digital learning environments require the learners to be more autonomous, which further require the learners to be with good self-regulatory abilities. To develop self-regulatory abilities, there is need of mental training programmes that enables individuals to bring requisite behavioural changes. Mindfulness has been found to a promising technique in promoting student agency (Rieken et al., 2024). Originated from Buddhism, Mindfulness has been gaining attention of educational researchers.

Mindfulness has been conceptualized as a practice of "paying attention in a particular way: on purpose, in the present moment, and non-judgmentally" (Kabat-Zinn, 1994). Intention, attention, and attitude are identified as the important components of Mindfulness (Shapiro et al., 2006). The process required an intention to regulate one's attention, sustain the attention and accepting attitude towards present moment experiences. Two important components of mindfulness are identified by Bishop (2004) are self-regulation of attention and adaptation of a particular kind of orientation towards present moment experiences. In the self-regulation of attention, keen observation of present moment experiences with a deep sense of awareness of all the sensation and thoughts involved in those experiences. The second component of mindfulness requires the development of an attitude of curiosity, openness and acceptance. Practicing the art of being mindful results in being aware of the present moment experiences. Mindfulness improves concentration, cognitive flexibility, (Davis and Hayes, 2011) and emotional regulation. Mindfulness programmes such as MBRS, MBCT and DBT are gaining popularity worldwide. These mindfulness practices have been gaining popularity in improving physical, cognitive and mental health. The mindfulness practices include the activities such as Mindful Meditation, breathing exercises, body scanning, and mindful movements.

Thus, the present study aimed to investigate the effect of Mindfulness-based interventions on the self-regulation among adolescents.

Objectives

The objectives of the present study were as follows:

1. To study the self-regulation abilities among adolescents.
2. To study the effect of Mindfulness-based Interventions on the self-regulation abilities among adolescents.

Hypotheses

The hypotheses of the present study were as follows:

Ho1: There is no significant difference in the mean scores of self-regulation between the experimental and control groups at the pre-test stage.

Ho2: There is no significant difference in the mean gain scores of self-regulation between the experimental and control groups post-intervention.

Method

Sample

The IX class students studying in Government Senior Secondary schools affiliated to the Punjab School Education Board of Jalandhar City constituted the population for the study. Two schools were selected randomly as sample schools. One school was selected as the experimental group and the other school as the control group. The students studying in the IX class of the selected two schools were taken as intact groups as the study sample. Sixty-two students constituted the study sample. Thirty-one students in the experimental group and thirty-one students in the control group. This was a pilot study to determine the effectiveness of Mindfulness-based Intervention on the self-regulation abilities of adolescents.

Table 1 Experiment Design

Pre-Test	Treatment	Post-Test
Adolescent self-regulatory inventory	Mindfulness-Based Interventions	Adolescent self-regulatory inventory

The pre-test and post-test control group experimental design was used. As shown in Table 1, the experiment has been conducted as follows:

(a) Pre-test: The Adolescent self-regulatory inventory (Moilanen, K.L., 2007), adapted by the investigator, was administered as a pre-test on all sixty-two students of the IX class of both schools.
(b) Intervention: Mindfulness-based intervention was given to all the students for twenty-one days for forty minutes daily. This intervention includes the following activities:

1. Mindful Breathing
2. Mindfulness of Senses
3. Mindfulness of Compassion
4. Mindfulness of Gratitude
5. Mindfulness of Intention

(c) Post-test: After the intervention, the Adolescent self-regulatory inventory (Moilanen, K.L., 2007), adapted by the investigator, was administered as a post-test on all sixty-two students.

Research Tool

To measure the self-regulation abilities, the Adolescent Self-Regulatory Inventory (Moilanen, K.L., 2007), adapted by the investigator, was administered. This tool has been used as both a pre-test and a post-test.

Data Analysis Techniques

The collected data have been analysed using an independent t-test on Microsoft Excel.

Ethical Considerations

The authors followed the ethical procedures for the data collection. The permissions were sought from the heads of the respective schools. The participants were instructed about the objectives of the study and their volunteer participation. Further, participants were informed about the confidentiality of their data.

Results

The hypothesis-wise results of this study are as follows:
Ho1*: There is no significant difference in the mean scores of self-regulation between the experimental and control groups at the pre-test stage.*
The independent sample t-test has been used to analyse the data, and the results from the analysis are as follows:

Table 2 shows the Mean and p-values of pre-test scores of the Adolescent Self-regulation of IX class students

Test	N	Mean	Df	P(T<=t) two-tail	P value
Experimental group	31	92	47	0.148975512	p>0.05
Control group	31	97.16129032			

Interpretation

The mean of the pre-test score of the experimental group was 92 (see Table 2), which is less than the mean pre-test score of the control group (97.16). From Table 2, the p-value (0.1489), which is greater than 0.05 level of significance and thus is not found to be significant at the 0.05 level of significance, and thus the Ho1 "*There is no significant difference in the mean scores of self-regulation between the experimental and control groups at the pre-test stage*" is not rejected. Thus, there is no significant difference in the pretest scores of self-regulation between the experimental and control groups. This clearly represents that both groups are similar in their baseline self-regulation levels before the mindfulness-based intervention.

***Ho2**: There is no significant difference in the mean gain scores of self-regulation between the experimental and control groups post-intervention.*

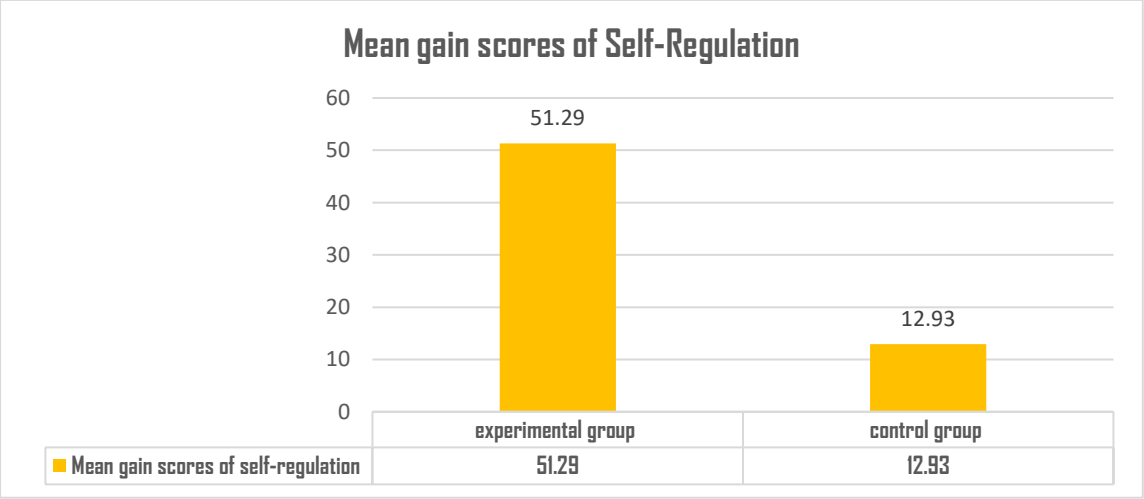
The independent sample t-test has been used to analyze the data, and the results from the analysis are as follows:

Table 3 shows the Mean, Df, and p-value of the gain scores of Adolescent Self-regulation of IX class students

Test	N	Mean	Df	P(T<=t) two-tail	P value
Experimental group	31	51.29	42	.0001	p<0.001
Control Group	31	12.93			

Interpretation

The data shows that the mean gain test scores of self-regulation of the experimental group (51.29) are greater than the mean gain test scores of self-regulation of the control group (12.93), thus the MBIs are found to be effective in improving Adolescent self-regulation among IX class students who received the intervention. Further, the p-value is found to be significant at the 0.01 level of significance. Thus, the Ho2 "*There is no significant difference in the mean gain scores of self-regulation between the experimental and control groups post-intervention"* is rejected. The graphical representation also depicts the comparison of mean gain scores of self-regulation of experimental and control groups and is given in Graph 1.



Graph 1 Mean Gain Scores of Self-Regulation of Experimental and Control groups

Conclusion

Self-regulation is a requisite skill for the learners to excel in the present highly digital learning environment, where the learners are accountable for their own learning. In the present digital world, technology has revolutionized the whole teaching learning process. However, the distractions created by such environments result in challenging the ability to remain concentrated on the task in hand. But there is a need for such practices that can prepare learners to rationally regulate their learning in the distractive environments as well. The findings of the study clearly stated that mindfulness-based practices helped in improving the self-regulatory abilities of learners. Mindfulness practices have great potential to benefit the learners to be self-regulated especially, in the present era of digitalization.

Suggestions for Further Researches

The present study was conducted with a small sample size of sixty-two students. Similar studies can be conducted with a large sample size for better generalization of results. The researchers can conduct similar studies for the different stages of school structure, educational boards, and demographic properties. Longitudinal studies can be conducted to examine the persistent effect of mindfulness. Further, the integration of mindfulness-based interventions in the curriculum and their impact can be studied.

Limitations of the Study

The present study was conducted with a limited number of class IX students, which may affect the generalizability of the results. The present study was conducted on the sample schools affiliated to the State Educational Board, i.e., the Punjab School Education Board, only.

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