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Integrating Artificial Intelligence in a Morphology Course - An Analytical Study of University Students' Perspective

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Abstract

This paper focuses on scrutinizing the attitudes and opinions of English as Foreign Language (EFL) learners on the integration of artificial intelligence (AI) in a morphology course in higher education in Lebanon. Specifically, it examines AI as a pedagogical tool in classrooms to provide learners with personalized learning paths centered on their needs and strengths, offer automated feedback on activities and assignments, supply study resources and extra material, furnish adaptive assessments, and most importantly, identify common errors in students' responses that allow instructors to acknowledge the learning gaps and tailor their teaching strategies accordingly. It also aims to determine the students' perspectives on AI's potent role in learning. In this

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exploratory study, a mixed-method design and a convenient sampling of participants were utilized. A total of 62 EFL students at the public university in Lebanon participated in the study. To describe and quantify their perceptions of integrating AI in a morphology course, an online survey, including closed-ended and open-ended questions, and two focus group discussions were administered. The overall qualitative and quantitative analyses of the data indicated that Lebanese EFL students have positive attitudes towards integrating AI in a morphology course as a pedagogical tool and as a fundamental part of the teaching strategies in EFL higher education classes since it provides a good source of information and aids in the teaching and learning process. However, the findings also revealed the need to train teachers and students to use AI technologies, keeping in mind the potent role of the instructor in class.

Keywords: Artificial Intelligence, Morphology, EFL, Morphemes, Word formation processes

Introduction

Morphology, derived from the Greek word *morphos* meaning "form", examines the internal make-up and structure of words, as well as the patterns and principles underlying their composition (Schmid, 2015). Morphology, first titled as a sub-discipline of linguistics in 1859 by the German linguist August Schleicher (Aronoff, 2011), looks at both sides of linguistic signs; the form and the meaning, combining the two perspectives to examine and describe the component parts of words, as well as the principles underlying the composition of words (Schmid, 2015). Morphology analyzes words in terms of morphemes, which are the smallest units or components of words that carry meaning (Schmid, 2015), as well as the processes by which words are formed (Zapata, 2007).

Morphemes are grouped into two major types: free morphemes and bound morphemes (Yule, 2010).

Free morphemes can stand alone, carry meaning, and serve a grammatical function. They can be categorized into two types: lexical morphemes, such as nouns, verbs, and adjectives, which possess semantic content and constitute the open class of words in a language; and functional morphemes, which lack independent meaning but indicate grammatical relationships within and between sentences, forming the closed-class morphemes. Functional morphemes are exemplified by prepositions, articles, conjunctions, pronouns, auxiliary verbs, and demonstratives (Zapata, 2007).

Bound morphemes are divided into two types: The first type is called derivational morphemes, which are used to make new words of a different grammatical category from the stem. Derivational morphemes in English can

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be prefixes and suffixes (Booij, 2007). The second type of bound morphemes is called inflectional morphemes, which deal with the markers of grammatical categories such as number, case, aspect, and tense (Schmid, 2015). According to Zapata (2007), these inflectional morphemes that serve a purely grammatical function include the comparative and superlative markers of adjectives (er/ est), the third person singular marker of verbs in present tense (s/es), regular plural marker (s), possessive marker ('s), regular past tense marker (ed), past participle marker (en), and present participle marker (ing).

Yule (2010) demonstrates that word formation involves the study of compounding (joining two separate words to produce a single form), borrowing (taking words from other languages), coinage (invention of new terms), blending (taking the beginning of one word and adding it to the end of another word), clipping (reducing a word of more than one syllable to a shorter form), backformation (reducing a word of one type to a word of another type), conversion (changing the function of a word without any reduction), and acronyms (forming words from the initial letters of a set of other words).

Morphology interacts with syntax, the study of sentences (Booij, 2007), which explores how morphological structures contribute to the overall grammatical structure of sentences.

Morphology holds significant importance in linguistic studies. It not only offers insights into the internal structure of words, aiding in a comprehensible understanding of language organization, but also contributes to literacy outcomes like word reading, vocabulary, and reading comprehension (Chen & Schwartz, 2018). Additionally, it plays a crucial role in linguistics, aiding in the acquisition of new languages and facilitating the creation of new words as needed (Naser & Gandhi, 2022). Furthermore, morphological analysis plays a major role in Natural Language Processing (NLP), a field of artificial intelligence that relies on enabling machines to understand and process human language through applications that depend on morphological rules. This includes tasks such as language translation and text analysis (Altan, 2022).

Alan Turing initiated artificial intelligence in 1950 (Copeland, 2023), and introduced the Turing Test to determine whether a computer can exhibit human-like intelligence (Vargas et al., 2023). Serokell (2020), a software development company, defines AI as the development of intelligent machines and programs capable of solving problems, a trait formerly exclusive to humans.

The integration of artificial intelligence (AI) in education is gaining importance due to its perceived promising potential in providing customized learning, preparing students for a rapidly evolving technological landscape, enhancing the learning experience, offering dynamic assessments, and facilitating meaningful interactions (Zhang & Aslan, 2021), in addition to

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nurturing a more adaptive and engaging educational environment (Holmes et al., 2019).

This adaptability and engagement are particularly vital in the context of morphology courses, where students may have varying levels of proficiency and familiarity with the concepts. Thus, the integration of AI in morphology courses is significant, as AI platforms, according to Baker (2016), offer real-time feedback, identify learning gaps, and provide interactive learning materials that serve students' different learning styles. However, there are potential challenges to integrating AI in morphology courses, such as ensuring that AI tools align with the educational goals, providing teacher training and robust infrastructure, and securing data privacy and ethical considerations (Buckingham, 2019). Thus, it is essential to balance the benefits and challenges to utilize the full potential of AI in morphology education.

The purpose of this research paper is to assess students' awareness and understanding of artificial intelligence, evaluate the current status of integrating AI in morphology courses, identify the recognized benefits and challenges accompanying AI integration in a morphology course, and collect data for effective integration of AI in morphology education. It is hoped that this study will provide insights to educators and curriculum developers for integrating AI into morphology courses.

Statement of the Problem

Many students at the Lebanese University (LU), 5th Branch on the southern campus, are able to understand morphology concepts, but most of them face problems in effectively communicating these ideas on paper. Many of these Morphology, L 3200 students at the LU Saida campus do not comprehend important details or cannot go beyond what is discussed in class. The only resource they have is the instructor's notes that are shared with them in class. The instructor sometimes brings a laptop and an LCD and connects to the Internet to share digital platforms and visual aids with the students because the university does not provide such facilities. Furthermore, a significant lack of insight regarding students' awareness, perceptions, and experiences regarding the inclusion of AI in the morphology course is evident. This encompasses the perceived benefits and challenges that students associate with the integration of AI into the course. Besides, specific recommendations customized to the demands of morphology courses are absent, which could be an obstacle to the development of AI's potential in improving learning outcomes. For this reason, the present study aims to address these gaps by determining students' awareness and understanding of AI, assessing the current status of integrating AI in morphology courses, identifying the perceived benefits and challenges of integrating AI into morphology courses, and collecting students' insights and recommendations

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to enhance AI integration in morphology courses and consequently upgrade their learning experience.

Literature Review

Artificial intelligence and the plethora of devices accompanying it are gaining ground in education, and they are recommended for use in schools to assist teachers and students in the teaching-learning process, as well as to support administrative tasks (European Commission, 2022). AI tailors educational content to the individual needs and learning styles of students, facilitating access to all levels and types of education (Alam & Raza, 2022).

AI provides support and guidance to the learners depending on their needs, and it automatically adapts to the level of difficulty after tracing their knowledge (Holmes et al., 2021). It can read students' facial expressions, identify their gestures and moods during the lecture, and present recommendations to ease the lessons for them (Kengam, 2020). Moreover, AI provides teachers with a variety of digital platforms and visual aids that assist them in teaching, and it reduces their workload and saves their time by providing automatic assessment, detecting plagiarism and giving feedback (Holmes et al., 2021), and evaluating the progress of each student over a period of time through the assessment system that collects and processes information (Kengam, 2020).

Physically challenged learners, including those suffering from impaired vision and hearing or people with locomotor disability, also benefit from the assisting services artificial intelligence provides (Kengam, 2020).

Numerous studies have demonstrated the benefits of integrating AI in education, especially in teaching languages. A study was conducted by Kolhar and Alameen (2021), where 25 university students in a translation class in Saudi Arabia participated. In every classroom, a translation system connected to a video camera, digital podium, and projector was installed to facilitate the translation of difficult words and phrases, aiding students with their assignments. The researchers found that what helped the students understand the concepts better and encouraged their participation in the lectures was the translation of the context in their language.

Alhalangy and AbdAlgane (2023) conducted research to determine the possibility of using artificial intelligence in English for Speakers of Other Languages (ESOL) courses in Saudi Arabian universities through natural language processing, intelligent teaching systems, immersive virtual environments, self-regulated learning, and virtual reality. The study concluded that artificial intelligence (AI) has a great influence on the field of English language teaching and learning, but it needs better integration into educational settings as well as introduction to both teachers and students.

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Although AI has made significant advancements in linguistics, mainly in phonetics and phonology (the branches of linguistics engaged in the physical aspects of sounds and their functional aspects in particular languages), it has made less significant inroads into the field of morphology, which this study focuses on.

In a study conducted by Dabbagh, Fake, and Zhang (2019), at a large public university in the U.S., it was found that students valued the effectiveness of using technological digital tools in supporting learning, particularly in fostering discussion, collaboration, and interaction. As a result, this could lead to experiential learning and a personalized learning experience. However, future research should investigate how to optimize the use of collaborative technology, organize effective learning experience, and determine the effectiveness of the tools necessary for learning.

Artificial intelligence, which emerged as a powerful technology with the potential to transform education, is viewed differently by students who believe that integrating AI in education has a lot of benefits and drawbacks (Idroes et al., 2023). Although AI acts as a virtual assistant for both teachers and students, providing universal access and immediate feedback, it may also diminish the interactive relationship between teachers and students and lead to information loss in case of system failure. Additionally, content generated by AI might be inaccurate, necessitating human intervention and oversight to evaluate content validity (Byles et al., 2023). Moreover, concerns arise regarding AI grading, as it may not provide the same personalized and detailed feedback as a human instructor. In light of these considerations, the present study raises the following research questions:

1. To what extent are students aware of artificial intelligence?
2. To what extent is AI integrated in morphology courses?
3. What are the advantages and challenges associated with AI integration in a morphology course?
4. What are the recommendations for effective AI integration in morphology education?

Research Methodology

According to Halcomb (2018) and Creswell, Plano, and Clark (2011), mixed-method research allows researchers to deploy creativity in integrating quantitative and qualitative elements to provide better answers to research questions. In this study, a mixed-method research design was adopted. That is, both qualitative and quantitative data were assembled and analyzed separately, but the findings were jointly interpreted. The data for this study were collected from a student online survey and two focus group discussions.

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Sample Selection

The work group for the present research was selected using a convenient sampling technique based on the student's willingness to participate. A total of 62 English as a Foreign Language (EFL) students out of 228 majoring in English Language and Literature at the Lebanese University, 5th branch, Faculty of Letters and Human Sciences enthusiastically participated in the study. They filled out an online questionnaire consisting of closed and open-ended questions. Additionally, 16 out of the 62 students who responded to the online questionnaire willingly joined two focus groups, with 8 students in each group. These sessions lasted for 45 minutes each and took place on December 15 and December 22, 2023. All participants were registered for the morphology course during the academic year 2023-2024, third semester – second year.

Instruments

A comprehensive online questionnaire was designed to elicit the attitudes and opinions of the second-year students at the Lebanese University, 5th branch, majoring in English Language and Literature and taking a morphology course, on the integration of AI into their morphology course. The questionnaire, utilized as a quantitative method in the study, included sections on demographic profiles, students' awareness of artificial intelligence, attitudes and opinions regarding the integration of AI in the morphology course, preferences and expectations, and space for further comments and recommendations.

The survey questionnaire data were supported with 2 focus groups of students, each consisting of 8 members. Focus groups were utilized as a qualitative method in this study. They are considered effective for data collection because they foster open discussions addressing the research topic (Bloomberg & Volpe, 2019). Two focus groups, each comprising eight (8) students, were invited to an informal set-up meeting at the university lasting 45 minutes. These discussions provided valuable insights into students' awareness of AI and its integration in morphology, the current status of AI integration in morphology courses, perceived advantages and challenges associated with AI integration, and students' recommendations for effective AI integration in morphology education. Statements were collected from questions posed to the sixteen members of the two focus groups and interpreted accordingly. The responses were then synthesized into outcomes. The participants included both females and males, with the majority (12/16 or 75 %) being females.

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Data Analysis

For investigating university students' beliefs and experiences of integrating AI in a morphology course, data generated from qualitative and quantitative methods were tallied, encoded, tabulated, and jointly interpreted using descriptive statistics and statistical analysis.

After conducting the questionnaire data collection phase, statistical analysis has been employed based on the analytical description that appears in the form of charts created instantaneously by Google forms according to the respondents' input on each item.

Additionally, the qualitative data obtained from the focus group discussions were transcribed and analyzed. This methodology was quite appropriate since it provided an in-depth description and deeper understanding of university students' beliefs about the integration of AI in morphology courses. Furthermore, a conversation analytic approach was used for analysis.

Results and Findings

Students' Survey Analysis

Section 1: Demographic Information

The respondents consist of 83.87 % females and 16.13 % males. The students' ages fall within the range of 18 to 40: 71% are between 18 and 25, 22.6% are between 26 and 30, and 6.4% are between 31 and 40. Furthermore, the results indicate that all the students are majoring in English Language and Literature, and 95.2% are second year students, while 4.8% are in their third year and are repeating the course. The figures below depict the results.

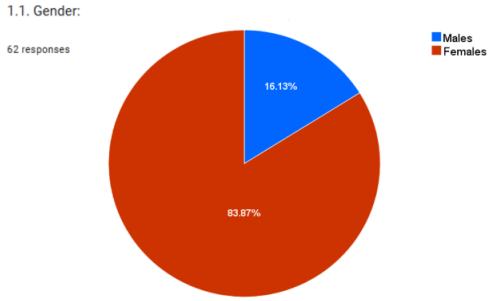

Figure 1. Gender

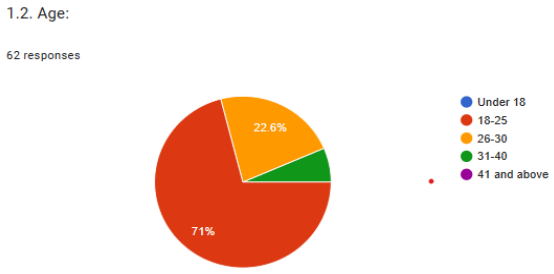

Figure 2. Age

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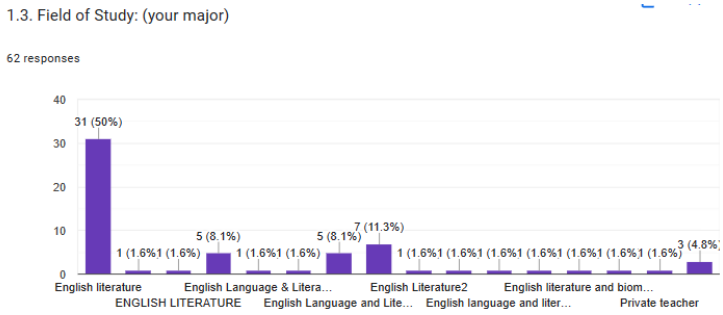

Figure 3. Field of Study

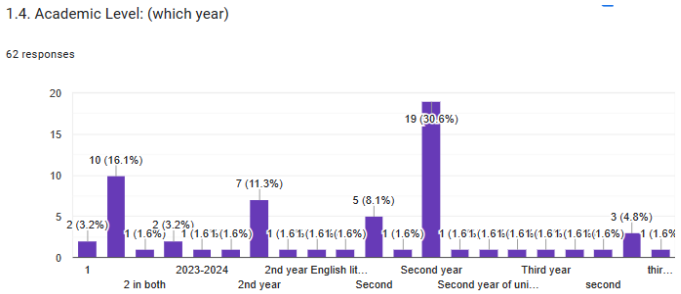

Figure 4. Academic Level

Section 2: Awareness of Artificial Intelligence

When the students were asked to rate their present awareness of artificial intelligence, 16.1% stated that they are well aware, 40.3% believed that they are somewhat aware, 35.5% gave a neutral answer, and 8.1% considered that they are not very well aware of AI. The figure below depicts the results.

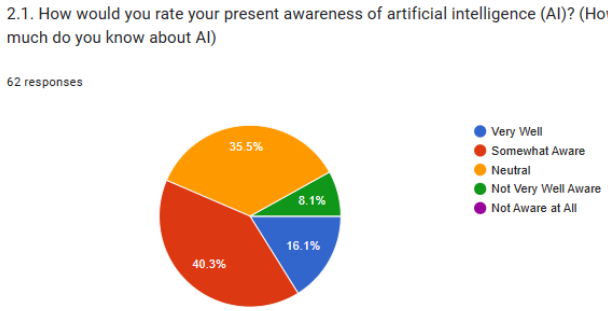

Figure 5. Awareness of AI

Next, when the respondents were asked whether they had encountered the use of AI technologies in their academic experience at the university, 50% answered negatively, 32.3 confirmed, and 17.7% said that they are not sure.

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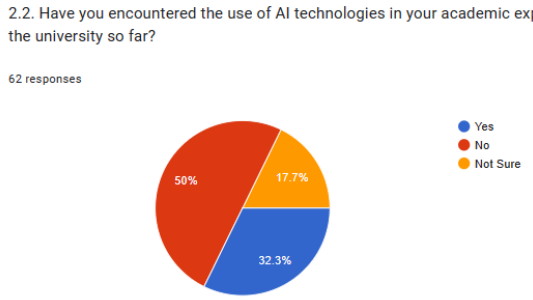

Figure 6. Encountering AI Use at the University

Section 3: AI Integration in a Morphology Course

The respondents were asked whether they are familiar with the integration of AI in a morphology course. 30.6% are familiar with this integration, 38.7% are not familiar, and 30.6% are not sure.

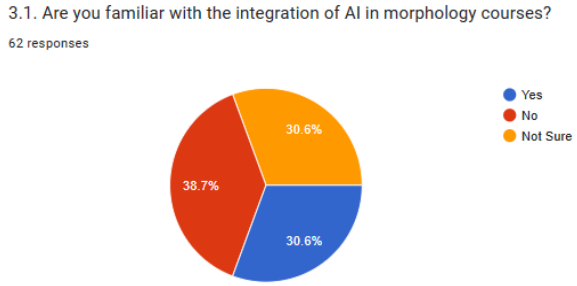

Figure 7. Familiarity with AI in Morphology Courses

Subsequently, the students were asked whether they encourage integrating AI in morphology courses, 27.4% strongly agreed, 41.9% agreed, 24.2% were neutral, 3.25% disagreed, and 3.25% strongly disagreed. The figure below illustrates the answers.

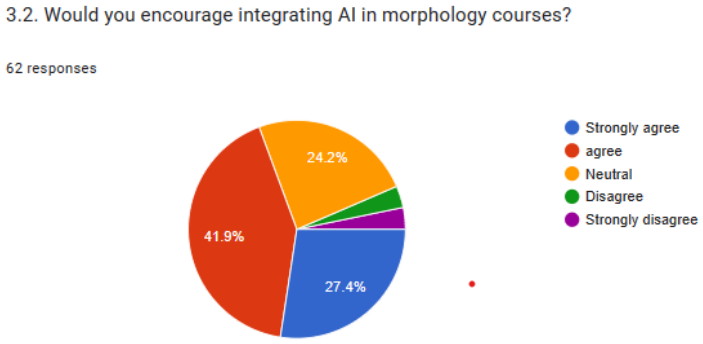

Figure 8. Encouragement of the use of AI in Morphology Courses

When students who do not support the integration of AI in morphology courses were asked to explain their reasons, they indicated a preference for the

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conventional method which allows for more creativity, critical thinking, and communication with the instructor (See Appendix A).

Section 4: Preferences and Expectations

When the respondents were asked about the specific aspects of morphology courses where AI could be advantageous and beneficial, 43.5% believed that it could provide them with automated feedback on activities and assignments, thereby providing them with immediate feedback upon completing a task. Additionally, 64.5% considered that it could offer personalized learning paths centered on students' needs, strengths and interests. Furthermore, 71% affirmed that it could provide them with study resources, extra materials, and references. Lastly, 48% admitted that it could provide them with adaptive assessments - tests tailored to every learner's abilities.

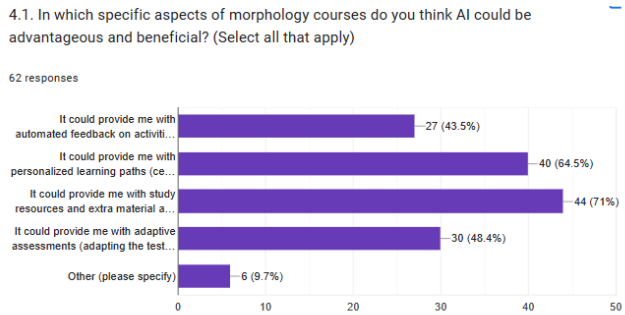

Figure 9. Aspects of Morphology Courses where AI could be Beneficial

The students were then asked to specify how they prefer AI to be integrated into their morphology courses. 50% required supplementary AI Resources both in and out of class, 27.4% requested integrating AI into the curriculum with explanation and activities, 17.7% were not sure how, and 4.1% preferred no integration of artificial intelligence.

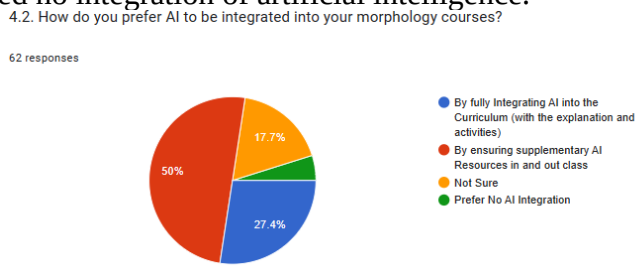

Figure 10. Methods of Preference of Integration of AI into Morphology Courses

When the respondents were asked about the types of AI technologies they think would be most effective or beneficial in enhancing morphology education, 30.6% believed that Intelligent Tutoring Systems, which offer

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tailored instruction and guidance according to learners' needs without the need for a human teacher would be the most effective. 37.1% chose chatbots or Virtual Assistants that simulate human conversations and understand human capabilities. They also interpret students' intent, process their requests, and provide prompt relevant answers. 46.8% selected Automated Grading Systems that automatically grade or score assignments, tests, or exams, such as multiple-choice questions, short answers, essays, and other types of assignments. 56.5% preferred Language Processing Technologies that allow computers to process and respond to students' written and spoken language in a way that mirrors abilities. Additionally, 58.1% considered Pattern Recognition to be the best type, as it recognizes patterns in students' responses and identifies common errors or misconceptions. This allows educators to pinpoint areas where a student may be struggling and tailor their teaching strategies accordingly.

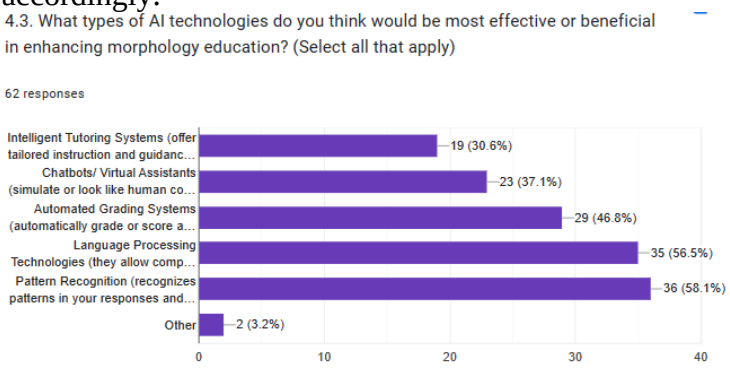

Figure 11. Most Effective Types of AI Technologies in Enhancing Morphology Education

Section 5: Open Comments

When the students were asked whether they had any additional comments or suggestions regarding the integration of AI in morphology courses, their answers varied, but they mostly agreed that AI must be used thoughtfully and be restricted to a limited extent. It has to be handled with care and precision until people are fully aware of its potential. Students' creativity and critical thinking are highly appreciated despite the benefits AI would offer, such as saving the instructors' and the students' time, facilitating their missions, being a good source of information, and aiding in the teaching and learning process. However, firstly and most importantly, it must never replace the instructor (see Appendix B).

Students' Focus Group Discussion Analysis

The results from the data analysis of the students' focus groups yielded a number of outcomes. This section highlighted the seven outcomes that were referenced. These seven main outcomes included the students' experience

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with AI in morphology courses, their awareness and perceptions, AI's pedagogical impact on morphology course, AI's impact on student engagement and interaction, the students' preferences in the customization of AI, their challenges and concerns, and their future expectations and recommendations. All the students' responses were audio-recorded and transcribed (Check Appendix C).

Outcome 1. To assess students' experience with AI in morphology courses

Question 1.1: Could you describe any specific instances or experiences where you have encountered or interacted with AI technologies before in your morphology courses?

Most of the participants (12/16 or 75 %) reported that they had the chance to interact with or use AI in their work or research, but only 2/16 (or 12.5%) reported that they resorted to AI in morphology, and found it to be genuinely helpful. One of the participants said:

Yes, AI helped me in building up or preparing a lesson plan for KG3 about sight words, and it was really a good helper, but I have not tried it in morphology courses.

Another student stated:

There was an interaction with AI in specific situations and morphology courses, and this interaction was great for me because AI was successful in giving me the solutions.

Question 1.2: How did you find the experience of using AI in the context of morphology education? Did you face any challenges? Mention them.

Since most of the participants had not had the chance to experience the integration of AI in morphology courses, they either did not provide answers or they talked about their experience with AI in general. Only one participant commented and said:

AI is the simulation of human intelligence process by machines especially computer system. In order to integrate it in a morphology course, expert systems, natural language recognition, speech recognition, and machine vision must be provided.

Outcome 2. To assess students' awareness and perception of integrating AI in morphology courses

Question 2.1: How would you describe your current awareness of AI and its applications in the field of linguistics, particularly in morphology?

Almost 5/16 (or 31.25 %) stated that they have enough awareness of AI, 6/16 (or 37.5 %) stated that they are totally unaware of AI and its

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applications, while the rest (5/16 or 31.25%) confessed the importance of AI without clearly stating whether they are aware of it or not. One student said:

I am aware, and I use it, and it helps me in my morphology course. Maybe it simplifies it and improves the course more. AI may be integrated into the course to make the course easily understood by the students.

Question 2.2: Please describe your attitudes towards the integration of AI in a morphology course. Are you generally positive, negative, or neutral? Why?

Most of the respondents have a positive attitude towards the integration of AI in a morphology course (9/16 or 56.25%) while 5/16 (or 31.25%) are neutral. One student did not provide an answer, while 2/6 (or 12.5%) showed a negative attitude towards this integration, fearing that this application might replace their instructors. One of them said:

My attitude is negative because it prevents the teacher from being creative. Also, AI may replace teachers by depending on manufacturing robots. I think AI could be best used in industries including health care and finance.

Outcome 3. To determine the pedagogical impact of integrating AI in morphology courses

Question 3: In your opinion, how could AI positively impact the teaching and learning of morphology?

Almost all the students realize the benefit AI could have on the teaching and learning of morphology (15/16 or 93.75%). Although only one student did not respond, the students considered the beneficial effects of AI in providing information for both students and teachers. They believe that AI could provide them with correct answers, games, and videos that could help them understand better. Most importantly, it makes learning fun and easy to understand. One student stated:

Learners should be guided on how to use AI effectively, and so it will have a positive impact, since AI can easily create figures, and it can illustrate the material clearly.

Another student said:

According to me, it is helpful because it gives a lot of examples and details with colorful background. I mean it highlights important ideas, and it saves time for instructors and students.

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Outcome 4. To find out whether the integration of AI could lead to students' interaction and engagement

Question 4: Do you think the integration of AI in morphology will lead the students to interact more in the course?

Most of the respondents clearly stated that the integration of AI could lead to students' interaction with the instructor in the class (14/16 or 87.5%). One student stated:

Students will be more motivated, and it will improve their performance in the course.

Another said:

I think that the integration of AI will lead the students to interact with the instructor since AI gives them the positive way of thinking and getting correct and suitable answers.

Outcome 5. To explore the students' preferences in the customization of AI

Question 5: How can the integration of AI in a morphology course be customized to suit the individual needs of students?

Almost all the students (15/16 or 93.75%) support the customization of AI in teaching morphology. They believe that lectures with voice-overs, videos, games, pictures, and collaboration with experts from diverse background could foster understanding and provide a rich learning environment. One student said:

There are many ways to customize the integration of AI; for example, using sounds and voices when we need to learn the utterance of sounds, pictures, and videos.

Outcome 6. To explore the challenges and students' concerns when integrating AI in morphology

Question 6: What are the challenges you might face when integrating AI in morphology?

The challenges the respondents were worried about varied from one to another. Some were concerned about losing the student-teacher relationship, others were anxious about the unstable electricity and Internet in Lebanon, some were worried about losing their creativity and were skeptic about the accuracy of the information provided, while others were concerned about their inability to use technology properly, which could hinder their communication with AI. One student said:

Students have to dive deep into specific areas and acquire a broad understanding of AI concepts, and this might be a hard and complex process. Students may have to learn the basics of using technology and may have to learn on their own by referring to many online resources.

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Outcome 7. To find out about students' future expectations and recommendations

Question 7.1: What improvements or changes would you like to see in the integration of AI in a morphology course?

Most of the students (13/16 or 81.25%) mentioned the improvements they wish to see in the integration of AI in a morphology course. They would like this course to be delivered with more fun and with more visual aids and activities instead of lecturing. They want varied methods of teaching, as there are different types of learners. Most importantly, they would like AI to be integrated in all the courses at the university without threatening the instructors' knowledge and positions. One student stated:

In my opinion, the course will be given in a very beautiful way; everything will be clear and easily understood.

Question 7.2: Do you have any specific recommendations for your educators or your institution to enhance the integration of AI in morphology education?

Only 7 out of 16 respondents, or 43.75%, responded and recommended using AI in their institutions to foster a sense of community among students. They strongly advocate for educators to integrate AI in teaching for the diverse ideas it offers. Additionally, they desire university support for classes through technological tools that facilitate learning. One student said:

Universities must offer a computer science course to allow students to take courses in AI. Instructors must be trained to use AI, and universities have to start using AI tools.

It was concluded that almost all the students are well aware of the benefit AI could bring to learning in a morphology course.

Discussion and Conclusion

After collecting the data from the questionnaire, statistical analysis was employed based on the analytical description that appears in the form of charts on Google forms, depending on the respondents' input on each item. The purpose was to assess students' awareness and understanding of AI and its integration in morphology, evaluate the current status of AI integration in a morphology course, identify the perceived advantages and challenges associated with AI integration in a morphology course, and gather recommendations for effective AI integration in morphology education. Additionally, the qualitative data obtained from the two focus group discussions were transcribed and analyzed in order to obtain an in-depth description and understanding of university students' beliefs about the integration of AI in morphology courses.

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At first, the data gathered and analyzed quantitatively from the students' questionnaire showed that most students support using AI in a morphology course due to the many benefits it provides (27.4% strongly agreed, 41.9% agreed).

Regarding the respondents' answers in the focus groups, it was concluded that almost all the students realize the benefit AI could offer in the teaching and learning of morphology (15/16 or 93.75%). Additionally, they believe that it fosters more interaction in class (14/16 or 87.5%) and creates an environment conducive to learning through the facilities AI could provide.

Therefore, it is concluded that integrating AI into a morphology course is a milestone in education, particularly for the many benefits it could offer, despite the challenges associated with this integration. Eventually, the obtained results are consistent with previous researches that have asserted the positive impact of innovative and pedagogical technologies, which are the main support for improving the quality of education (Jamoliddinovich, 2022).

Artificial Intelligence allows students to learn more about morphology concepts. The AI discussed in this paper shows how it can achieve the desired learning objectives in a morphology course.

To enhance educational quality, institutions of higher education are encouraged to provide internet connection and AI tools in classes, focusing on the development of both students' and teachers' digital competence. Moreover, instructors are urged to incorporate activities, videos, pictures, and other visuals that AI can offer to lesson explanations and create engaging learning environments. Most importantly, instructors of morphology courses are recommended to integrate AI tools into their lectures due to the numerous benefits they offer.

The author hopes that the integration of artificial intelligence in a morphology course, as discussed in the article, will encourage instructors to implement AI not only in their morphology courses but also in other courses, in a way that promotes learning and comprehension.

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