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## The Relationship between School Connectedness and Academic Engagement: Mediating Role of Mindfulness

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### ABSTRACT

**Objective:** One of the burgeoning areas of interest within the realm of education pertains to student engagement, a central component of positive psychology (PP). Another fundamental concept in the PP literature is school connectedness, which underscores the belief students hold regarding the care shown by adults and peers in the educational environment towards their academic progress and personal welfare. Additionally, mindfulness, a pivotal term in the field of PP, offers noteworthy advantages such as enhancing working memory and reducing stress levels, consequently fostering academic involvement. Given the significance of school connectedness and mindfulness in academic engagement, the present study endeavors to examine the association between school connectedness and academic engagement in high school students, with mindfulness serving as a mediator.

**Methods:** A total of 300 high school students from Bandar Abbas participated in the study, responding to scales measuring mindfulness, school connectedness, and academic engagement. Subsequently, structural equation modeling was employed to illuminate potential relationships.

**Results:** The results indicated a significant correlation between school connectedness and academic engagement. Furthermore, the findings demonstrated that both school connectedness and mindfulness serve as positive and significant predictors of academic engagement. Moreover, the results substantiated the mediating role of mindfulness.

**Conclusions:** These findings offer valuable insights for educators in enhancing classroom practices.

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## Introduction

Academic engagement is crucial for student success and involves various behaviors, including active participation, perseverance, and exertion in school activities ([Farmani et al., 2022](#)). Students that are actively involved in their studies generally demonstrate improved academic performance, increased levels of motivation, and a higher probability of successfully finishing their degree ([Jenaabadi & Bahri, 2023](#)). School connectedness is a crucial component that affects academic engagement. It pertains to the extent to which students feel accepted, appreciated, and supported by their school community ([Moradi et al., 2022](#)). Extensive research regularly demonstrates that students who experience a sense of connection to their educational institution are more inclined to actively participate in their academic tasks, resulting in enhanced educational achievements ([Ravan et al., 2020](#)). Engagement is a crucial requirement for successful education, and its lack can lead to feelings of fatigue ([Kouhshekan, 2022](#)), which may jeopardize academic achievement in the field of foreign language instruction, as highlighted by [Dornyei \(2019\)](#). Without active involvement, adolescents may display disruptive behaviors, lack the drive to achieve higher academic standards, and may even contemplate leaving school. Disengaged learners often exhibit a passive attitude and have difficulties such as boredom, anxiety, or stress in the classroom ([Duffy & Elwood, 2013](#)). In order to enhance students' involvement and reduce their exhaustion, it is crucial to identify the most effective strategies in this field.

According to the conducted research, mindfulness is an additional beneficial psychological tool that can reduce anxiety and stress, address issues with attention, and improve overall well-

being of learners ([Leland, 2015](#)). It is claimed that mindfulness-based techniques are a practical choice for educators to improve their students' concentration, involvement, and inquisitiveness, eventually reducing the chances of experiencing burnout ([Axelrod & Santagata, 2022](#)). More precisely, an attentive individual possesses heightened consciousness of the present situation and places significant emphasis on staying in the present moment ([Minkos et al., 2018](#)). Research has demonstrated that mindfulness is a successful approach for promoting positive responses to anxiety and reducing self-destructive inclinations ([Zhong et al., 2024](#)). Utilizing this strategy in classroom settings can be advantageous for enhancing concentration and attentiveness, hence enabling teachers to optimize their time utilization. Mindfulness approaches not only promote participation, healthy relationships, and general satisfaction, but also emphasize and cultivate heightened awareness, resilience, and emotional control ([Jia-Yuan et al., 2022](#)).

Mindfulness-based therapies have been scientifically validated in recent years to assist students in managing anxiety and improving their socioemotional functioning ([Maynard et al., 2017](#)). Mindfulness interventions aim to boost students' altruism, attentiveness, mental well-being, and general feeling of well-being. These interventions usually involve meditation and different strategies that try to increase awareness in the current moment, handle difficult thoughts and emotions, and promote a sense of non-judgmental acceptance towards oneself, others, and the world ([Siffredi et al., 2021](#)). Undoubtedly, the primary elements of mindfulness are self-regulation of attention and nonjudgmental experience awareness. Developing self-regulation of attention requires sharpening one's awareness of current experiences, including feelings,

ideas, and bodily sensations. In contrast, having a nonjudgmental awareness fosters qualities like as curiosity, openness, and acknowledgement of these experiences. This, in turn, aids in enhancing emotional control by reducing reactivity.

Although there is a strong correlation between feeling connected to school and being actively engaged in academics, a significant number of kids continue to encounter difficulties associated with disengagement and low academic performance. This implies that there may be additional factors that are essential in determining the nature of this connection. An area of inquiry that shows promise is the investigation into the role of mindfulness, which is characterized as a state of attentive and receptive focus on the current moment ([Adibi et al., 2023](#)). Research has demonstrated that engaging in mindfulness activities, such as meditation, deep breathing exercises, and mindful awareness, can improve cognitive functioning, regulate emotions, and boost overall psychological well-being ([Tang et al., 2019](#)).

Mindfulness may act as a mediator in the connection between school connections and academic engagement. Engaging in mindfulness exercises enables students to enhance their self-awareness regarding their thoughts and emotions, hence enabling them to better regulate stress and negative affect. By developing a higher level of self-awareness and improving their ability to regulate their emotions, students may experience a stronger sense of belonging to the school community and become more actively involved in academic pursuits. In addition, the implementation of mindfulness techniques can enhance concentration and focus, so immediately enhancing academic achievement.

Gaining insight into the mediating influence of mindfulness in the connection between school connections and academic engagement is essential for creating holistic interventions that target the enhancement of student outcomes. By incorporating mindfulness techniques into educational programs, educators and politicians have the ability to cultivate a more nurturing and immersive learning environment. The objective of this study is to examine if mindfulness has a role in the connection between school connectedness and academic engagement in high school students. The findings of this study could provide valuable information for the development of successful educational techniques and interventions.

## and Methods

**Participants:** A total of 300 high school students from Bandar Abbas participated in this study. The sample was selected using a stratified random sampling method to ensure a representative distribution of participants across different grades and schools. The demographic characteristics of the participants, such as age, gender, and socioeconomic status, were collected to control for potential confounding variables.

## Measures

1. **Mindfulness:** The Mindful Attention Awareness Scale (MAAS) was utilized to assess mindfulness. This scale created to evaluate the frequency of mindful states experienced in everyday life. Originating from the work of [Ryan and Brown \(2003\)](#), the MAAS is grounded in the mindfulness concept, emphasizing attentive awareness of the present moment in a non-evaluative manner. Comprising 15 items, each item in the MAAS is assessed on a 6-point

Likert scale ranging from 1 (almost always) to 6 (almost never). High internal consistency has been consistently demonstrated by the MAAS, with Cronbach's alpha coefficients typically falling within the range of .80 to .90, suggesting strong interrelations among the scale items measuring a unified construct ([Ryan & Brown, 2003](#)). Various studies have confirmed the MAAS's strong test-retest reliability, suggesting its ability to produce consistent results over time. For example, [Ryan and Brown \(2003\)](#) observed test-retest reliability coefficients around .81 over a span of several weeks.

2. **School connectedness:** The assessment of the school connectedness construct was conducted using the school connection scale developed by [Brown and Evans \(2002\)](#). Comprising 16 items, this survey employs a four-point scale ranging from strongly disagree (1) to strongly agree (4) for grading. The total score achievable on this scale ranges from 16 to 64. A higher score on this scale signifies a stronger affiliation with the educational institution. The school connection scale encompasses four distinct subscales: commitment, ability, belonging, and belief in rules. Commitment is gauged through items 1 to 4, ability through items 5 to 8, belonging through items 9 to 12, and belief in rules through items 13 to 16. [Brown and Evans \(2002\)](#) have reported the internal consistency reliability of this scale as 0.86, utilizing Cronbach's alpha coefficient. The factorial structure of the scale has been validated through the application of factor analysis, revealing the presence of four underlying factors: commitment, ability, belonging, and belief in rules. Moreover, [Loukas et al. \(2010\)](#) have documented the internal consistency reliability of the scale at 0.76, with subscale reliabilities ranging between 0.76 and 0.77.

**3. Academic Engagement:** The Academic Engagement Scale (AES), developed by [Reeve and Tseng \(2011\)](#), is a tool designed to measure students' engagement in academic settings. Engagement in this context refers to the intensity and emotional quality of a student's involvement in initiating and carrying out learning activities. The AES consists of multiple items that assess different dimensions of academic engagement. The scale typically includes items that measure behavioral, emotional, cognitive, and agentic engagement. Items are typically rated on a Likert scale, though the exact range can vary (e.g., from 1 - "strongly disagree" to 5 - "strongly agree").

The AES has shown high internal consistency, with Cronbach's alpha coefficient reported around .80 ([Reeve & Tseng, 2011](#)). [Samavi et al. \(2017\)](#) mentioned the reliability coefficient of this scale using Cronbach's alpha method equal to 0.87, Andrew confirmed the factor structure of this scale by using factor analysis method.

### **Procedure**

The study was conducted in two phases. In the first phase, participants were administered the FFMQ, PSSM, and SEI scales during regular school hours. Prior to data collection, students and their guardians provided informed consent, and participants were assured of the confidentiality and anonymity of their responses. The administration of the scales was supervised by trained research assistants to ensure consistency and accuracy in data collection.

In the second phase, the collected data were analyzed using Structural Equation Modeling (SEM) to examine the potential mediating role of mindfulness in the relationship between school connectedness and academic engagement. SEM was chosen due to its ability to test

complex relationships between observed and latent variables and to provide a comprehensive understanding of the underlying mechanisms.

Data were analyzed using SPSS and AMOS software. Descriptive statistics were calculated to summarize the demographic characteristics and scale scores of the participants. The results of the SEM analysis provided insights into the direct and indirect relationships between school connectedness, mindfulness, and academic engagement, elucidating the potential mediating role of mindfulness in this context.

## Results

Descriptive statistics, such as the mean, standard deviation, and correlation coefficients, are displayed in table 1.

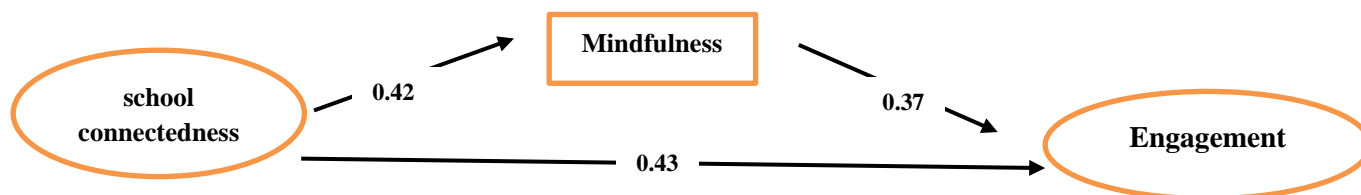
**Table 1.** Descriptive findings and correlation matrix of research variables

Variable	Mean	SD	School connectedness	Academic Engagement
Mindfulness	44.72	3.53	0.44**	0.39**
School connectedness	35.47	4.21	1	0.47**
Academic Engagement	69.24	5.11	0.47**	1

\*\*p < 0.01

The findings depicted in Table 1 reveal a significant positive relationship between the mindfulness and school connectedness as well as a significant positive relationship with mindfulness and academic engagement. Moreover, there is a positive and significant association between school connectedness and academic engagement. Utilizing structural equation analysis, the study explores whether mindfulness serves as a mediating factor between school connectedness and academic engagement. The results indicate that all paths are statistically significant. The final model

illustrating the relationships among the research variables is illustrated in Figure 2. Additionally, the fit indices for the final model are presented in Table 2.



**Figure 1.** The final research model

**Table 2.** Model fit indices

Indices	X <sup>2</sup> /DF	P	GFI	AGFI	IFI	TLI	RATIO	PCFI	RMSEA
Value	1.11	0.07	0.97	0.94	0.92	0.93	0.04	0.13	0.06

The data from Table 2 suggested a good fit of the model

**Table 3.** Estimation of direct, indirect and total research coefficients

Path	Direct effect	Indirect effect	Total effect
School connectedness to Mindfulness	0.42**	-	0.42**
Mindfulness to Academic engagement	0.37**	-	0.37**
School connectedness to Academic engagement	0.43**	-	0.43**
School connectedness to Academic engagement through Mindfulness	-	0.16*	-

\* p < 0.05. \*\* p < 0.01

Table 3 exhibits the direct, indirect, and total standard paths and coefficients within the final research model. Analysis of Figure 1 and Table 3 reveals that school connectedness exerts a significant positive direct impact on mindfulness ( $\beta=0.42$ , Sig=0.01) and an indirect effect on academic engagement ( $\beta=0.16$ , Sig=0.05). Similarly, mindfulness demonstrates a significant positive direct effect on academic engagement ( $\beta=0.37$ , Sig=0.01). Furthermore, school connectedness exerts a positive and significant direct effect on academic engagement ( $\beta=0.43$ , Sig=0.01).

## Discussion

The findings of this study underscore the critical role of school connectedness and mindfulness in fostering academic engagement among high school students. The results confirm that students who perceive a high level of school connectedness—feeling cared for and supported by their peers and educators—are more likely to exhibit greater academic engagement. This aligns with previous research highlighting the importance of a supportive school environment in promoting students' motivation and participation in academic activities. Previous research has extensively documented the positive correlation between school connectedness and academic engagement. For instance, studies by [McNeely et al. \(2010\)](#) and [Shochet et al. \(2008\)](#) found that students who feel a sense of belonging and support within their school environment are more likely to participate actively in their academic work, exhibit better attendance, and achieve higher academic performance. The current study corroborates these findings, reinforcing the notion that school connectedness is a fundamental factor in fostering academic engagement.

The study also demonstrates the significant role of mindfulness as both a direct predictor of academic engagement and a mediator in the relationship between school connectedness and academic engagement. Mindfulness, characterized by present-moment awareness and non-judgmental acceptance of one's experiences, contributes to better emotional regulation, enhanced focus, and reduced stress levels. These benefits are crucial in an academic setting where students often face various stressors that can impede their engagement and performance.

The mediation analysis reveals that mindfulness partially mediates the relationship between school connectedness and academic engagement. This suggests that while school connectedness directly influences academic engagement, its impact is also channeled through the enhancement of mindfulness. In other words, students who feel connected to their school are more likely to develop mindfulness, which in turn fosters greater academic engagement. This finding provides a nuanced understanding of how the interplay between environmental and psychological factors can drive student engagement. The role of mindfulness in enhancing academic engagement has also been supported by earlier studies. For example, research by [Roeser et al. \(2013\)](#) demonstrated that mindfulness interventions could lead to improvements in students' attention, emotional regulation, and academic performance. Similarly, a study by [Bakosh et al. \(2018\)](#) showed that students who participated in mindfulness programs reported higher levels of engagement and academic success. The current study extends these findings by not only confirming the direct positive impact of mindfulness on academic engagement but also by identifying mindfulness as a mediator in the relationship between school connectedness and academic engagement.

The mediation analysis in the current study reveals that mindfulness partially mediates the relationship between school connectedness and academic engagement. This finding aligns with the results of studies by [Jennings et al. \(2013\)](#) and ([Schonert-Reichl et al., 2015](#)), which suggested that mindfulness could enhance the benefits of a supportive school environment by helping students manage stress and maintain focus. The current study adds to this body of

research by providing empirical evidence of the mediating role of mindfulness, highlighting how it can amplify the positive effects of school connectedness on academic engagement.

These insights have significant implications for educational practice. For educators and school administrators, the findings emphasize the importance of fostering a supportive and inclusive school environment that promotes a sense of belonging and connectedness among students. Strategies to enhance school connectedness could include creating mentoring programs, promoting positive teacher-student relationships, and encouraging peer support networks. By prioritizing these initiatives, schools can create a nurturing environment that supports students' academic and personal development.

Furthermore, the study highlights the potential benefits of integrating mindfulness practices into the school curriculum. Mindfulness interventions, such as mindfulness-based stress reduction (MBSR) programs or classroom mindfulness exercises, can equip students with tools to manage stress, improve their focus, and enhance their overall well-being. Given the mediating role of mindfulness, such interventions could be particularly effective in translating the positive effects of school connectedness into increased academic engagement.

The use of structural equation modeling (SEM) in this study provides a robust methodological approach to examining the complex relationships between school connectedness, mindfulness, and academic engagement. SEM allows for the simultaneous assessment of multiple relationships, providing a comprehensive picture of how these variables interact. The significant fit indices reported in the study suggest that the hypothesized model is well-supported by the data, reinforcing the validity of the findings.

In conclusion, this study contributes to the growing body of literature on positive psychology in education by elucidating the roles of school connectedness and mindfulness in academic engagement. The findings advocate for a holistic approach to education that considers both the social environment and psychological well-being of students. By fostering a sense of connectedness and promoting mindfulness, educators can enhance students' engagement, thereby supporting their academic success and overall development. Future research could explore the longitudinal effects of these factors and investigate additional mediators and moderators to further understand the dynamics of student engagement.

### Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

### Ethics statement

The studies involving human participants were reviewed and approved by the ethics committee of University of Hormozgan. The patients/participants provided their written informed consent to participate in this study.

### Author contributions

All authors contributed to the study conception and design, material preparation, data collection, and analysis. All authors contributed to the article and approved the submitted version.

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### Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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