MIND MAPS AS A TOOL FOR ENHANCING ACADEMIC SELF-EFFICACY AND ACADEMIC RESILIENCE AMONG COLLEGE STUDENTS

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Abstract

In the current scenario when most of the school and college education has become online, students are facing major challenges in understanding and retaining study materials, which can in turn negatively affect their academic self-efficacy and academic resilience. Mind mapping is a visual representation of information. Mind mapping can be used to produce, structure and present ideas in a coherent way. It can help students to map out new ideas, explore concepts in more detail and facilitate a better understanding of relationships and connections. Mind mapping can benefit memory retention by creating maps that involve association. The current study attempted to use mind maps as a tool to enhance academic self-efficacy and academic resilience among undergraduate college students. Eighty college students were recruited for the study using convenient sampling. The study employed a quasi-experimental pre-test post-test research design. Data was collected using Academic Self Efficacy Scale (Gafoor& Ashraf, 2007) and Academic Resilience Scale (Cassidy, 2016). The scales were administered to the students after which students were asked to prepare mind maps for every major paper they were studying. This was regularly monitored by the course instructors and feedback was provided. After a period of three months, the same scales were administered. Appropriate statistical tools were used for analysis. Results showed that the use of mind maps led to a significant increase in academic self-efficacy and academic resilience. The study shows the importance of the use of pedagogical tools such as mind maps for better performance of college students.

Keywords: *Mind maps, academic self-efficacy, academic resilience, online learning, college students*

Resilience and self-efficacy are two psychological dimensions that are recently being explored in any of the arenas of human life including in academic domain. The reason why resilience and self-efficacy matters the most nowadays is because of the unprecedented pandemic hat the world went through. Students all over the world had to shift to online education. This brought in a lot of stress and anxiety among students (Pandey et al., 2021). Students who were used to listening directly from their teachers were not able to have any personal contact. Note takingwas reduced when all material was started to be shared as digital documents. This led to a drastic reduction in the quality of retention and comprehension among students worldwide both at school and college levels (Bawa, 2016).

Resilience refers to both the abilityto successfully cope with change, misfortune or adversity (Wagnild& Young, 1993; Garmezy, 1996). Whereas, academic resilience is more specific and deals with the capacity to overcome acute and chronic adversity, major threat, in a student's educational development (Mirza &Arif, 2018). Resilient students are found to perceive themselves as more efficient both in general and in specific scholastic context, compared to the less resilient ones (Sagoni&Caroli, 2013). Academically resilient students will be able to beat all the odds against them and eventually succeed in their academic pursuits.

Self-efficacy is one's faith in one's ability to prosper and progress in the face of all misfortunes (Qamar& Akhter, 2020). Academic self-efficacy is an important attribute as Betz (2004) explains that students with high efficacy explore more inspirational professional choices than those who have low self-efficacy.Students' academic adjustment and academic performance are found to be enhanced by interventions aimed to improve academic resilience and academic self-efficacy as well as by creating a facilitative environment (Sadoughi, 2018).

NEED AND SIGNIFICANCE OF THE STUDY

Erinosho, (2013) stresses that the teaching methodology employed by the teacher reflects on the understanding of the concept by the student. Learners who utilize mind maps are more likely able to learn effectively by organizing maps and add images and color to them (Nesbit &Adesope, 2006). Mind maps have

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also been used as reflective tools that allow for broaderassociations to be made to the material (Budd, 2004). Moreover, utilizing mind maps aids teachers vary their teaching methods which may be more likely to reach diverse learners (Nesbit &Adesope, 2006).Adam and Mowers (2007) found that learners who could express their learning with visual skills had a 40% higher retention rate than that of just verbal learners.The present study attempts to use mind maps to enhance the psychological variables of academic resilience and academic self-efficacy among female college students and thereby improve their academic performance

OBJECTIVE

To determine whether incorporating pedagogical techniques like mind mapping in the curriculum can enhance the academic resilience and academic self-efficacy of college students

HYPOTHESES

H1: There is no significant difference in the academic resilience of students before and after practicing mind mapping.
H2: There is no significant difference in the academic self-efficacy of students before and after practicing mind mapping.

METHOD

Participants
The study was conducted on eighty female students in a women's college in Chennai. The sample was recruited using convenient sampling. The recruitment of the samples and the study's procedure was in accordance with ethical requirements. All participants were females and the age ranged from 18 to 20.

Tools
The **AcademicResilienceScale-30(ARS-30)**was developed in 2016 by Cassidy as a context-specific construct measure of academic resilience based on student responses to academic adversity. In order to perform this scale, first, student reads a short text that illustrates an example of a difficult academic situation which shows a significant academic challenge and effort. Then, on the academic resilience scale, he chooses the options closest to his opinion. The items are scored along a 5-point Likert scale from likely (1) to unlikely (5). The total score of the scale is obtained from the sum of the scores of the items, ranging from 30 to 150.
The **Academic Self-Efficacy Scale**was developed in 2007 by Gafoor& Ashraf to measure the academic self-efficacy of students based on the Self-Efficacy theory of Albert Bandura (1977). There are 40 Likert type items for which the options range from Exactly True (5) to Exactly False (1). The total score of the scale is obtained from the sum of the scores of the items, ranging from 40 to 200.

Intervention
The recruited participants were administered the scales. After that, they were asked to draw mind maps of every concept they learned by hand and were asked to scan and send it to their teachers. This activity was done on a weekly basis and the teachers were providing feedback on how the students were drawing the mind maps. All students were motivated to use the same method of drawing the mind map. The students reported to the teachers that the activity was helping them in better retention and understanding of the concepts. After continuing the activity for three months, the same scales were administeredto the same set of participants.

RESULTS & DISCUSSION

A paired sample t test was conducted to compare academic resilience in baseline and post intervention conditions.

Table 1
Descriptive statistics of the baseline level and post intervention level of Academic Resilience

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Academic Resilience Baseline score	51.76	80	5.88	.66
	Academic Resilience Post intervention score	75.48	80	15.65	1.75

Table 2

Summary of Paired Samples t Test of the scores of baseline level and post intervention level of Academic Resilience

Pair	df	t	Sig (2-tailed)
Academic Resilience Baseline score – Academic Resilience Post intervention score	79	-18.14	0.00

There is a significant difference in the scores for Academic resilience baseline level (M=51.76, SD=5.88) and Academic Resilience Post intervention level (M=75.48, SD=15.65); t(79)=-18.14, p=0.00.
Therefore, Hypothesis 1is rejected.

Table 3

Descriptive statistics of the baseline level and post intervention level of Academic Resilience

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Academic Self Efficacy Baseline score	128.89	80	8.10	0.90
	Academic Self Efficacy Post intervention score	157.78	80	11.63	1.30

Table 4

Summary of Paired Samples t Test of the scores of baseline level and post intervention level of Academic Self Efficacy

Pair	df	t	Sig (2-tailed)
Academic Self Efficacy Baseline score – Academic Self Efficacy Post intervention score	79	-43.63	0.00

There is a significant difference in the scores for Academic Self Efficacy baseline level () and Academic Resilience Post intervention level (); t(79)=-43.63, p=0.00.
Therefore, Hypothesis 2 is rejected.

The results show how effective mind maps are in enhancing the academic resilience and academic self efficacy among college students. In spite of the classes being held online, the students were able to reap the benefits of using a different pedagogical method. Mind maps let learners to produce a visual image to enrich their learning (Budd, 2004). Farrand, Hussain, and Hennessy (2002) found that mind maps help in studying as well as in developing a deeper level of learning, especially when paired with a problem-based learning curriculum.

The variables chosen for the present study, academic resilience and academic self-efficacy are very important as far as students are concerned. In the context of scholastic or academic achievement, if students enrol themselves according to their positive beliefs about a particular subject and their effort level, they can achieve better grades (Qamar& Akhter, 2020).

CONCLUSION

The use of mind maps led to a significant increase in academic self-efficacy and academic resilience among female college students. The study shows the importance of the use of pedagogical tools such as mind maps for better performance of college students. The major limitations of this study are the absence of a control group and the limited sample size. Future studies can incorporate control group in the methodology and consider the use of digital mind maps. The effect of mind maps on academic score can be investigated.

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