

Research Paper

Predictive Ability of Mindfulness in Cognitive Flexibility among a Sample of University Students

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ABSTRACT

The present study aims to determine the predictive ability of mindfulness for cognitive flexibility in a sample of college students in the city of Irbid. The study included (1762) students. The result of the study shows that there was a difference in the mean scores of the study participants' responses on the cognitive flexibility scale according to the gender variable in favor of females and in the variable of years of study in favor of first- and fifth-year students, and the variable of specialization in favor of the humanities. For the GPA variable, however, in favor of students with the excellent mean. The result of the study indicates that there is a difference in the response of the study participants on the mindfulness scale depending on the gender variable in favor of males and in the variable of specialization in favor of humanities, while there were no significant differences depending on the variables of years of study and GPA on the mindfulness scale. Regarding the study variables predicting cognitive flexibility, it was found that for both genders, respectively: Curiosity and decentering.

Keywords: Predictive Ability, Cognitive Flexibility, Mindfulness, University Students

In recent years, the lives of people in general and students in particular have evolved tremendously in various spheres of life, which has also affected the academic side of students. Students are losing their alertness in general and flexibility in particular, which makes it difficult for them to develop and interact with the academic environment, causing them many academic problems. For the student to successfully complete this phase, he must make an effort, persevere and endure the academic stresses and demands of university. In addition to coping with problems and stresses in other daily life, all of this requires an appropriate level of mindfulness and cognitive flexibility.

Cognitive flexibility is critical to success in the classroom and an important component in education. It also plays an important role in the educational process as the way learners are taught" has a major impact on the nature and formation of their cognitive structures, which

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in turn affects learners' ability to store and retrieve information easily (Diamond, Barnett, Thomas & Munro, 2007).

Cognitive flexibility, which can develop between the ages of 3 and 5, varies from person to person, with cognitive flexibility considered an element of executive function and high-level cognition involving the ability to control thinking. Executive function includes aspects of cognition such as inhibition, memory, emotional stability and planning, and cognitive flexibility is closely related to these abilities (Miyake, Friedman, Emerson, Witzki, Howerter & Wagner, 2000). It is also associated with mental abilities such as intelligence, fluency and comprehension and has been described as the ability to solve problems in novel situations (Colzato, van Wouwe, Lavender & Hommel, 2006). Cognitively flexible people can switch between sounds and meanings and/or think about them simultaneously. It is also related to a person's ability to adapt to certain situations (Han, Park, Kee, Na, Na & Zaichkowsky, 1998).

Cognitive flexibility leads to the ability to change an individual's perception, to characterize stimuli and data according to different features, to find new relationships between all elements, to interpret reality in different ways, the ability to rearrange the meaning of elements in different contexts, and the ability to regroup the elements of the representation. Cognitive flexibility allows individuals to automatically reconstruct their knowledge in a variety of ways when the basic requirements of the situation change (Cañas, Antoli, Fajardo & Sulmeron, 2005).

Rose (2011) also describes cognitive flexibility as the extent to which an individual responds quickly to new and unfamiliar environmental conditions. This requires work to switch cognitive processes to the imposed demands of these conditions and to deal with them using alternative perceptions, and this involves many components, such as: looking at the problem or changing the method of solution. Cognitive flexibility helps students in their automatic responses to new situations and problems and in coping with academic tasks and situations because it helps them with new alternatives and the production of multiple ideas (Ciarrano, Bonino & Miceli, 2006).

Thanks to cognitive flexibility, individuals can accept the ideas and beliefs of others and look at the people around them with a creative eye. This is referred to as openness of knowledge and awareness of multiple points of view, which greatly contributes to building more logical thinking, processing ideas, and applying them in new ways and alternative contexts; where Langer theory has shown that there is a positive correlation between cognitive flexibility and mindfulness. Mentally alert people have a greater ability to draw their cognitive ideas from more than one cognitive source and are open to the perspectives of others (Langer, 1989).

Mindfulness is seen as a process by which the individual looks at the problem from multiple angles rather than in a linear way of thinking. It helps the student to be aware of what is happening around them and to continuously engage in the ongoing educational process, transforming their role from that of a mere participant to that of a producer and observer (Brown & Ryan, 2004). It also prevents individuals from thinking in traditional or stereotypical ways as it allows them to break away from attachment to arbitrary thought patterns and distorted ideas in the mind and emotional purging and form logical and organized cognitive schemas and cognitive cues based on logic and realistic evidence as it is associated with ambition, academic achievement, and self-efficacy (Brausch, 2011).

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According to Neigel, Behairy & Szalma (2017), the need for knowledge reflects the individual's desire to engage in and enjoy complex thought processes. It is one of the individual traits that is characterized by stability and influences various aspects of academic performance. People who have a high need to know show higher academic performance than their peers. They perform better on cognitive tests, can understand complex academic material and are better able to process information that is directly relevant to academic performance.

The mentally alert person can distinguish information from the beginning of its presentation and then process it through conscious interpretation, because the mentally alert person classifies the cognitive inputs and then processes them in such a way that he can control them within the context assigned to them. And that the lack of mindfulness leads to a unidirectional and categorical view of the events that the individual lives through, which leads him to intellectual stagnation and to not accepting new visions, whether social or possible, and this leads him to be characterized by mechanical behavior and spinning in a vicious circle (Al-Akashee, 2019).

Mindfulness is one of the variables often relied upon to teach mental skills through the practice of meditation. The practice of mindfulness as a strategy leads the individual to change the ways of thinking that they use in controlling their emotions so that they realize that negative, that irrational thoughts that accompany a bad mood are only thoughts and do not reflect the actual situation, and that the individual in this situation does not need to do anything other than consciously control themselves (Alsuqaa, 2016).

Jarukasemthawee (2015) points out that there is a so-called cognitive mindfulness awakening that occurs when the mind is freed from craving, hatred and disregard. Here, craving refers to feelings directed towards things, be they material or immaterial, often these cravings are a source of pain and mental suffering because they urge the individual to fulfill them, while hatred results from feelings of anger, tension or pressure and is directed against a particular person or situation and is also a source of mental suffering, and the third source of mental suffering is neglect. It often arises from unclear feelings that lead to emotional rigidity.

Confirmed Albrecht, Albrecht & Cohen (2012) emphasize that mindfulness helps students to perceive their reality and understand themselves clearly. It also promotes harmonious behavior, both on the psychological level, so that the student shows several positive qualities such as mercy, compassion, and tolerance, and on the social level, which improves the social climate within the institution, and mindfulness contributes to the student's high academic performance.

And that mindfulness means that the individual engages with the assumptions of others and knows their thoughts and feelings. When the mindful person interacts with others, he or she is in intellectual contact with them, and the focus is more on the outcome than on the communication process itself. mindfulness is based on continuous observation of experience. Focusing on present experiences more than preoccupation with future or past events, fully confronting events and accepting tolerance and experiences together without judging them (Cardaciotto, Herbert, Forman, Moitra & Farrow, 2008).

Mindfulness is considered as a group of techniques because mindfulness has its own independent and unique techniques and is considered as part of other techniques related to

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different practices. These techniques also include breathing meditation exercises, relaxation, and others. This explains the comprehensive practice of mindfulness (Nanda, 2009).

The research question arose from the results of studies (Pidgeon & Keye, 2014; Ismail, 2017; Priyadarshi & Premchandran, 2019; Boer, 2017) that indicated a positive relationship between mindfulness and flexibility. Cognitive flexibility and mindfulness are critical to academic success and achievement because they are closely related to the student's personality and academic performance. It affects not only performance, but also all other essential aspects of students' academic careers, such as persistence and perseverance in general. Cognitive flexibility and mindfulness are among the basic and important factors for the university student, because these variables work to develop his skills and solve his problems in the best possible way, and so he can develop them in others. Moreover, the student cannot focus on ideas and cognitive aspects if he does not regularly practise meditation and insight and possess positive personality traits that determine his orientation, and this requires from him a kind of cognitive flexibility in these situations, because flexibility is one of the basic abilities of thinking.

Therefore, this study investigated the relationship between cognitive flexibility and mindfulness in a sample of university students, specifically to answer the following questions:

- Are there statistically significant differences between the arithmetic means of the study subjects' responses on the cognitive flexibility and mindfulness scales based on the variables of gender, major, years of study, and GPA of a sample of university students?
- What is the degree of predictive power of mindfulness and cognitive flexibility in university students?

METHOD

Participants

The study sample consisted of 1762 students, including 908 male and 854 female. Their ages ranged from 19 to 22 years, with a mean age of 20 years and a standard deviation of 0.95. They were selected from one of the Jordanian public universities. They were an available sample.

Measures

Two studies were used in this study: one to measure cognitive flexibility and the other to measure mindfulness.

- 1. Cognitive flexibility scale:** In this study, cognitive flexibility was measured using the Cognitive Flexibility Inventory (CFI) by Dennis & Vander Wal, (2010). The CFI consists of two subscales: Alternatives, which includes thirteen items (1, 3, 5, 6, 8, 10, 12, 13, 14, 16, 18, 19, 20); Control, which includes seven items (1, 2, 4, 7, 8, 9, 11). The 13 items of the CFI are arranged on a 7-point Likert scale, so that 1 stands for "strongly disagree" and 7 for "strongly agree". Alternatives are defined as a person's ability to perceive life situations with multiple interpretations and to find multiple and alternative solutions to them. Control, on the other hand, is defined as the control and ability to perceive difficult situations. In the present study, the Cronbach's alpha for the cognitive flexibility subscales was 0.89 and 0.80 respectively.
- 2. Mindfulness scale:** In this study, mindfulness was measured using the Toronto Mindfulness Scale (TMS-State) by Lau et al. (2006). The TMS-S consists of two

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subscales: Curiosity, which comprises six items (3, 5, 6, 10, 12, 13); Decenteredness, which comprises seven items (1, 2, 4, 7, 8, 9, 11). The 13 items of the TMS-S are arranged on a 5-point Likert scale, so that 0 means "not at all" and 5 means "very much". Curiosity is defined as an adjective that refers to inquisitive thinking, such as exploration, investigation, learning, and the desire to acquire knowledge and skills. While decentering is defined as a variety of techniques aimed at changing an individual's egocentric thinking and mental events. In the present study, the Cronbach's alpha for the mindfulness subscales was 0.90 and 0.81 respectively.

Procedures

To achieve the objectives of the study, the study instruments were prepared in their final form after their validity and stability indicators had been checked. Subsequently, the scale was distributed to students at Yarmouk University via an electronic questionnaire in (Google Drive) in February 2024. The respondents had 21 days to answer the questions. They were assured that their participation was voluntary and that the data they provided would be treated with absolute confidentiality and used for scientific research purposes. After conducting the exploratory study, it became clear that the time taken by the people in the exploratory sample to answer the scale was between (20-30) minutes, and the answers were loaded from the website into the program (SPSS), and then the appropriate statistical treatments according to the (SPSS) program were used to answer the study questions.

Data analysis

The T-test was used to determine the differences in the level of cognitive flexibility and mindfulness depending on the variables gender and specialization. One-way analysis (ANOVA) was used to determine the differences in the level of cognitive flexibility and mindfulness as a function of the variable's years of study and GPA. To determine the degree of predictive power of mindfulness and cognitive flexibility, a stepwise multiple regression analysis was performed.

RESULTS

Multivariate four-way analysis of variance (MNOVA) was used to determine the differences in cognitive flexibility depending on the variables (gender, field of study, years of study, GPA), which is shown in the following tables.

Table (1) Means and standard deviations of the differences in cognitive flexibility depending on the variables (gender, years of study, specialization, GPA)

Variables	Category	Number	M	SD
Gender	Male	908	4.03	0.48
	Female	854	4.24	0.50
Study Years	First	354	4.27	0.59
	Second	392	4.24	0.57
	Third	394	4.13	0.57
	Fourth	391	4.11	0.56
	Fifth	231	4.23	0.63
Specialization	Scientific	859	4.12	0.49
	Humanitarian	903	4.27	0.48
GPA	Excellent	516	4.28	0.53
	Very Good	581	4.24	0.51
	Good	539	4.22	0.52
	Acceptable	126	4.21	0.75

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Table (1) shows that there are obvious differences between the mean values of the study subjects' responses in terms of cognitive flexibility depending on the variables (gender, years of study, specialization, GPA). To find out the statistical significance of these differences, multivariate four-way analysis of variance (MNOVA) was applied to cognitive flexibility as shown in Table (2).

Table (2) The results of the multivariate four-way analysis of variance (MNOVA) to show the differences in cognitive flexibility depending on the variables (gender, years of study, specialization, GPA).

Variables	SS	Df	MS	F	Sig.
Gender	5.244	1	5.244	6.342	0.012*
Study Years	20.761	4	5.190	6.277	0.000*
Specialization	1.749	1	1.749	7.281	0.007*
GPA	11.274	3	3.758	4.544	0.004*
Error	1448.740	1752	0.827		
Corrected total	1492.478	1761			

* $P \leq 0.01$

Table (2) shows statistically significant differences between genders in cognitive flexibility, with the value of ($F = 6.342$; $P < 0.01$), and it can be seen from Table (1) that the mean level for females ($M = 4.24$) is higher than the mean level for males ($M = 4.03$); Table (2) also shows statistically significant differences according to the variable of specialization, with the value of ($F = 7.281$; $P < 0.01$), and Table (1) shows that the mean degree of human specialization ($M = 4.27$) is higher than the mean degree of scientific specialization ($M = 4.12$). Table (2) shows that there are statistically significant differences in all degrees of cognitive flexibility and the variables of years of study, where the value of ($F = 6.277$; $P < 0.01$), and GPA, where the value of ($F = 4.544$; $P < 0.01$).

Table (3) Dimensional comparisons according to Scheffe on the degree of usual flexibility based on the variables of academic year and GPA.

Study Years		First	Second	Third	Fourth	Fifth
	M	4.27	4.24	4.13	4.11	4.23
First	4.27					
Second	4.24	0.28*				
Third	4.13	0.14	0.13			
Fourth	4.11	0.18	0.04	0.10		
Fifth	4.23	0.07	0.16	0.34*	0.25*	
GPA		Excellent	Very Good	Good	Acceptable	
	M	4.28	4.24	4.22	4.21	
Excellent	4.28					
Very Good	4.24	0.09				
Good	4.22	0.24*	0.05			
Acceptable	4.21	0.15	0.16	0.01		

* Significance level ($\alpha = 0.05$).

Table (3) shows that there are statistically significant differences ($\alpha = 0.05$) between the mean score of the first-year students on the one hand and the mean score of the second-year students on the other, with the differences coming from the first-year students. The table also showed that there were statistically significant differences ($\alpha = 0.05$) between the mean

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score of fifth year students on the one hand and the mean score of third- and fourth-year students on the other hand, with differences in favor of fifth year students. Table (3) also showed that there were statistically significant differences ($\alpha = 0.05$) between the mean score of the students with an excellent mean score on the one hand and the mean score of the students with a good mean score on the other, and it came to the differences of the students with an excellent mean.

A multivariate four-way analysis of variance (MNOVA) was conducted to determine the differences in mindfulness as a function of the variables (gender, years of study, specialization, GPA), which is presented in the following tables.

Table (4) Means and standard deviations of the differences in mindfulness depending on the variables (gender, years of study, specialization, GPA)

Variables	Category	Number	M	SD
Gender	Male	908	4.19	0.49
	Female	854	4.10	0.51
Study Years	First	354	4.20	0.62
	Second	392	4.14	0.59
	Third	394	4.12	0.59
	Fourth	391	4.11	0.58
	Fifth	231	4.14	0.66
Specialization	Scientific	859	4.10	0.50
	Humanitarian	903	4.18	0.51
GPA	Excellent	516	4.17	0.55
	Very Good	581	4.14	0.52
	Good	539	4.18	0.54
	Acceptable	126	4.08	0.79

Table (4) shows that there are obvious differences between the mean values of the study subjects' responses regarding mindfulness depending on the variables (gender, years of study, specialization, GPA). To find out the statistical significance of these differences, a multivariate four-way analysis of variance (MNOVA) was applied to the mindfulness scale. Table (5) illustrates this.

Table (5) The results of the multivariate four-way analysis of variance (MNOVA) to show the differences in mindfulness depending on the variables (gender, years of study, specialization, GPA).

Variables	SS	Df	MS	F	Sig.
Gender	3.257	1	3.257	11.447	0.001*
Study Years	1.571	4	0.393	1.380	0.238
Specialization	2.853	1	2.853	10.026	0.002*
GPA	1.178	3	0.393	1.208	0.247
Error	498.522	1752	0.285		
Corrected total	508.080	1761			

* $P \leq 0.01$

Table (5) shows statistically significant differences between genders in mindfulness, with the value of ($F = 11.447$; $P < 0.01$) and from Table (4) the mean level in males ($M = 4.19$) is higher than the mean level in females ($M = 4.10$). Table (5) also shows statistically

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significant differences according to the variable of specialization in mindfulness, where the value of ($F = 10.026$; $P < 0.01$), and table (4) shows that the mean degree of human specialization ($M = 4.18$) is higher than the mean degree of scientific specialization ($M = 4.10$). Table (5) shows that there are no statistically significant differences in the two variables of academic year, where the value of ($F = 1.380$); And GPA, where the value of ($F = 1.208$).

To answer the second question, a graded multiple regression analysis was performed to find out to what extent the dimensions of mindfulness contribute to the prediction of cognitive flexibility of both genders. Table (6) shows the results of this analysis.

Table (6) Results of a multiple stepwise regression analysis of the extent to which the dimensions of mindfulness contribute to the prediction of cognitive flexibility

DV	Predictors	B	R	R2	F	Sig.
Cognitive flexibility	Curiosity	0.31	0.34	0.11	227.394	0.000*
	Decentering	0.15	0.37	0.14	116.830	0.000*

* $P < 0.0001$

Table (6) shows that the dimensions of mindfulness together explained about 14% of the variance in cognitive flexibility. Curiosity explained 11% of the variance and thus contributed significantly to the prediction of cognitive flexibility at the significance level ($P < 0.0001$); while decentering contributed another 3% to the variance.

DISCUSSION

The results show that the arithmetic mean values of the study subjects' responses to the control dimension were in favor of female compared to male, depending on gender. The researchers attribute this result to the fact that they enjoy the gift of being offered many solutions and the tendency to seek additional information for difficult situations before reacting to them, weighing up the available alternatives and facing up to life's difficulties by making the necessary decisions without difficulty and feeling comfortable with the methods of dealing with difficult situations, and self-confidence in the search for appropriate solutions to difficult situations.

This result can be explained by the differences in the personal characteristics of male and female in general, which may contribute to finding these differences between male and female, as they are characterized by the ability to react in social environments and adapt more easily to their social environment, as well as the ability to hypothesize more about how they should be presented. In social interaction with male, female also naturally seek to assert themselves and balance the pressures of life with what satisfies their desires, achieve their goals and ambitions, and boost their self-confidence by engaging, pursuing further study and increasing the degree of perseverance in accomplishing tasks and being better able to control them by developing multiple alternative interpretations and differentiating between them, to find alternative solutions or accept the opportunities created by the situation in order to react to them or adapt better in the face of these events and situations.

The results showed that there were differences in the arithmetic mean of the responses of the subjects of the study on cognitive flexibility depending on the variable of the year of study in favor of the first- and fifth-year students compared to the students of the other years of study. The researchers attribute this result to the methods used by first and fifth grade students when they are exposed to different situations. Some of them work on adapting their

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reactions depending on the situation they find themselves in. Also, the cognitive and social nature of the university phase helps students to broaden their social perceptions by doing what social educational institutions such as friends and society prescribe them to do. This requires the need to adapt to these new social conditions, i.e., cognitive flexibility to accept the new.

In addition, the nature of the different teaching materials or cognitive experiences they are exposed to during their college studies requires them to be cognitively flexible, such as providing alternative and multiple interpretations of life events and human behavior, devising, or generating multiple alternative solutions to difficult situations, and recognizing and controlling difficult situations.

The results also showed that there were differences in the arithmetic means of the responses of the individuals in the study sample to the cognitive flexibility by specialization variable in favor of the students of humanities majors compared to the students of science majors. The researchers attribute this result to the fact that students with humanitarian specializations can change and modify the cognitive strategies they use in the face of emergencies and circumstances and that they can change cognitive structures depending on the events and stimuli present in the same situation. That is, these students may have a deep understanding of what they are learning and their ability to flexibly apply what they have learned in different situations in the advanced stages of thinking. This indicates the development of students' ability to look at problem solving from different angles, consider multiple alternatives of life situations before make decision, think about more than one way to solve problems, prioritize, recognizing difficult situations and training the ability to master difficult situations and problems. Teachers can encourage students to explore new knowledge and allow them to debate, open the door to dialog, express their personal views, organize different points of view, propose solutions and their acceptance as well as possible alternatives.

The results showed that there were differences in the arithmetic means of the responses of the subjects in the cognitive flexibility study, depending on the GPA variable, in favor of those with an excellent mean compared to those with other means. The researchers attribute this finding to the fact that students with excellent grades are more likely to provide alternative and multiple explanations for life events and human behavior and to find multiple alternative solutions to difficult situations. Recognize and control difficult situations. In addition, students with an excellent average can solve problems and conflicts efficiently and effectively, and the ability to face up to the surrounding circumstances and the events to which they are exposed. They have special strategies for adapting to and dealing with these situations and stresses, the extent of their own willingness to face them and the ability not to be influenced by them or to act in accordance with them.

The results also showed that there were differences in the arithmetic mean of the study subjects' responses on the level of mindfulness by gender variable in favor of male compared to female. The researchers attribute this finding to the fact that male students who have high levels of mindfulness can consciously educate themselves and have sufficient skills to assess their abilities and use them in the various situations they face, and are more focused on investing learning resources and understanding, they tend to develop new methods and ways to approach the ideas they receive, in addition to their willingness to be open and accepting of current experiences. These characteristics are considered a prerequisite for problem-solving skills, creating a positive relationship between mindfulness

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and problem-solving skills. The student's awareness of the events around him and the cognitive content and learning experiences to which he is exposed, as well as his openness to new experiences, adapting them and viewing them from different angles, promotes his cognitive flexibility. This therefore leads to a maximization of their ability to practice problem-solving skills, as sensing the problem, defining it, developing alternatives, making decisions, and evaluating alternatives require a high level of awareness and openness that leads them to apply these skills in the situations they face.

The results showed that there were no differences in the arithmetic mean of the study subjects' responses on the level of mindfulness as a function of the study year variable. The researchers attribute this result to the fact that students in this age group lose the continuous state of moment-to-moment awareness due to accelerating life events, which causes them to react to the meaning of their knowledge and experiences. Since they are stereotypical in their behavior, they are unaware of themselves and unmotivated to change their thought patterns, living in the same cycle of thought and behavior. And since all student's study in a uniform academic environment, they are exposed to similar experiences and knowledge. This can be explained by the degree of mindfulness and high focus on experiences, openness to new things and focusing attention on our lives, moment by moment, because mindfulness teaches the student to focus, to be attentive, the degree of self-regulation, to invent new ideas, openness and awareness to the experiences and experiences they are going through, which leads them to insight into the situations they are going through and they interact with them.

The results also showed that there were differences in the arithmetic means of the responses of the individuals in the study sample on the level of mindfulness by specialization variable in favor of the students of humanities majors compared to the students of science majors. The researchers attribute this result to the nature of individuals in the humanities disciplines to pay attention to new events and remain aware of their developments. The researchers believe that the type of courses taken by humanities students require simultaneous attention and concentration as well as awareness of the present moment to absorb these courses, which makes them mentally alert. The researchers attribute this finding to the fact that students have the same academic tasks and responsibilities regardless of their gender. They must also possess the same skills that will help them in their studies and undergo the same assessment requirements such as examinations, study tasks and practical programmes. This result is due to the fact that all degree programmes are subject to the same university regulations and instructions and the student takes the same type of examinations and other university matters.

The results showed that there were no differences in the arithmetic mean of the study subjects' responses on the level of mindfulness according to the GPA variable. The researchers attribute this result to the fact that this is due to the students being concerned and positively focused on academic aspects. They have positive impressions of their studies because they can realize their ambition in life. This leads them to focus on the positive aspects of studying and how they can succeed in it, and to concentrate on carefully and accurately following the instructions and advice given to them, whether by teachers or older students, so that they overcome possible mistakes.

The results of the second question showed the predictive power of each of the variables predicting cognitive flexibility, namely curiosity and decentralization. The results showed that the variable curiosity explained 11% of the total explanatory variance of the predictive model and the variable decentralization explained 14% of the total explanatory variance of

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the predictive model. Given this result, the researchers believe that the higher the mindfulness of the study participants, the higher their cognitive flexibility. The researchers believe that students who seek new knowledge and set goals can achieve them, and that students who rely on themselves have high mindfulness and therefore high cognitive flexibility.

This can be explained by the fact that those who enjoy mindfulness use the development of the individual for themselves and improve their self-confidence by detaching themselves from the immediate reaction to feelings and thoughts and not limiting themselves to one view and one scope for solving problems. Mentally alert people have access to multiple sources and receive important and useful information. Mindfulness is also seen as a means of achieving psychological balance for the individual and making progress towards greater well-being. This result can be explained considering what was confirmed by the Suenbue study (2020). This confirmed that mindfulness has significant positive relationships with positive affection and cognitive flexibility, while both positive affection and cognitive flexibility have significant positive relationships with flexibility. Flexibility is an essential feature of vigilance and plays an important role in changing the state of mind, helping to provide ideas for responses.

Directional implications include building and preparing training and rehabilitation programs aimed at developing cognitive flexibility, training it in the practice of mindfulness, and raising awareness of its importance in the lives of college students. Activate the role of the Counseling Center by providing counseling services and consultations to build goals and flexibility in achieving those goals, as well as addressing cases with low levels of cognitive flexibility and mindfulness. Improve levels of cognitive flexibility and mindfulness by activating the role of the Dean of Students offices in engaging students in curricular and extracurricular activities.

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Conflict of Interest

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