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Eman Khaled Essa 
Damanhour University, Egypt

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Eman Khaled Essa

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Abstract

With the escalation of the Covid-19 crisis, many educational institutions have turned to distance education, especially universities and higher education institutions, which may affect the quality of learning outcomes especially those related to deeper learning and academic mindfulness. The present study aimed at investigating the effectiveness of hybrid learning in developing academic mindfulness and enhancing deeper learning of a sample of university students, in addition to shedding the light on the relationship among the study variables. The research sample consists of 350 university students from both humanities and scientific majors at two faculties in a university in Egypt during the academic year 2021\2022. A quasi-experimental research design was used in this study to investigate the relationship among the variables of the study and to answer the proposed questions. As shown through the obtained results hybrid learning is considered one of the effective teaching and learning approaches, especially in recent years. During the Covid-19 pandemic using online learning was the most effective and available way to continue learning, however after this situation ends hybrid learning should be the basic method of learning especially for university students. The present study shows a positive significant correlation among the variables of the study including academic mindfulness, deep learning competencies levels, and hybrid learning, which stresses the importance of applying hybrid learning to have a high-quality outcome of the educational process.

Introduction

The student-centered learning approach has become an important learning teaching approach in various educational contexts, though, the teacher-centered learning approach is still widely applied in various educational institutions. The teacher-centered learning approach depends on lecturing for different reasons. Its main feature is to have a one-way direction method of exchanging knowledge and ideas between teachers and students. In most lecturing contexts, the students play the role of receivers, as they depend on learning by utilizing passive skills like listening and memorizing. The main inadequacy in this type of learning is that students only have a simple recollection of knowledge for they simply reach only a low level of thinking skills (Jou et, al.,2016). To manage a higher and conceptual level of thinking, the students are supposed to be responsible for their learning by

becoming active knowledge seekers, not passive receivers.

The student-centered learning approach accentuates engaging learners to structure their learning to include applying their existing knowledge and experience when they collaborate to solve problems and make sense of their learning. With this approach, students become active learners and the teacher's role now moves to that of being a facilitator by initiating classroom discussions to ensure that all the students achieve understanding for meaningful and effective learning. Integration of technology in education can be used as an approach that focuses on student-centered education and is a step in the right direction as we move forward in the 21st century

When communication technologies are effectively integrated into the learning process, they create engaging learning environments, especially as learners start to adopt technology in their lives and use it increasingly for learning. Higher educational institutions cannot ignore technology in fulfilling their strategic mission and in responding to the expectations of a diverse learning community (Donnelly, 2010), as technology-rich classrooms have shown an effect on students' achievement.

Hybrid Learning

Hybrid Learning

The circumstances of the Covid-19 pandemic outbreak that took place all around the world had its shadows on almost all aspects of life including the educational process. One of these effects is the change in the types of learning approaches applied in the educational institutions. The major feature of this change is the obvious merge of technology into the everyday learning process which is referred to as blended learning or hybrid learning. By describing blended learning or dual-mode learning using the word hybrid learning, educators can lead to misunderstanding because the concept is not precisely defined (Heriot-Watt Learning Teaching Academy, 2022). According to Linder (2017), hybrid learning is the intentional utilization of technology to replace scheduled class time in order to create an efficient learning environment.

The original idea behind blended learning or hybrid learning goes back to the previous century as it aimed at bridging the gap of physical distancing between schools and students (Flynn-Wilson & Reynolds, 2021; Oliver & Stallings, 2014). The development of the world wide web and related technology encouraged the development of hybrid learning. Hodges et al (2020) refer to blended learning as using technology to bridge the gaps of space and time by helping students to control their learning. Watson and Murin (2014) define hybrid learning as using both online and face-to-face learning through formal educational programs. This allows learners to have control over the main four components of the learning situation (time, place, path, and space) through pre-prepared course content this refers to hybrid learning as a synonym of blended learning. The importance of hybrid learning lies in the ability to provide an interactive environment that enables learners to learn through applying and practicing the knowledge they learn. This is achieved by helping learners to control their learning process.

Hybrid learning is defined by Kosar (2016) as an arrangement of instructional modalities, delivery media, instructional methods, and web-based technologies. Similarly, Barnum and Paarmann (2002) put forth four

possible strategies to be included in a blended learning process. These strategies include; web-based delivery, face-to-face processing, creation of deliverables, and collaborative extension of learning. These four strategies emphasize the integration of online learning into face-to-face interaction for strengthening learners' autonomy, encouraging learners to produce outputs, and stimulating collaboration amongst learners to learn. These strategies bring to lead the motives for engaging in a blended learning approach, therefore the fundamental contribution of the blended learning approach to education appears to be stimulating collaborative learning (Garrison & Vaughan,2018).

In addition to collaborative learning, the learner-centeredness which is being focused on in the online learning environments is proposed by Arokan (2008a; 2008b) as a medium of increasing learning in all fields. While Carman(2020) suggests a proposed design for hybrid learning which is based on five different interrelated categories; face-to-face events which include synchronous learning with the teacher leading the situation, autonomous learning which includes asynchronous learning events based on the student's efforts to learn and innovate according to their motives and abilities, cooperation as cooperative learning gives students the opportunity to communicate with each other and develop better relations with others that facilitate the learning process, a formative assessment which measures the students' learning before, during and at the end of the learning process, and the fifth element according to this design is learning aids which include all the supporting materials and programs that are used to conduct and facilitate the learning process.

This led some researchers to draw the conclusion that applying hybrid learning seems to be the new trend in education that is going to be the normal form of education in the future, for it is an increasingly widespread learning environment inspiring societies internationally. It makes education flexible and possible for everyone to participate in education with potential opportunities. In this way, it prevents time and space limitations (Salamat et al., 2018). Various range of studies have been conducted to study hybrid or blended learning from different aspects, for example, a study conducted by Eliveria et al. (2019) on a sample of fifty university students indicated that students whose education was online achieved better results than those who had tried face-to-face face education, while the results achieved by students who learned through hybrid learning were the highest of all three groups.

Meanwhile, many years before that study by Guangying (2014) conducted an experimental study in order to examine the influence of blended language learning on improving learners' speaking and listening skills. The experimental group was taught following the blended learning approach while the control group participants were taught traditionally. The findings obtained revealed that the experimental group participants outperformed the control group in terms of the scores they got. Another finding was that the blended learning approach was effective in improving learners' speaking and listening skills and catered to learner autonomy.

In a similar context, Batardiere (2015) studied learners' cognitive activity in a computer-mediated collaborative task. The study investigated the type of cognitive activity learners experienced while processing a computer-mediated collaborative task. The findings of the study revealed that online discussion forums enabled the participants to improve their critical thinking skills and intercultural competence. Another significant finding that

is related to teachers' presence and teachers' facilitation, regarding that the findings put forth that direct teacher facilitation is not a condition for supporting learners' cognitive learning.

Chova and Kacetl,(2015) conducted a study that aimed to study the hybrid learning components and descriptions by applying the analytical research design, the results indicated that hybrid is one of the most effective learning strategies during the last decade and it supports a more interactive learning environment. The study referred to the effectiveness of hybrid learning in enhancing the cooperation among students and teachers, though it also stated some drawbacks of hybrid learning such as it takes more time to prepare and suffering from technical problems is very common. The study recommended having preparatory training programs for both students and teachers before starting to apply hybrid learning to make sure both of them have the needed skills to continue learning and to have a smooth and effective learning process.

Meanwhile, the study conducted by Bennett et al. (2020) aimed to help students get vocational training to maximize their chances of getting jobs after graduation. The study sample included fifty-two university students and their counselors. the results indicated that applying a virtual reality learning environment enabled students to practice and get vocational training similar to the skills needed to get a job in addition to the effectiveness of hybrid learning in enhancing active learning and cooperation. The study came with a group of recommendations focusing on preparing courses suitable for hybrid learning, in addition, to including stakeholders in the process to familiarize everyone with the concept.

According to all of the previous studies and literature reviews, there are a group of elements that are fundamental to having a successful hybrid learning experience that includes four main elements. First is the technical element, which includes all the components and electronic types of equipment. This element is a fundamental one if there is a deficiency in this aspect it means the impossibility of accomplishing the hybrid learning process. The second element is the human element which indicates providing both students and teachers with adequate training on online programs and how to use them. The third element is the organizational element which focuses on planning and performing and problem-solving so as to solve all possible problems that might happen during the hybrid learning programs. The fourth element is related to the design of the learning context and content, which should be prepared wisely so as to enhance cooperation and interaction. This study will adopt the definition of hybrid learning as using face-to-face or co-present elements and online learning.

Deeper Learning

The concept of deeper learning initially merged from the need to focus on effective learning. To prepare students to be more efficient and to make the ultimate use of the knowledge they learn and their need to be successful in both their academic life and practical one. Deeper learning focuses on acquiring deep content knowledge and enabling students to apply this knowledge and utilize all related skills through formal and informal situations with the ability to reflect on their real-life (AEE, 2017).

Carnevale and Desrocher (2003) refer to the necessity of helping students to master their skills rather than only

acquiring the related knowledge. This means they need to be able to communicate effectively, solve problems and think creatively. This can be achieved through developing a certain mindset that enables them to deal with various demands of the struggles they may face in their everyday life (Fineglod & Notabartolo, 2010) this led to the integration of a deeper understanding of the academic content and the application of that understanding to new situations using a variety of skills based on the abilities to interact and regulate which is referred to as “deeper learning” (Helwett, 2013; Chow, 2010).

Deeper learning has some major dimensions (Helwlett foundation,2013) that can be summarized into mastery of core academic content, critical thinking, problem-solving, effective communication, cooperative learning, teamwork, learning how to learn, and developing a mindset. The first domain requires the learners to recall previous knowledge that they already have, and process it in a new meaningful way connecting it with the previous knowledge in the brain. Whilst the second domain requires the learners to apply critical thinking tools and strategies related to the learning context that makes them able to solve any related problems, in other words, learners become able to come out with different suggestions and hypotheses, identify the demanded data, and information, evaluate the data resources, monitor and assess the process continually, and become able to solve complex problems (Bitter et al., 2014). The NRC (2012) grouped these domains or competencies into three main domains: the cognitive domain, which contains deep content knowledge and critical thinking, and complex problem-solving. While the second domain is the interpersonal domain which covers two domains, collaboration, and communication. The third domain is the intrapersonal domain which covers learning to learn and academic mindsets.

Deeper learning stresses the idea that core content knowledge is not sufficient without broader thinking and the ability to apply it. Sutherland et al. (2010) stated “It is not enough for students only to understand big ideas; in fact, they cannot develop integrated understandings of even these core ideas unless they use their knowledge in meaningful ways, applying what they know to a variety of contexts and to novel situations” (p. 4). Further, researchers argue that being educated and focusing on deeper learning accomplishments paves the way in front of learners to be successful professionals, thinkers, and citizens in their future lives (Finegold & Notabartolo, 2010). All the mentioned indicate the importance of deeper learning as it deserves more focus from both educators and researchers.

According to the “theory of action” deeper learning should go through certain phases as stated by (Huberman et al., 2014), these phases start with the educational institutions aspiring to enhance deeper learning and starting to apply the related strategies and, structure and prepare the environment. This is followed by learners starting to engage in deeper learning experiences which lead them to the next level or phase-in in which certain outcomes are being targeted and embodied by the cognitive, interpersonal, and intrapersonal domains addressed by the deeper learning. This phase is considered to be the most important phase which is followed by the phase of the secondary and the post-secondary outcome phase which is related to the improvement in the learners’ rates whilst the last phase talks about the impact of deeper learning on the social and professional life of the students and the improvement of their role in their societies. This study will focus on six domains of deeper learning: Content mastery; Critical thinking; Collaborative work Effective Communication; Meta-Learning; and Academic mindset.

Academic Mindfulness

Mindfulness is one of the modern concepts of positive psychology, which focuses on the strong points of the individuals, recently some sub-concepts merged from that main concept. The main reason for that was to have a concept more related to one of the most important psychological domains like strategic mindfulness and technology mindfulness. One of the sub-concepts is academic mindfulness which is considered to be one of the essential skills related to the learning process. Academic mindfulness enables students to raise their awareness of the importance of crucial abilities and skills, such as critical thinking, problem-solving, flexibility, interaction, and coping with the academic environment (Essa, 2020).

The absence or the low levels of academic mindfulness creates an obstacle between the student and his ability to process input data embodied in certain situations in addition to a lack of flexibility and the tendency toward automated behavior. It can be viewed from the organizational part of mindfulness (Vonderheyde, 2017) refers to it as reconsidering and redirecting attention toward a certain point or a particular aspect intentionally based on three main interrelated pillars which are intentions, attention, and direction that we can relate to the academic mindfulness as the process of redirecting the attention of the students and information processing according to monitoring during the learning situations. Brown et al. (2011) stress the two main components of mindfulness which are the awareness of the present input while the second one is information and cognitive processing.

Academic mindfulness empowers students learning readiness and enhances achievement through enforcing attention and focusing during learning, in addition, it helps reduce the effect of exam anxiety as it enhances the interaction among learners and reduces stress (Watts, 2014). In a study conducted by (Yamad & Viclor, 2012) the results showed that mindfulness enhanced the learning outcomes of university students and it reduced their anxiety levels while the results of another study conducted by (Lu, Huang & Rios, 2017) the results declared that there is a positive correlation between mindfulness and academic achievement. While Long and Barral (2017) referred to the enhancement in time management skills due to the presence of mindfulness in a group of students. In addition, the results shown by Essa (2020) referred to the correlation between mindfulness and the flourishing of a group of university students. The present study will focus on defining academic mindfulness as reconsidering and redirecting attention toward a certain point or a particular aspect intentionally regarding three main domains which are: flexibility; goal orientation; and innovation,

Research Purpose

The major research question in this study is: what is the effectiveness of hybrid learning in enhancing academic mindfulness and deep learning? To answer this question sub-questions were answered as follows:

1. Is there a statistically significant correlation between academic mindfulness, deep learning, and hybrid learning?
2. Is there a statistically significant difference among means of the scores on post-measurements (domains and total marks)? of the experimental and the control groups on academic mindfulness?
3. Are there significant differences among means of scores of the study variables (Academic mindfulness

and Deeper learning according to students' majors?

4. Are there significant differences among means of scores of the experimental and control groups of Deep learning scores (domain and total mark)?
5. Are there significant differences among means of scores of the experimental group in the pre-post measurements regarding Deeper learning and Academic Mindfulness variables?

Method

Research Design

A quasi-experimental research design was used in this study to investigate the relationship among the variables of the study and to answer the proposed questions. The study made use of three instruments as follows:

Hybrid learning questionnaire: This questionnaire is used to examine the learners' attitudes toward hybrid learning. It is based on the questionnaires prepared by Akkoyunlu & Soylu (2008). The questionnaire contains 50 five points items divided into four categories the reliability of the scale was tested using Cronbach's alpha and the scores were (0.88,0.86,0.88,0.86) for the four categories and (0.91) for the total score. Which refers to the reliability of the scale to be used in the study.

The academic mindfulness scale: Consists of three main categories: Flexibility; Goal-orientation; and Innovation, with 6 items each. The consistency was measured by calculating Cronbach's alpha which reached (0.89).

The deeper learning competencies scale: The questionnaire contains six domains: Content mastery; Critical thinking; Collaborative work Effective Communication; Meta-Learning; and Academic mindset. The questionnaire is prepared to measure deeper learning competencies possessed by the students that are related to their acquired knowledge. The reliability of the scale was tested using Cronbach's alpha and the scores were 0.86,0.88,0.88,0.86,0.83,84 for the six categories and 0.93 for the general score, these scores are considered good indicators to be used in the study.

Sample of the Study

The research sample consists of 350 university students from both humanities and scientific majors at the same public university. Hybrid learning was conducted during the first semester in the university during the academic year 2021\2022 for the experimental group, while pure face-to-face education was applied during the same semester of 2021 for the control group. The hybrid learning application was based on both online lectures (MS Teams) (that included collaborative group work, project-based tasks, and e-lab experiences) in addition to face-to-face lectures that took place at the campus.

Results and Discussion

To answer the first research, question the following null hypothesis was verified: "There is a statistically

significant correlation between academic mindfulness, deeper learning, and hybrid learning”, Person Correlation was conducted and the results are presented in Table 1:

Table 1. Correlation among Academic Mindfulness, Deeper Learning, and Hybrid Learning

Deeper Learning	Academic Mindfulness			
	Flexibility	Goal-orientation	Innovation	Total
Content mastery	0.319	0.335	0.285	0.407
Critical thinking	0.290	0.377	0.351	0.358
Collaborative -work	0.356	0.285	0.329	0.399
Effective communication	0.360	0.333	0.277	0.438
Meta-learning	0.470	0.450	0.298	0.427
Academic mindset	0.256	0.466	0.345	0.318
Total	0.309	0.325	0.291	0.288
Hybrid learning	0.388	0.299	0.311	0.321

As shown in Table 1, there are significant correlation relationships among the variables (Academic Mindfulness-Dimensions and total mark) with the other two variables (Deeper learning dimensions and total mark), and with applying hybrid learning (total mark). This indicates that there is a positive relationship between academic mindfulness domains (flexibility, goal-orientation, and Innovation) and the general mark and Deep learning domains and total mark with applying hybrid learning total mark. Applying hybrid learning is related to the academic mindfulness levels of the students, the more effective the learning method used the better levels the students obtain and the same goes for the level of deeper learning competencies which has a positive correlation with both hybrid learning and academic mindfulness.

Regarding the second question the following null hypothesis was verified: “there is no statistically significant difference among means of the scores of the experimental and the control groups on academic mindfulness (domains and total mark) on the post measurements”. A t-test for independent groups was conducted and the results are presented in Table 2:

Table 2. t-test Values for the Experimental and Control Group on the Post-Measurement of Academic Mindfulness

Academic mindfulness	Experimental group		Control group		t	Significant
	mean	Std.	Mean	Std.		
Flexibility	44.82	2.91	35.48	5.40	5.83	0.05
Goal-orientation	43.05	1.86	35.74	3.74	7.125	0.01
Innovation	25.04	0.96	2.62	2.62	26.210	0.01
Total	112.91	4.00	7.16	7.16	6.514	0.01

It is evident from the previous table that: There are statistically significant differences between the mean scores of the experimental group of students, and the scores of the students of the control group in the post-measurement

on the dimensions and total score of the academic mindfulness and the quantitative degree of it, in favor of the experimental group. This means that students of the experimental group developed higher levels of academic mindfulness due to learning through hybrid learning which helped develop those levels better than the levels of the students in the control group.

Regarding the hypothesis “There are significant differences among means of scores of the experimental and control groups of Deep learning competencies score (domain and total mark) to verify this t-test for independent groups was used and the results are represented in Table 3.

Table 3. t-test Values of the Experimental and the Control Groups on Post Scores of the Deep Learning Competencies

Deeper learning	Experimental group		Control group		t	Significant
	Mean	SD	Mean	SD		
Content mastery	40.22	1.81	30.07	5.42	11.23	0.01
Critical thinking	38.87	1.42	29.68	6.00	17.89	0.05
Collaborative –work	37.88	4.67	31.79	7.07	13.09	0.01
Effective communication	40.23	1.79	32.00	6.67	7.952	0.01
Meta-learning	37.07	3.88	32.37	6.17	0.632	Not sig.
Academic mindset	40.56	2.35	30.88	7.38	7.961	0.01
Total	234.83	12.82	184.79	30.33	5.810	0.01

According to the obtained results, there are statically significant differences among means of scores of the experimental and control groups of Deeper learning competencies levels scale total marks and the domains except for the fifth domain (meta-learning). This refers to the effect of hybrid learning in developing the deep learning competencies level of the experimental students except for the fifth domain regarding the meta-learning domain which has no significant difference among the means of the scores of both the experimental and the control groups.

Regarding the third question, the next hypothesis was verified: “there are no significant differences among means of scores of the study variables (Academic mindfulness and Deeper learning according to students’ major”.

To investigate this, a t-test for independent samples was used, and the results came as shown in Table 4 and 5.

Table 4. t-test for Means of Scores of Academic Mindfulness According to Students’ Major

Domain	Scientific majors (170)		Humanities major (160)		t	Sig.
	Mean	SD	Mean	SD		
Flexibility	39.20	5.37	38.73	5.77	0.221	not
Goal-orientation	38.41	5.72	36.33	5.36	0.088	not
Innovation	19.46	2.51	18.62	3.31	3.551	0.01
Total	97.07	11.12	93.68	11.82	0.448	not

First, as shown in Table 4 above there are no significant differences among means of scores of Academic Mindfulness (domains and total marks) between the two majors except for the (innovation-domain) in favor of the science majors. This can be explained by the difference among the practices applied through the hybrid learning course, such as the online collaborative work, project-based, and e-lab experiences, taking into consideration that the science major students learning included project-based tasks that involve interaction among students and students and teachers as well, which can affect the innovation level of the students, while the nature of the courses taught through the hybrid learning to the students of the humanities major did not include such chance. A t-test for independent samples was used, and the results came as shown in Table 5.

Table 5. t-test for Means of Scores of Deeper Learning Competencies According to Students' Major

Domain	Scientific majors (170)		Humanities major (160)		t	Sig.
	Mean	SD	Mean	SD		
Content mastery	31.83	6.57	35.77	6.44	0.071	not
Critical thinking	33.51	7.43	37.62	6.06	0.06	not
Collaborative –work	34.66	7.72	39.39	6.89	0.567	not
Effective communication	34.37	8.28	36.68	7.06	0.862	not
Meta-learning	33.98	8.06	39.95	7.89	0.013	not
Academic mindset	33.27	8.36	39.44	6.63	2.657	not
Total	206.62	47.02	232.71	29.19	6.729	0.01

As shown in the above Table 5, there is no significant difference among means of students' scores on the variable Deeper learning domains, however, there is a significant difference among means of scores of the students on the variable Deeper learning competencies (total mark) according to the major of the students in the experimental group.

The next hypothesis is “there are significant differences among means of scores of the experimental group in the pre-post measurements regarding Deeper learning and Academic Mindfulness variables.” To verify this, t-test for paired groups was applied and the results came as shown in the following Table 6:

Table 6. t-test means of Scores of Academic Mindfulness of the Experimental Group Pre-Post Measurements

Domain	Pre-measurement		Post-measurement		t	Sig.
	Mean	Std.	Mean	Std.		
Flexibility	38.47	4.81	44.82	2.97	3.576*	0.05
Goal-orientation	35.83	5.55	44.37	1.89	12.923**	0.01
Innovation	18.09	2.93	25.00	0.96	12.849**	0.01
Total	92.39	9.99	114.19	4.16	12.437**	0.01

As shown in Table 6, there are significant differences among means of scores of students' results on Academic Mindfulness of the pre-and post-measurement of all of the domains and total marks in favor of the post-

measurements. This indicates the effectiveness of hybrid learning in enhancing the level of Academic mindfulness of the students, as there is a positive correlation between hybrid learning and Academic mindfulness. This result is consistent with the previous studies that referred to the effectiveness of hybrid learning in developing higher cognitive abilities and skills of the students. for example, the studies of (Sriarunasmee, et, al.,2015, and Wahyuni et al., 2019) indicated that the integration of synchronous and e-learning encourages students to improve their logical reasoning abilities and the findings of (Tamrin & Basri, 2020) that clarifies that when students can use the lecturer's resources to learn anywhere, at any time, and either cooperatively or individually this can empower their cognitive and thinking abilities.

The hypothesis states that “there are significant differences among means of scores of the experimental group on pre-post measurements of Deeper learning competencies (dimensions and total mark)”. To verify this, t-test for paired groups were admitted and the results came as shown in the following Table 7:

Table 7. t-test of Means of Scores of Deeper Learning Competencies of the Experimental Group Pre-Post Measurements

Deeper learning	Pre-measurement		Post-measurement		t	Sig.
	Mean	Std.	Mean	Std.		
Content mastery	30.73	5.74	40.25	1.78	8.930	0.01
Critical thinking	30.42	4.67	38.92	1.42	13.693	0.01
Collaborative –work	31.62	6.32	40.32	1.79	22.983	0.01
Effective communication	30.57	7.60	37.93	4.73	3.338	0.05
Meta-learning	30.77	6.96	40.62	2.35	9.849	0.01
Academic mindset	29.43	6.51	37.07	3.89	3.553	0.05
Total	202.67	29.92	235.62	12.92	6.260	0.05

As shown in Table 7, there are significant differences among means of scores of the experimental group in the pre-post measurements of the variable deeper learning competencies (dimensions and total mark). This indicates the effectiveness of hybrid learning in enhancing the levels of deeper learning of the students of the experimental group which can be accepted in the light of the previous studies that indicate the effect of hybrid learning in developing high thinking abilities and skills this agrees with the findings of (Hasanah, & Malik, 2020) that indicated the effectiveness of blended learning in improving critical thinking and communication skills of students at university. While Wahyuni et al. (2019) explained that hybrid learning influences students’ learning results., in addition to the results of the first hypothesis that indicates the statically significant correlation between hybrid learning and deeper learning competencies, this also agrees also with the indications of Blau et al. (2020), that refers to the effect of hybrid learning and the development of technology for educational purposes is to enhance both the cognitive skills and attitude components of the learners as well.

Conclusion and Recommendations

As shown through the obtained results hybrid learning is considered one of the effective teaching and learning

approaches, especially in recent years. During the COVID-19 pandemic using online learning was the most effective and available way to continue learning, however after this situation ends hybrid learning should be the basic method of learning especially for university students (Ayub et al.,2022). The present study shows a positive significant correlation among the variables of the study including academic mindfulness, deep learning competencies levels, and hybrid learning, which stresses the importance of applying hybrid learning to have a high-quality outcome of the educational process In addition, the results answered the proposed questions indicating the effectiveness of competencies of the sample of the study. According to the obtained results, one can say that the importance of hybrid learning cannot be overlooked, which draws attention to spreading awareness of the importance of developing a learning context suitable for hybrid learning in different educational levels and different majors as well, furthermore, it indicates that cooperation among different educational systems and institutions is very essential to face any challenges in the future.

As hybrid learning can be the solution to many problems faced by both educators and students. Both national and international efforts are required to attain a clear view of the most effective practices, this understanding can be reached through exchanging experiences among educators and scientists from one side and also exchanging views from the students' and learners' points of view. This should be done on various educational levels not only at the level of university or high education. In that case, the reliability and effectiveness of hybrid learning with different age ranges should be examined as well. Reaching that understanding works as the fundamental theoretical basis of applying hybrid learning while the second crucial element in applying hybrid learning is the technological aspect. All educational sectors that are intended to apply hybrid learning should be well equipped with all advanced technology needed to fulfill the process either asynchronously or synchronously. To obtain the needed information, need analysis studies can be conducted to know the real needs of the students in various areas before starting the learning programs. In addition, training workshops should be given to both teachers and students on how to deal with the technical aspects such as programs used, so as to facilitate the learning process. As different efforts should be done so as to bridge the gaps between rural and urban areas, especially in developing countries regarding the availability of applying hybrid learning.

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Author Information

Eman Khaled Essa

 <https://orcid.org/0000-0003-1713-2205>

Damanhour University

Damanhour City

Egypt

Contact e-mail: emmankhaled2@gmail.com
