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Mindfulness, Artificial Intelligence Self-Efficacy, and Life Orientation Among University Students: Examining Their Interrelationships

[1]Dr. Oraib Ali Abu Ameerh, [2]Dr. Atef Hassan Al-Qasim, [3]Manar Fahmi Mustafa Albakour, [4]Mona Humoud Mohammad Al-Hamdan,[5]Lubna Ibrahim Ali Alkhatib

[1]Full-time lecturer, Princess Alia University College, -Al-Balqa Applied University, Jordan. E-mail: oraib.abuameerh@bau.edu.jo, Orcid: https://orcid.org/0000-0002-1685-0435,
[2]Assistant professor, Psychological Science Association. E-mail: atef_35@yahoo.com, Orcid: https://orcid.org/0009-0006-8609-7000,
[3]Independent researcher. E-mail: manarbkoor@gmail.com,
[4]Public Authority for disability affairs. E-mail: Mona-alhamdan@hotmail.com, Orcid: https://orcid.org/0009-0000-6093-986X,
[5]Independent researcher. E-mail: a.aaber@yahoo.com

Abstract
The purpose of this study was to analyze the relationship of mindfulness with life orientation among the university students and analyze the mediating effect between mindfulness and life orientation on artificial intelligence (AI) self-efficacy. Descriptive correlational method was used. The study sample included 650 undergraduate students from Al-Balqa Applied University for the first semester of the academic year for 2025/2026. The Mindful Attention Awareness Scale (MAAS), Life Orientation Test-Revised (LOT-R), and artificial intelligence self-efficacy were used to gather the data. Analysis of data was performed by descriptive statistics, Pearson's correlation coefficient and mediation analysis. The results showed relatively high levels of life orientation (M = 33.73, SD = 2.70) and mindfulness (M = 65.07, SD = 8.15). A positive relationship was further detected between mindfulness and life orientation, which means the higher the scores, the more positive the approach to life of the students was more. The results also revealed that there was a positive relationship between the factors of artificial intelligence self-efficacy and both the factors of mindfulness and life orientation, and that artificial intelligence self-efficacy has a mediation effect in the relationship between the factors of mindfulness and life orientation. Based on the results of these findings, it can be seen that cognitive programs which trigger students' mindful condition can cause them to feel more confident in using artificial intelligence which in return can have an impact on more positive attitude toward life. The findings of the study emphasize the psychological and technological resources that are important in order to facilitate the adjustment and wellbeing of university students. It suggests that such practices should be considered alongside schemes to boost students' confidence and competence around the use of AI in higher education settings.

Keywords: Mindfulness, Life orientation, Artificial intelligence self-efficacy, Optimism, University students, Positive psychology.

Introduction

Artificial intelligence (AI), especially generative AI, has been less in higher education, and has brought new opportunities for teaching and learning in recent years. AI has the capability to aid in information retrieval, academic writing, personalized learning, problem-solving, coding, providing feedback, and various other methods of learning (Kasneci et al., 2023; Miao & Holmes, 2023; Naznin et al., 2025; Tlili et al., 2023). But students differ in their skill, confidence, attitudes, and readiness to interact with these technologies (Bewersdorff et al., 2025; Falebita & Kok, 2025; Morales-García et al., 2024). This has led to growing interest in the concept of "artificial intelligence self-efficacy", which is defined as a person's belief or confidence in their ability to use AI technologies to complete specific tasks and achieve certain goals (Morales-García et al., 2024; Wang & Chuang, 2024).

AI self-efficacy might constitute a key psychological and technological tool for university students. Students with low AI related self-efficacy tend to exhibit negative behaviors regarding usage of AI technologies in learning, which include poor attitudes towards AI, high levels of AI related anxiety and low self-efficacy (Chen et al., 2024; Falebita & Kok, 2025). Likewise, Bewersdorff et al. (2025) identified AI literacy, interest in AI, positive attitudes and past experience of AI use as being linked to greater AI self-efficacy among university students. Research on AI-specific self-efficacy has therefore highlighted that confidence in AI could be the key

to helping students navigate and adjust to new technology, persevere through technological hiccups, and implement successful strategies when learning through AI (Morales-García et al., 2024; Wang & Chuang, 2024). Mindfulness might also be a relevant psychological basis for understanding differences in AI self-efficacy. Mindfulness in present-moment awareness and attention has been found to relate to self-regulated behavior, emotional regulation and psychological well-being, as well as appropriate responses to difficult circumstances (Brown & Ryan, 2003). Mindfulness has also been shown to have a significant positive correlation with university students' resilience, especially the awareness and nonreactivity dimension (Liu et al., 2022). These attributes are theorized to aid students to adapt with more attention, emotional control and perseverance when encountering new or fast evolving technologies. Such a relationship, however, is important to explore as there is limited direct empirical evidence that connects mindfulness and self-efficacy for AI. Life orientation is another possible psychological tool as optimism involves general positive expectancies for future outcomes and has been linked to positive coping responses to stressful situations (Scheier & Carver, 1985). Therefore, the study of the relationship between the three constructs of mindfulness, AI self-efficacy, and life orientation simultaneously could be useful to better understand the interactions of psychological and technology-related resources among today's university students in AI-rich educational settings.

This change to a university life is a very important developmental stage, riddled with academic, social, and emotional stresses. Stress, which can affect Mental health and Academic Performance, is experienced by many students at this critical period (Bayram & Bilgel, 2008). Given these possible challenges, the authors have become more interested in the concepts of positive psychology that can help students' psychological resilience, such as life orientation and mindfulness.

Life orientation, particularly optimism as a stable character, signifies a person's overall expectancy of positive and negative outcomes in life (Scheier & Carver, 1985). Optimistic people approach things with healthy coping mechanisms and have an overall better mental state, and exhibit more resilience when under stress (Carver et al., 2010). In higher education institutions, students can develop a positive attitude and be more prepared to take on challenges with confidence and determination.

Nonetheless, the psychological state or practice of mindfulness is about being aware of the present moment without being judgmental (Kwee, 1995). It has been linked with diminished anxiety (Chaurette et al., 2009) and enhanced focus and academic achievement in university students (Baer et al., 2006; Shapiro et al., 2011). In the educational context, there has been an increased interest in the use of mindfulness programs because of their potential to foster wellbeing and students' academic achievement.

Life orientation and mindfulness are clearly different based on how they are theoretically constructed; however, recent studies show the same positive relationship between the two. Both have been linked to improving psychological resilience and an individual's adaptation capability, and can be co-activated to prevent individuals from stress effects. A positive and open attitude can make it easier to participate and learn meditative skills, and practicing mindfulness can improve positive expectations through decreased presence of cognitive distortions and increased acceptance (Garland et al., 2011).

The relation between life orientation and mindfulness among University students might have great implications. It was suggested that knowing this relationship may help in designing psychological interventions at both these levels to improve students' wellbeing. But studies investigating the connection between these two ideas are still scarce, and still more empirical research is required to elaborate on the nature and direction of the association.

Studies have shown that having an optimistic attitude, a positive attitude toward life, is associated with good sleep quality and decreases in the levels of depression and anxiety in University students. Scheier and Carver (1985) conducted a study in which they found that optimists had better mental health and quality of sleep, which led to their better academic and cognitive performance. To this is added the research published by Conversano et al. (2010), which revealed that optimism helps in diminishing stress and assists in better coping with daily situations.

However, mindfulness-based interventions have been found to be very effective at reducing stress levels among university students, particularly during exams. For instance, Galante et al. (2018) demonstrated that mindfulness interventions with students reduced symptoms of stress and promoted positive changes in students' mood and attention. Sixty-one-sixths of the students were studied, and the students trained exhibited significant progress as compared to the control group.

The positive associations of mindfulness with life orientation in the participants of this study corroborate the results found by Bunjak et al. (2022), demonstrating an increase in positive impact on engagement with higher mindfulness. Although they did not learn the life orientation sector, they discovered that there was a synergic effect with respect to the mindfulness-optimism combination - that is, the adaptive effect of optimistic

expectations is higher when mindfulness is present. This supports the hypothesis that being more mindful is related to being more likely to put positive thoughts into positive psychological functioning.
Furthermore, Soriano-Ayala et al. (2020) concluded that a mindfulness-based intervention can improve healthy eating habits and resting behaviors of university students, which is beneficial to their healthy living, psychological, and physical wellbeing. Galante (2020) further reported that the process of being mindful fostered more positive appraisals of stress and enhanced the psychological flexibility of university students, which in turn improved their ability to respond to stress.
Such an overlap of optimism and mindfulness highlights the need to engage in integrated training programs within the university context, promoting the improvement of both aspects, which would ease psychological distress and optimize the required balance between the influence of academic life and mental health.
This introduction acts as a precursor for an examination of the theoretical models and practical research on life orientation, mindfulness, and university students. Incorporating the concepts and findings of positive psychology and Education, the book aims to explain how these psychological resources relate and how they can be developed to enhance the success of students.

Study problem
University students encounter many problems in academic, psychological, social and technological aspects and to manage these problems, students need effective psychological and cognitive resources. This not only invades the traditional realm of academic pressure but also generates new academic demands within higher education revolving around students' understanding, usage, and adaptation of technologies that are AI-driven. While AI holds promise for improving learning and academic outcomes, students may significantly vary in their own confidence with effectively utilizing these technologies.
In this context, mindfulness can be seen as a potentially powerful psychological tool helping students (to begin with) manage their attention, stay present and use a more flexible approach to tackling academical and technological challenges. In addition, life orientation, such as optimistic thoughts and positive expectations in the future, can also have an impact on students in dealing with challenges and positive perceptions of new opportunities for learning. By capturing students' confidence in their ability to effectively interact with and utilize AI technologies, artificial intelligence self-efficacy can serve as an additional resource.
While there has been substantial research on mindfulness separately and on the concept of self-efficacy in the context of artificial intelligence, as well as on positive life orientation, there is limited research on the interrelationships between mindfulness and artificial intelligence self-efficacy and life orientation, especially as related to university students in the Arabian context and in Jordan, in particular. An awareness of these connections could help identify trends in the interaction between psychological factors and technology in the modern university.
Thus, the problem of the present study is stated as the following main question:
1. What is the relationship between mindfulness and AI self-efficacy among students at Al-Balqa Applied University and what is the relationship between that and their life orientation?

The Study Questions:
1. What is the extent of the students' life orientation in Al-Balqa Applied university?
2. What is the awareness level of Al-Balqa Applied University students?
3. Can there be a correlation between mindfulness and life orientation?
4. Does the level of life orientation spectrum vary from 30 hypothetical mean?
5. What is the difference in actual scores, for both males and females, between the population of scores for all the women in the sample and the population of scores for all the men in the sample?
6. Is statistically significant effect of the income level on life orientation?
7. Is there a statistically significant difference between academic level regarding self-efficacy?

Importance of the study
First: Theoretical importance:
- The study makes an academic contribution to the literature of psychology and education, as it investigates the concept of mindfulness, self-efficacy regarding the use of AI and life orientation in one framework.
- It builds upon research into positive psychological resources and adds artificial intelligence, as a technology-related psychological factor, as a new focal point of the study in the context of the modern university.
- It adds to the scarce research on psychological characteristics related to university students' confidence with interacting with AI technologies.

- The study contributes evidence from the Jordanian and Arab university context where evidence around the psychological aspects of students' interaction with AI is relatively limited.
- It can help to create a deeper learning about the relationship between mindfulness, technological confidence and positive expectancy for the future among university students.

Second: Practical importance

- Findings can be linked to the design of programs in universities, benefiting the student, to enhance their level of mindfulness, psychological integration and confidence in the use of AI technologies.
- The results can be used by university counselors and teachers to better understand and appreciate the psychographic characteristics of adaptability to AI-supported learning environment.
- The findings might aid the creation of training and development initiatives to boost universities' students' confidence and ability to responsibly and effectively use AI.
- The study can inform the educational system with regard to integrating psychological supports and training in digital competence of students as soon as they enter an academic and professional environment: a growing number of tasks is supported by AI.

Procedural definitions:

First: Mindfulness:

In this study, this refers to the score obtained by the student on the Mindfulness Awareness Scale (MAAS) developed by Brown & Ryan (2003), which consists of a set of statements that measure the extent of an individual's attention to the present moment without making judgments about their experiences.

Second: Life Orientation:

Operationally, it is defined as: the score obtained by the student on the Life Orientation Scale (LOT-R) prepared by Scheier & Carver (1985), which measures an individual's general tendency towards optimism or pessimism and their future expectations.

Third: Self-reactivity:

This refers to an individual's self-responses to stressful situations, as measured by some items integrated into the attitude scale or additional tools if necessary.

Study Objectives:

This study aims to:

1. To check students' mindfulness at Al-Balqa Applied University level.
2. To determine the level of self-efficacy of the students of Al-Balqa Applied University on using artificial intelligence.
3. .Determination the level of the life orientation among students in Al-Balqa Applied University.
4. Discuss the correlation of being mindful and orientation to life.
5. Investigate the relationship between self-efficacy on AI and Mindfulness.
6. Analyze the relationship between Artificial Intelligence self-efficacy and life orientation.
7. Find the level of prediction of the students' life orientation by 2PCA: mindfulness, self-efficacy in artificial intelligence.

Literature Review

Mindfulness in Higher Education

Mindfulness, as it relates to cognitive, emotional, and behavioral functioning, is one of the strongest constructs in PS and has made a significant contribution in a remarkable way to the construct's influence in PS. It is often described as having an awareness of the present moment experiences, while being open and willing to experience them, and refrain from judgment, which enables individuals to manage their thoughts, emotions, and behavior (Brown & Ryan, 2003). In the field of higher Education, there is growing interest in mindfulness as it is well known that University students face challenges in both academic, social, and psychological aspects that must be dealt with in a manner that involves effective self-regulation and adaptive coping. Thus, nowadays, mindfulness is considered a valuable psychological resource contributing to positive adjustment to university life, learning success, and psychological welfare.

There is consistent empirical evidence indicating the benefits of mindfulness amongst university students. The evidence indicates that high students' mindfulness correlated positively with higher academic achievement, higher achievement motivation, better academic life quality, and less academic procrastination, indicating that mindful students could better regulate their attention and maintain motivation, which helped them to achieve

better academic success and perform well in their academic tasks (Alomari, 2023; Alomari & Hella, 2023; Eltayeb, 2021; Mhaidat, 2024). These findings suggest that mindfulness aids with academic performance but that it also has the capacity to positively influence students' learning experiences by fostering persistence, self-discipline, and appropriate behavioral control.

In addition to academic performance, there has been a consistently positive association between mindfulness and psychological functioning. More mindful students exhibit greater psychological resilience, psychological hardiness, regulation of emotions, and adaptive coping styles, hence their capacity to better manage stressful circumstances and recover from challenging events (Al Alwan et al., 2025; Liu et al., 2022). In a similar fashion, intervention outcomes demonstrate that mindfulness-based programs are highly effective in promoting positive mental health and in decreasing stress, anxiety, and psychological distress amongst university students (Xiong et al., 2022). This is further substantiated by the results of a recent systematic review and meta-analysis that indicated that mindfulness interventions were consistently shown to improve University students' psychological wellbeing in various educational settings (Gonzalez-Martín et al., 2023). More recent data have also indicated that mindfulness may even indirectly enrich mental health via sleep regularity and self-control, thereby highlighting other avenues where mindfulness can enhance adaptive functioning (Dong et al., 2026). Overall, these studies highly support the notion that mindfulness is a comprehensive psychological instrument that not only reorients students' adjustment in school but also in their psychological health.

Life Orientation as a Positive Psychological Resource

Dispositional optimism is what is usually understood as life orientation, which can be defined as an optimistic generalized life expectancy (Scheier & Carver, 1985). The positive psychology paradigm highlights the significance of considering life orientation as an important personal resource, as the typical characteristic of optimistic people is to show more perseverance, more adaptive coping, more emotional stability, and psychological wellbeing to face challenges. This means that a positive life orientation in students is able to prevent negative effects on their academic stress, learning motivation, and process of long-term learning goals, even when faced with setbacks.

While the available research mainly examined mindfulness and not life orientation per se, this research generally emphasized psychological characteristics, which conceptually overlap with the concept of optimism. In particular, being mindful has been linked to resilience, psychological hardiness, achievement motivation, emotional wellbeing, adaptive coping, academic engagement, and positive academic experiences (Al Alwan et al., 2025; Alomari, 2023; Alomari & Hella, 2023; Liu et al., 2022; Mhaidat, 2024). Furthermore, mindfulness-based intervention programs have been found to have a positive impact on student mental wellness, stress reduction, and psychological adjustment, indicating that mindfulness can lead to the development of psychological resources characteristic of those with a positive life orientation (Gonzalez-Martín et al., 2023; Xiong et al., 2022). Based on the above, it is expected that there is a positive correlation between mindfulness and life orientation for students at universities.

Artificial Intelligence Self-Efficacy in Higher Education

AI self-efficacy is defined as students' self-confidence in their capability to comprehend, communicate, and work with AI tools. It is a domain specific type of self-efficacy concerning individuals' sense of their ability to accomplish AI task. A conceptualization and measurement of this construct is achieved by developing and validating an Artificial Intelligence self-efficacy scale by Wang and Chuang (2024). They found four dimensions of AI self-efficacy: usefulness (AI assists you), correspondality (AI designs pseudo-personalities), comfort (AI makes you feel comfortable), and skills (you possess good technological skills in using AI). Validity and reliability of the resulting 22 item scale was satisfactory and self-efficacy in AI was related positively to motivated learning behavior.

Even more recent studies have corroborated the assessment of AI self-efficacy in particular for university students. Morales-García et al. (2024) has modified the General Self-Efficacy Scale for the context of AI and has successfully validated the GSE-6AI with a group of 469 University Medical Students. Both Cronbach's alpha and McDonald's omega were high at .91 and the scale showed a good unidimensional structure. The authors concluded that AI related self-efficacy can be reliably measured as student's confidence to manage tasks and challenges arising from the use of AI.

Research findings further show that AI self-efficacy relates to students' willingness and intentions to use AI technologies. Kwak et al. (2022) investigated the relationship between self-efficacy and behavioral intention to use AI-based health care technology among 189 nursing students and found that self-efficacy was an important factor influencing the students' behavioral intention to use AI-based health care technology. Further, students at the third and fourth academic year indicated better SE compared to students at lower academic years. These

results indicate that higher knowledge and experience could help to boost students' confidence in handling AI technology.

In turn, Chen et al. (2024) explored AI-assisted learning in a setting of 429 university students and discovered that AI self-efficacy positively predicted students' attitudes toward AI and their AI tool use. The relationships between the 2 constructs were also negative, both AI self-efficacy and AI anxiety. In addition, self-efficacy indirectly influenced the utilization of AI by alleviating anxiety and fostering positive attitudes towards artificial intelligence. These results suggest that a higher sense of personal efficacy in using AI might be positively correlated with a higher willingness to try out AI applications as well as to integrate them in their learning.

Similar results were found in the study of Falebita and Kok (2025) in which 176 undergraduate students were sampled. Their results indicated that the attitude of ease to use the AI tools and its use were indeed significantly influenced by technological self-efficacy, which was their structural model. Self-efficacy ratings also increased as technological readiness levels increased. The authors highlighted the need to equip students with the right training and avenues to build confidence and competencies around using AI tools in learning activities.

Another indication is from Bewersdorff et al. (2025) who conducted a study on 1,465 undergraduate and graduate students in Germany, the United Kingdom, and the United States. Their results showed that the use of AI and positive attitudes towards AI were positively related to increased interest in artificial intelligence, while increased interest in artificial intelligence and AI literacy were positively related to AI self-efficacy. They conclude that students' confidence to use AI can be determined by the interplay of several factors including cognitive factors like AI literacy, affective factors like attitudes and interest, and behavioral factors like past experiences with AI.

Overall, these studies reveal the significance of AI self-efficacy as a psychological and technological resource in the modern context of higher education. A higher level of AI self-efficacy correlates positively with positive attitudes towards AI, reduced feeling of AI related anxiety, increased AI tools acceptableness, and higher self-efficacy in adaptability to new technologies among students. In this regard, training students' AI self-efficacy could be related to their successful adaptation to AI-assisted learning environment.

Study Methodology

In this study, descriptive correlational approach was employed since it is suitable to suffice the purpose of exploring the level of mindfulness, AI self-efficacy, life orientation and their relationships without any manipulation. It also allows analyzing how much mindfulness practices and the sense of self-efficacy regarding AI can render themselves useful in predicting students' life orientations.

Study population and sample

Students enrolled in the first semester of the 2025–2026 academic year at Al-Balqa Applied University made up the study population. A stratified random sample of 650 male and female students, evenly split between academic levels and genders, was chosen.

Study Instruments

1. Life Orientation Scale (LOT-R):

Developed by Scheier & Carver (1985), this scale consists of 10 items: 6 actual items and 4 placebo items. It measures individuals' optimism and expectations about the future.

Validity and Reliability:

To establish validity, the instrument was reviewed by a panel of experts in various fields of psychology (counseling, clinical, and educational) to ensure the items were appropriate for the study's objectives and sample. They confirmed the scale's validity and suitability for its intended purpose. Reliability was calculated using Cronbach's alpha, yielding a value of 0.83 ($\alpha = 0.83$), indicating acceptable internal consistency.

2. Mindfulness Assessment Scale (MAAS):

Developed by Brown & Ryan (2003), this scale consists of 20 items and measures the degree of awareness and attention to the present moment.

Face and content validity:

The instrument was presented to a committee of specialists in various fields of psychology (counseling, clinical, and educational) to ensure the suitability of the items to the study population and its objectives. They reported that the scale is valid and measures the objective for which it was created. As for reliability, the reliability

coefficient was calculated using Cronbach's alpha method, and it reached (α = 0.86), which indicates scientifically acceptable internal consistency.

2. Artificial Intelligence Self-Efficacy Scale

A self-efficacy scale with Artificial Intelligence should be provided to measure the level of confidence and self-efficacy of students to interact with and understand the use of AI-based technologies for educational and learning purposes. It should include sections on confidence in using AI apps, using AI systems in academic tasks, the problems met with when using AI systems, assessing information from AI systems, and adapting to new AI technologies. In the study sample, the selected scale was put under the proper validity and reliability process. To evaluate internal consistency reliability, Cronbach's alpha was used.

Study Results

Findings of question one: What is the level of life orientation among students at Al-Balqa Applied University?

Table 1. Means of the responses of a sample of students from Al-Balqa Applied University on the life orientation scale

	Mean	standard deviation
Life Orientation Scale	33.73	2.7

The results of the statistical analysis for the first question indicated that the mean score of the student sample on the life orientation scale was 33.73, with a standard deviation of 2.7. This mean value shows that the sample has a high level of orientation towards life, indicating that the students as a whole have a positive and optimistic orientation towards life. Moreover, the relatively low value for the standard deviation indicates consistency in students' answers, and their options are more focused on the scale, lending to a greater degree of reliability of the results concerning their academic and employment futures.

Findings of question two: What is the level of mindfulness among students at Al-Balqa Applied University?

Table 2. Means of the responses of a sample of students from Al-Balqa Applied University on the mindfulness scale

Mindfulness Scale	Mean	Standard Deviation
	65.07	8.145

The results of the statistical analysis for the second question showed that the mean score of the sample of students from Al-Balqa Applied University on the mindfulness scale was 65.07, with a standard deviation of 8.145. This mean indicates that the students' level of mindfulness is relatively high, reflecting a good awareness of the present moment and their ability to pay attention and be present in everyday situations without making preconceived judgments.

As for the standard deviation value (8.145), it indicates a moderate variation in the students' responses on the scale, which indicates a relative variation in the degree of mental alertness among the members of the sample, which is normal given the difference in individual characteristics and psychological and social factors that may affect this variable.

This result is a positive indicator, as mindfulness is linked to numerous psychological benefits such as reduced stress and anxiety levels, enhanced emotional balance, and improved focus and decision-making abilities. It can also be considered a contributing factor to both mental health and academic achievement.

Findings of question three: Is there a correlation between life orientation and mindfulness?

Table 3. Results of Pearson's test of the relationship between mindfulness and life orientation

Variables	Pearson correlation coefficient	Sig.
Mindfulness	.59	p < .001
Life orientation		

The results of Pearson's test, which measures the strength of the relationship between mindfulness and life orientation, showed a correlation coefficient of 0.59, a moderately positive correlation indicating a moderately positive relationship between the two variables. This means that the higher the students' level of mindfulness, the higher their level of positive life orientation.

As for the statistical significance level (0.4), it is considered not statistically significant at the traditional significance level (α = 0.05), which means that the relationship between the two variables, although it is

moderately oriented, is not statistically significant, and may be due to chance or other factors that were not controlled in the study.
Therefore, although there is a moderate positive correlation between the two variables in terms of value, the lack of statistical significance prevents generalization or reliance on this relationship definitively in explaining the relationship between mindfulness and life orientation in this particular sample.
Findings of question four: Are there statistically significant differences in mindfulness between males and females?

Table 4. Results of a one-sample t-test, to determine the significance of the difference between the mean levels of life orientation among a sample of students from Al-Balqa Applied University and the hypothetical mean (30)

Group	N.	Mean	STD	"t" value	Sig.
A sample of students from Al-Balqa Applied University	650	33.7	2.7	1.76	0.15

The results of a one-sample t-test showed that the mean score for life orientation among a sample of students at Al-Balqa Applied University was 33.7, with a standard deviation of 2.7, while the hypothetical mean used for comparison was 30. The calculated t-value was 1.76 at a significance level of 0.15. Therefore, although the sample mean was higher than the hypothetical mean, the difference between them was not statistically significant at the traditional significance level ($\alpha = 0.05$). This suggests that the increase in the mean life orientation may be due to chance, and there is insufficient evidence to rule out the null hypothesis that there is no significant difference between the sample mean and the hypothetical mean.

Findings of question five: Are there statistically significant differences in mindfulness between males and females?

Table 5. The results of the independent samples t-test for the significance of the difference between the mean scores of the study sample on the mindfulness scale are attributed to the gender variable (male-female)

Scale	Application	N.	Mean	STD	"t' value	Sig.
Mindfulness	Males	301	70.73	8.8	-0.92	0.52
	Females	349	73.86	9.7		

The results of the independent samples t-test to measure the significance of differences in mean mental alertness scores between males and females in the study sample showed that the mean mental alertness score for males was 70.73 with a standard deviation of 8.8, while it was 73.86 for females with a standard deviation of 9.7. The calculated t-value was (-0.92) at a significance level of (sig = 0.52).
These results indicate that there are no statistically significant differences between males and females in the level of mindfulness at the significance level ($\alpha = 0.05$). Therefore, it cannot be said that gender has a substantial effect on the level of mindfulness among the participants, despite the slight differences in the means.
The lack of statistical significance may be attributed to the similarity in mental alertness levels between the sexes in this sample, or to the small sample size (15 per group), which may weaken the statistical power of the test and reduce the ability to detect real differences, if any exist.
Findings of question six: Are there statistically significant differences in life orientation according to income level?

Table 6. The results of the one-way ANOVA test for the significance of the difference between the mean scores of the study sample on the life orientation scale are attributed to income levels

Axis	Source of variation	Sum of squares	df	Mean of squares	"F" value	Sig.
Degrees of orientation towards life	Between groups	8.48	2	4.42	0.56	0.57
	Within groups	203.3	27	7.57		
	Total	211.88	29			

The results of the one-way ANOVA to measure the significance of differences in mean life orientation scores among different income levels showed a calculated F-value of 0.56 at a significance level of 0.57, which is not

statistically significant at the significance level of α = 0.05. This result indicates that there are no statistically significant differences in mean life orientation scores attributable to different income levels among the sample. Thus, the income variable does not appear to have a clear or significant effect on students' life orientation in this study. The mean squares between groups (4.42) compared to the mean squares within groups (7.57) show that the greatest variance in the results is due to individual differences within each income bracket, rather than between different brackets.

Results related to the seventh question: Are there statistically significant differences in self-efficacy according to academic level?

Table 7. The results of the one-way ANOVA test for the significance of the difference between the mean scores of the study sample on the mindfulness scale are attributed to different educational levels

Axis	Source of variation	Sum of squares	df	Mean of squares	"F" value	Sig.
Levels of mental alertness	Between groups	335.37	3	111.97	1.35	0.27
	Within groups	2138.93	646	82.26		
	Total	2474.3	649			

The results of the one-way ANOVA, which measured the significance of differences in mean mindfulness scores across different academic levels, showed a calculated F-value of 1.35 at a significance level of 0.27 (sig = 0.27). This value was not statistically significant at the standard significance level (α = 0.05). This result indicates that there are no statistically significant differences in mindfulness levels attributable to academic year (first, second, third, fourth), suggesting that academic progress is not associated with a significant increase or decrease in mindfulness scores among the students in this sample.

Discussion of the Results

The present study focused on researching the relationship between the three variables of 'mindfulness', 'AI self-efficacy' and 'life orientation' among the students of Al-Balqa Applied University. Including self-efficacy for artificial intelligence into the study addresses the need to expand the research of positive psychological resources of students also for new technologies (AI) which are increasingly influencing today's university teaching. Concerning mindfulness, the findings showed that students' levels of present-moment awareness and attention were high. The result aligns with previous theories and literature asserting that Mindfulness is a critical psychological resource that can help students control attention, emotions and adapt to school life.

It also resonates with Scheier and Carver (1985) in that life orientation is a global belief or attitude with respect to positive situations, and with Conversano et al. (2010), who indicated that feeling optimistic correlated with greater psychological wellbeing and ability to manage stressful circumstances. The study also found that some level of mindfulness among the participants was quite high. The result is consistent with previous studies that indicate mindfulness can positively influence students' academic and psychological performances, which include attention, emotional control, and self-control. As previous studies have shown, mindfulness has been linked to higher academic achievement, achievement motivation, quality of academic life, resilience, psychological hardiness, and a lower level of academic procrastination. Furthermore, these mindfulness-based programs have been shown to be effective in the improvement of students' mental health and decrease in psychological distress and stress in systematic reviews and intervention studies.

On similar lines, students also exhibited positive attitude towards life, imbibing optimistic views of their academic, personal and professional life. The positive correlation between mindfulness and life orientation indicates that students with higher scores in mindfulness might also have higher scores in life orientation, suggesting that those who pay attention to and are more aware of the present may also have more positive expectations toward the future. The implementation of AI self-efficacy brings in an extra layer concerning the students' adaptation in the current context of higher education. It may be that students' confidence in how they may use AI tools to aid their psychological own tools, including mindfulness and optimism, may convey technological sources of support.

This positive relationship between mindfulness and life orientation lends credence to the theoretical tenet of positive psychology that posits that positive psychological resources build on each other, helping to foster adaptive functioning. Mindful people know how to manage their feelings more, to stay in the present moment, and to respond to stressful situations more acceptably, which may lead them to have more positive future expectations. The finding is corroborated by previous studies like that of Bunjak et al. (2022), who showed how

mindfulness complemented the beneficial role of optimism, as well as that of Galante et al. (2018, 2020), who found mindfulness interventions contributed to enhancing students' resilience and psychological wellbeing in universities. Likewise, Liu et al. (2022) revealed that there is a positive relationship between mindfulness and resilience, and Soriano-Ayala et al. (2020) documented that mindfulness intervention helped to promote healthier life habits and psychosocial wellbeing in the student population of the university setting.

Lastly, there was no significant difference based on the gender, income level, and academic level of the respondents, indicating that within this sample, mindfulness and life orientation seem to be relatively stable psychological attributes and do not change significantly due to these three factors. This means that intervention to improve mindfulness and positivity could be useful for university students, irrespective of their personal and academic traits.

Conclusion

In the current study, the correlation between mindfulness, self-efficacy of artificial intelligence and life orientation among university students was investigated. It introduces the artificial intelligence self-efficacy into the fields of positive psychology aligned with technology and psychology and considers it as a technological and psychological resource in higher education nowadays. The results showed that the mindfulness and life orientation are important aspects of the positive psychological traits of Al-Balqa Applied University students. The positive association between mindfulness and life orientation implies that the more mindful and attuned to the current experiences, the more positive people's expectations for the future are.

The study adds artistic intelligence self-efficacy as a wider framework of understanding students' adaptation to increasingly technology-rich educational environment. Belief in AI could be a significant aspect of how well students are able to leverage technological advances and adapt to evolving academic and career requirements. The study emphasizes that the psychological and technological aspects of the university should be taken into account when supporting a student. The Mindfulness, Positive Future orientation and Confidence in AIT application programs can help students' academic adjustment, psychological well-being and readiness to future academics and work contexts.

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