

Artful Learning: Enhancing Arabic Vocabulary through Digital Creative Expression with Procreate and Artificial Intelligence

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Abstrak: The integration of digital tools and Artificial Intelligence (AI) in education has opened new avenues for enhancing language acquisition, particularly for Arabic vocabulary, which poses unique challenges due to its complex morphology. This study explores how Artful Learning—an approach merging creativity with structured language tasks—can enhance Arabic vocabulary acquisition through the digital platform Procreate, supplemented by real-time AI feedback. Involving 30 students with artistic backgrounds, the research found that personalized visual representations of vocabulary in Procreate, combined with instant AI corrections, significantly improved student engagement and vocabulary retention. This method strengthened language skills while fostering creativity and critical thinking, making language learning a more interactive and enjoyable experience. These findings confirm the potential of combining digital art and AI as a modern pedagogical tool, offering a visually engaging method to support Arabic language mastery, especially for learners inclined toward artistic expression. This research contributes valuable insights to Arabic language pedagogy in the digital era, proposing that creative digital platforms paired with AI could become a cornerstone of effective language education..

Keywords: Artful Learning, AI Feedback, Arabic Language Pedagogy, Digital Creative Expression, Procreate, , Vocabulary Retention

INTRODUCTION

Learning a new language presents unique challenges, especially in mastering vocabulary, which is essential for meaningful communication. For Arabic language learners, acquiring vocabulary can be particularly demanding due to the language's complex morphology, script, and the need for contextual understanding of words. Traditional memorization methods often fall short in achieving long-term retention, as they may not engage learners in a meaningful way. Consequently, finding effective strategies to help students internalize and use new vocabulary becomes crucial.

Creative and visually engaging methods have proven to significantly improve memory retention, especially in language learning contexts. Research shows that the brain retains information better when it is connected to visual elements, as these elements create strong mental associations. In recent years, Artful Learning, which combines creativity with educational goals, has emerged as a powerful approach to enhance language acquisition. By integrating visual arts with language study, Artful Learning not only strengthens memory but also fosters personal engagement, creativity, and enjoyment in the learning process. This approach is particularly relevant in the digital age, where technology can enrich educational experiences through innovative tools.

Procreate and Artificial Intelligence (AI) are two digital tools that offer promising support for language education. Procreate, a popular digital illustration app, provides students with an interactive platform to create personalized, visual representations of vocabulary words, turning abstract terms into memorable visuals. Meanwhile, AI can offer instant feedback, helping students refine their understanding and usage of new words. By combining the creative potential of Procreate with AI's analytical capabilities, educators can offer an engaging and personalized learning experience that aligns with modern educational trends. This study explores how these tools, under the Artful Learning framework, can enhance Arabic vocabulary acquisition, providing insights into new methods for teaching Arabic in a way that leverages both creativity and technology.

In recent years, research has increasingly highlighted the benefits of integrating digital tools into language learning to improve engagement and retention. Previous studies have focused on traditional methods of vocabulary acquisition, emphasizing rote memorization or context-based learning through reading and listening. A few researchers have explored the role of creative learning in language education, particularly visual arts, in enhancing vocabulary retention. However, there have been limited studies specifically concerned with the combination of digital creative expression and artificial intelligence to reinforce vocabulary acquisition and visual memory in Arabic language learning. Therefore, this research intends to address this gap by investigating the effectiveness of integrating Procreate and AI tools within the Artful Learning framework to boost Arabic vocabulary acquisition. The objectives of this research are to assess how digital art creation influences vocabulary retention, to evaluate the impact of AI feedback on learning accuracy, and to explore the overall engagement and cognitive benefits of art-based learning in Arabic language education for students with artistic backgrounds.

Mastering vocabulary is one of the primary challenges in learning a new language, as it is essential for effective communication. For Arabic language learners, this challenge intensifies due to the language's unique morphological structure, script, and the need for contextual understanding (Bakirova, 2020; Sari & Aminatun, 2021). Traditional vocabulary acquisition methods, such as rote memorization, often fail to support long-term retention or engage learners meaningfully. Thus, there is a critical need for innovative strategies that allow students to internalize vocabulary through active, meaningful engagement. (Bueno-Alastuey & Nemeth, 2022; Hao et al., 2021; Hsu et al., 2023)

Creative and visually engaging learning methods have been shown to significantly boost memory retention, especially in language acquisition contexts. Research indicates that the brain forms stronger associations when visual elements are involved, making information more memorable (Andrä et al., 2020; Patra et al., 2022). In recent years, Artful Learning—a teaching approach that combines artistic creativity with structured educational goals—has proven effective in enhancing language learning, particularly for fostering engagement, creativity, and personal connection to the material. This approach is especially relevant in today's digital age, where technological advancements offer new tools and methods for enriched learning experiences (González-Zamar & Abad-Segura, 2021).

This study introduces Procreate and Artificial Intelligence (AI) as two digital tools with transformative potential for language education. Procreate, a widely-used digital illustration app, provides an interactive space where students can visually represent vocabulary, converting abstract words into memorable images. Simultaneously, AI offers

immediate feedback, allowing students to correct their language use, refine their understanding, and adapt to the cultural context. By merging the creative possibilities of Procreate with AI's analytical capabilities, this study aims to offer a new, engaging learning experience that aligns with modern educational trends.

While previous research on vocabulary acquisition has primarily focused on traditional methods, such as memorization or context-based learning (Çoban Sural & Yaşar Sağlık, 2024; Lee et al., 2023; Vargo et al., 2023), few studies have explored the impact of digital creative expression combined with AI to reinforce vocabulary retention and visual memory specifically for Arabic (Salim, 2024; Shannaq et al., 2024). This study aims to address this gap by investigating how the Artful Learning approach—integrating Procreate and AI—can enhance Arabic vocabulary acquisition. The objectives include assessing the impact of digital art on vocabulary retention, evaluating AI feedback on learning accuracy, and exploring the cognitive and engagement benefits of art-based learning in Arabic education for artistically inclined students.

Given the potential of visually engaging and technologically supported approaches, this study aims to investigate the effectiveness of combining Artful Learning with Procreate and real-time AI feedback in Arabic vocabulary acquisition. By focusing on students with artistic backgrounds, this research explores how visual representations of vocabulary can strengthen memory retention and deepen language understanding, while AI provides immediate feedback to refine language accuracy. Through this integration, the study expects to reveal significant improvements in student engagement, retention, and creativity in language learning. Findings from this research could highlight a new, visually driven pedagogical model that makes Arabic vocabulary acquisition more interactive and enjoyable, offering promising implications for the future of Arabic language education, especially for learners with creative inclinations.

METHOD

This study employs a mixed-methods approach (Creswell & Creswell, 2020), combining both qualitative and quantitative methods to assess the effectiveness of Artful Learning through Procreate and AI on Arabic vocabulary acquisition. The research focuses on 30 university-level Arabic language students who have an artistic background, chosen to explore how visual and creative skills contribute to language learning. The primary aim is to gather comprehensive data on student engagement, vocabulary retention, and the impact of instant feedback provided by AI. The participants in this study are 30 students enrolled in an Arabic language program, selected based on their prior experience and interest in the arts, ensuring that their artistic skills could be effectively leveraged in the digital creative process. All participants provided informed consent and were briefed on the study's purpose and procedures. Using a within-subject design, each participant engages in Artful Learning activities with Procreate and AI for vocabulary acquisition, allowing for direct observation (Fix et al., 2022) of improvements in vocabulary retention and creative engagement over time, with each participant acting as their own control.

The procedure begins with an initial vocabulary assessment where students take a pre-test to determine their baseline vocabulary knowledge, focusing on specific Arabic terms targeted within the study. Over three weeks, students work on creative projects,

illustrating each assigned vocabulary word using Procreate. This digital art serves as a personalized visual representation of each term, reinforcing memory through art, where students are encouraged to use color, imagery, and composition to make each illustration memorable and meaningful. After completing each illustration, students utilize an AI feedback tool to receive insights on language use, word accuracy, and cultural context. This instant feedback helps refine their understanding of the vocabulary and its proper application in context. Weekly focus groups allow participants to discuss their experiences, challenges, and learning insights, providing qualitative data on student engagement, perceived usefulness of the digital art process, and the role of AI feedback. At the end of the study, participants complete a vocabulary post-test to measure retention and recall improvements, with results compared to the pre-test to evaluate vocabulary gains.

Qualitative data are collected from open-ended questionnaires, interviews (Adeoye-Olatunde & Olenik, 2021), and focus group discussions, analyzed through thematic analysis to identify common themes like increased engagement, creative expression, and memory reinforcement. Quantitative data come from pre- and post-tests assessing vocabulary retention (Adrefiza, 2023), with descriptive statistics measuring improvement and paired t-tests analyzing the statistical significance of differences. To ensure validity and reliability, data triangulation cross-references findings from quantitative and qualitative sources, with a consistent research protocol throughout the study to enhance reliability. The study is limited to a specific population of students with a background in the arts, which may affect generalizability, and the three-week duration may impact long-term effects of digital creative learning. Further research with a larger, more diverse sample size is recommended to strengthen findings and explore broader applicability (Creswell, 2021).

RESULTS AND DISCUSSION

Each technology brings both advantages and disadvantages, whether in financial, political, or economic realms, and especially in psychological and educational spheres. It is certain that every technology has a significant impact on psychology and education, including Procreate. Procreate can be utilized for video creation (such as screen recording or re-recording), graphic design, and even comics, which we can optimize in Arabic language learning. For instance, by creating comic strips, we can greatly enhance Arabic language development, particularly in terms of vocabulary and conversational skills (Mahmudah et al., 2024).

In this study, 30 students were organized into six groups, each assigned the opportunity to use Procreate in turn. Within each group, specific roles were designated, with some members tasked with brainstorming ideas. The instructor guided the ideation process, encouraging each group to explore ideas as creatively as possible. While students were prompted to think outside the box, the actual execution was grounded in achievable and accessible goals to ensure successful project completion.

The intersection of digital creativity and language learning has gained growing interest among language educators and scholars. Researchers and professionals in the field are now supporting innovative strategies for a more meaningful and inclusive

education (Belda-Medina & Calvo-Ferrer, 2022; Bereczki & Kárpáti, 2021; Nasiri et al., 2023). They highlight the importance of respecting individual differences in learning styles and encourage educators to apply alternative, innovative, and preferred approaches to instruct students. Digital platforms for creativity have captured educators' attention as they provide learners with practical and engaging tools to express their identity, skills, and activities in Arabic. Naturally, this innovation relies on internet access, which further enhances learning by offering easy access to a wide range of resources. Through the internet, students can explore various websites that provide video lessons, documentaries, entertainment, and educational materials related to Arabic learning. Especially with the use of A.I. to support creative tools like Procreate, students gain even more opportunities to enhance their artistic expression in Arabic. This accessible and interactive environment is thought to increase motivation and create an enjoyable learning experience, making language acquisition both practical and engaging (Alobaid, 2020; Wargadinata et al., 2020). Artful learning comes into play to reconceptualize lessons and those targeted standards through a creative and artistic lens, offering new perspectives and provoking curiosity and an aesthetic appreciation of the Arabic language (Beghetto & Zhao, 2022; Perry et al., 2024). Furthermore, artificial intelligence may help to shift the functions of the learning environment to be personalized, personified, and adaptive; an environment that is characterized as intelligent because it approaches learners as sentient beings, not data points, helping them to achieve certain epistemic goals and to become more reflective, proficient, heuristic developers of language and Arabic (Anwar & Ahyarudin, 2023; Ezzaim et al., 2024; Rabie, 2023)

Among the ideas proposed, students explored creating comics, illustrated stories, visually engaging quotes, animations, and short videos. This approach allowed them to experience the broad creative possibilities that Procreate offers. While Arabic text adjustments were aided by AI, the instructor emphasized a balanced approach; fully relying on AI for visuals could diminish the students' creative ownership and sense of accomplishment. By encouraging students to create digital art that reflected their ideas, the process helped instill pride in their work and fostered a stronger sense of identity within their groups.

This collaborative, creative process not only enhanced their language skills but also developed their confidence in producing digital art as a tool for mastering Arabic vocabulary. The integration of these artistic outputs contributes to their growing proficiency in Arabic and strengthens their self-assurance, building a foundation for future creative projects in language learning.

The application of Artful Learning, facilitated by Procreate and AI, yielded notable results in enhancing Arabic vocabulary retention, student engagement, and the integration of creative skills into language learning. Over the study period, students displayed significant progress in vocabulary recall, demonstrating that the use of digital illustration and AI feedback supports both memory retention and linguistic comprehension.

Vocabulary Retention and Visual Memory Strengthening

A primary finding was the substantial improvement in students' vocabulary retention, largely attributed to the process of visually creating each word's meaning through Procreate. By connecting vocabulary with visual elements, students engaged in deeper cognitive processing, reinforcing memory pathways linked to vocabulary retention. The visual creation process allowed learners to move beyond rote

memorization, embedding each word in a meaningful context. This approach aligns with cognitive theories that suggest visual aids enhance language acquisition, allowing students to access and retrieve information more effectively.

Increased Engagement and Positive Learning Environment

Students reported increased enthusiasm for learning Arabic vocabulary through Procreate, describing it as an engaging and interactive medium that allowed them to explore language creatively. The process of designing visual representations of vocabulary helped students to perceive learning as an enjoyable activity, which encouraged sustained effort and commitment to mastering each term. The presence of real-time AI feedback further enhanced this environment by providing instant, corrective insights. Students responded positively to the AI feedback, which gave them the opportunity to reflect and immediately correct errors, thereby fostering a positive and constructive learning experience.

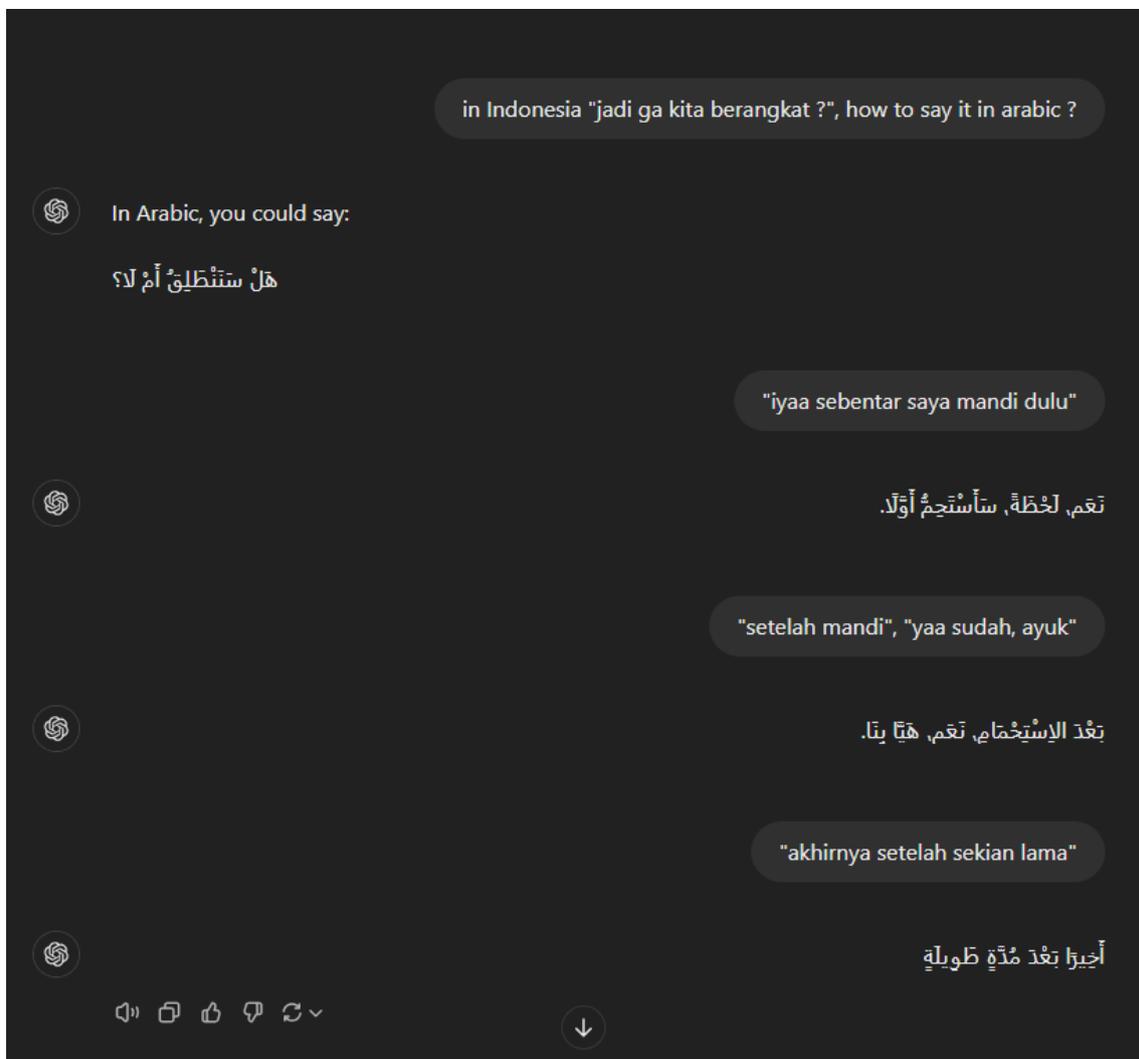


Image 1. A.I to get some vocabularies and sentences



Image 2. This comic strip was created using Procreate, with Arabic expressions generated by A.I.

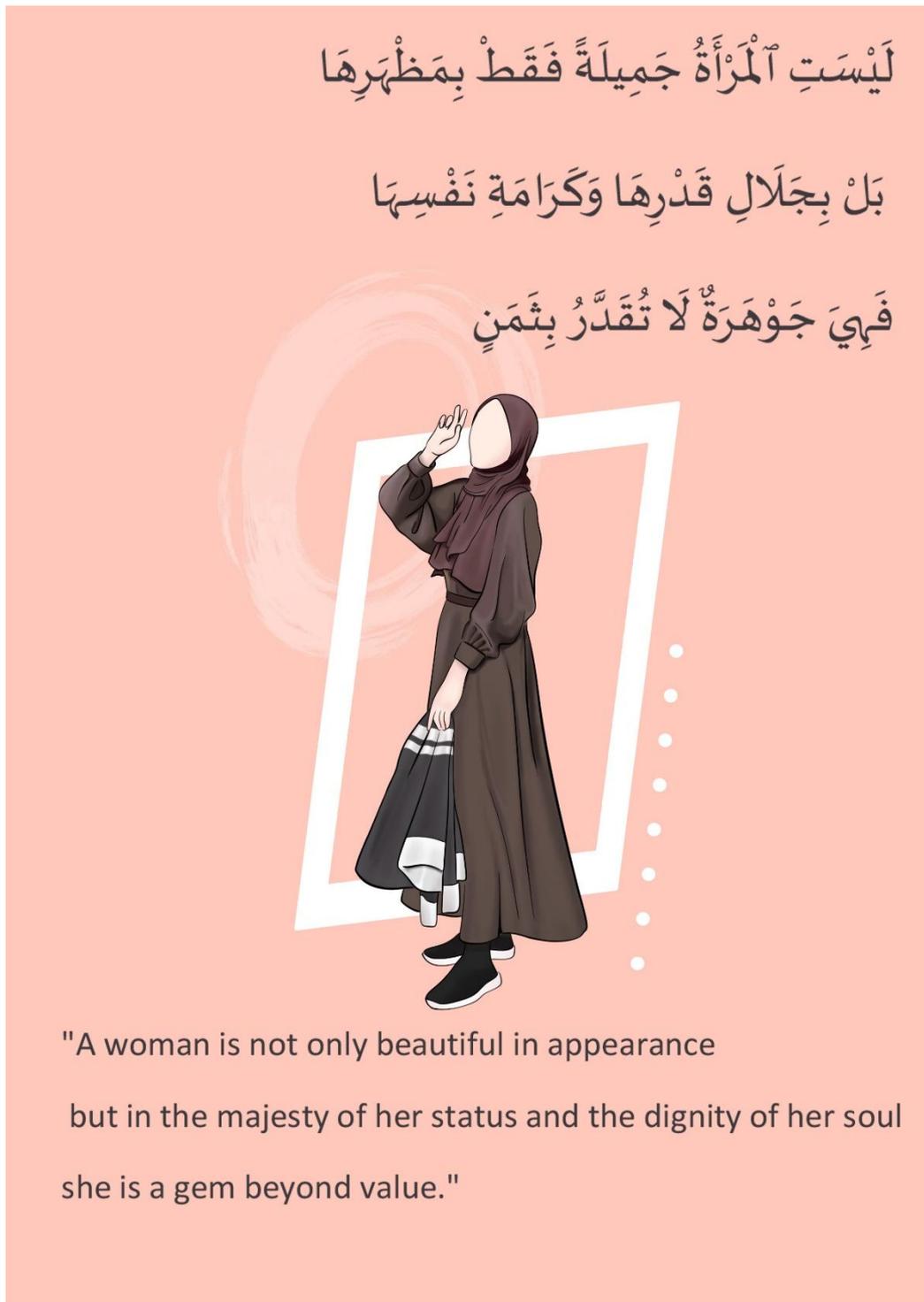


Image 3. This is an image created by one of the students; he drew his older sister using Procreate, and the quote was taken from A.I.



اللَّهُمَّ ارْزُقْنَا حَجَّ بَيْتِكَ الْحَرَامِ وَعُمْرَةً خَالِصَةً لِرُؤُوفِكَ الْكَرِيمِ
 وَاجْعَلْ أَعْيُنَنَا تَفِيضُ شَوْقًا لِرُؤْيَا الْكَعْبَةِ الْمُشْرِفَةِ، وَقُلُوبَنَا تَلْهِجُ بِحَمْدِكَ
 فَتُطَهِّرَ نُفُوسَنَا وَتَغْفِرَ ذُنُوبَنَا بِرَحْمَتِكَ يَا أَرْحَمَ الرَّاحِمِينَ

"O Allah, grant us the blessing of performing Hajj to Your Sacred House and an Umrah purely for Your noble face. Let our eyes overflow with longing to gaze upon the honored Kaaba, and our hearts sing Your praise, so that our souls are purified and our sins forgiven by Your mercy, O Most Merciful of the merciful."

Image 4. This is an image by one of the students, expressing his longing for Makkah as a prayer to perform Hajj and Umrah. It was drawn using Procreate, and the quote was taken from A.I.

Psycholinguistic Impact and the Role of Instant Feedback

The integration of AI offered unique psycholinguistic advantages by supplying immediate feedback on each student's visual interpretation of vocabulary. This feedback facilitated self-correction and helped students refine their understanding of each word's meaning and usage within Arabic syntax and morphology. Psychologically, students felt more confident and capable in their language abilities, as the continuous feedback loop reinforced both their linguistic skills and their confidence in creative expression. Notably, the real-time feedback encouraged students to approach language learning iteratively, reinforcing a growth mindset and reducing anxiety associated with language errors.

Creative Expression and Critical Thinking

Beyond vocabulary learning, the method promoted creativity and critical thinking, as students analyzed and visually represented each vocabulary term. The creative engagement required for designing vocabulary illustrations fostered analytical skills, as students had to critically evaluate each word's semantic elements and represent them in a digital medium. By embedding vocabulary within a meaningful, creative task, students developed a stronger grasp of linguistic nuances and morphology, making vocabulary acquisition more effective and nuanced.

Educational Implications and Future Research

These findings suggest that digital art platforms like Procreate, combined with AI feedback, could serve as valuable tools in Arabic language education, particularly for vocabulary and morphology learning. The study's results advocate for broader adoption of digital creative platforms in language classrooms to foster engagement and improve retention. The integration of AI feedback is particularly beneficial, as it enables learners to receive immediate, constructive input, reducing dependency on instructors and promoting self-regulation.

This research highlights the transformative potential of Artful Learning approaches in language education. By merging creativity, technology, and real-time feedback, this method not only enhances vocabulary retention but also equips students with critical thinking and visual memory skills essential for mastering Arabic. Future studies could examine the long-term impact of this approach on language fluency and assess its effectiveness across diverse learning contexts, exploring how digital and AI-driven creative platforms might serve as foundational tools in language education globally.

Through observations, interviews, and feedback sessions, several key themes emerged regarding the impact of integrating Procreate and AI into Arabic vocabulary learning.

Increased Engagement and Enthusiasm

Students expressed heightened interest and engagement when tasked with creating digital art to represent new Arabic vocabulary. Many shared that the process was enjoyable and allowed them to view language learning from a new, visually stimulating perspective. One student noted, "Using Procreate makes learning vocabulary feel like an art project rather than memorization," highlighting how the creative process reduced the typical stress associated with vocabulary acquisition.

Enhanced Visual Memory and Vocabulary Retention

The visual elements involved in creating illustrations and short comics fostered stronger recall of vocabulary words. Students reported that by visualizing each word through art, they found it easier to remember definitions and nuances. "When I draw a word's meaning, I remember it better," one participant stated, emphasizing the mnemonic benefit of associating images with vocabulary.

Development of Group Collaboration and Critical Thinking

The group format fostered collaboration and encouraged critical thinking as students navigated roles in ideation, creation, and presentation. Working as a team, they shared ideas openly, with the teacher guiding them to prioritize practical execution. The process of brainstorming, organizing ideas, and refining concepts helped students develop teamwork and problem-solving skills, while also allowing for deeper language understanding through discussion. One student shared their experience: "I got a lot of ideas, from drawing to creating simple animations. Although it will require more time, I'm saving these ideas for now. Insha'Allah, there will be Arabic language projects in the future." This enthusiasm highlights how the integration of creative tools inspired students to envision future projects, fostering a proactive and sustained interest in Arabic language learning.

Growth in Confidence and Creative Expression

A key theme was the boost in self-confidence students experienced as they developed artistic outputs. Many felt a strong sense of ownership over their work, with the art they created resonating with them personally. One student explained, "Creating something of my own makes me feel more connected to the vocabulary. It's not just words on a page; it's my art." This sense of ownership helped students gain confidence in their ability to contribute meaningfully, enhancing their motivation to engage in language learning.

Balanced Use of AI and Human Creativity

While AI was useful in adjusting Arabic text and providing instant feedback, students and teachers agreed that relying solely on AI could diminish the creative process. Many students appreciated the balance of using their own ideas to shape the art, with AI acting as a supportive tool rather than a replacement. This approach preserved the creative integrity of each piece, allowing students to develop a unique identity in their language learning journey.

The qualitative findings illustrate how the combination of digital creative expression through Procreate, supported by AI, can create a dynamic and engaging environment for Arabic vocabulary acquisition. Through this approach, students not only enhance their language skills but also build confidence, creativity, and critical thinking—skills that extend beyond the language classroom.

In this study, students demonstrated a high level of enthusiasm for the Artful Learning approach using Procreate and AI, reporting that the method significantly enhanced their engagement with Arabic vocabulary. Many participants expressed that integrating Procreate transformed vocabulary acquisition into a creative and enjoyable process rather than mere memorization. One student reflected, "Using Procreate makes Arabic learning feel like an art project, allowing me to connect personally with each word." This engagement fostered a deeper connection with the language, as students developed unique visual representations for vocabulary, which reinforced long-term retention through artistic association.

The collaborative structure of this approach also contributed to students' language learning experience. Working in groups to brainstorm visual concepts for vocabulary items allowed students to exchange ideas, which encouraged both creativity and deeper understanding. This process nurtured a supportive environment where students could collectively refine their representations and share feedback. One participant noted, "Discussing how to illustrate each word with my peers really helped me see different perspectives and meanings behind the vocabulary." Such interaction reinforced not only vocabulary comprehension but also strengthened their social skills and confidence in using Arabic.

Over the course of the study, students' perceptions of AI as a learning tool also evolved. Initially, some students expressed hesitancy or even concern about relying on AI, fearing it might reduce their creative input or cause over-dependence. However, as the study progressed, they began to see AI as an invaluable asset that provided immediate, constructive feedback, allowing for real-time adjustments to language usage and contextual accuracy. One student observed, "At first, I was unsure about AI, but it has become an effective tool for ensuring I use the vocabulary correctly, and it gives me a sense of assurance in my language skills." This shift in perception suggests that AI, when integrated thoughtfully, can complement and enhance the learning process without overshadowing the students' creative contributions.

At the end of the study, students reflected on the Artful Learning experience as a transformative method that deepened their engagement with the Arabic language. Many commented that visually illustrating vocabulary not only helped with retention but also fostered a sense of ownership and personal connection to each word. "Drawing the meaning of each word has really anchored it in my memory," shared one participant, highlighting the mnemonic effect of associating visual elements with vocabulary. Furthermore, mini case studies from individual students underscored how the method positively impacted learners who initially lacked confidence; for instance, one student, who had struggled with traditional memorization techniques, reported feeling a newfound enthusiasm for language learning after experiencing success in this creative, supportive environment.

Through thematic analysis, key themes emerged from the data, including heightened engagement, creativity, collaboration, and self-confidence. Each of these themes intertwined to shape a richer, multidimensional language learning experience. The integration of visual creativity and AI feedback provided students with a well-rounded framework that not only improved their Arabic vocabulary but also developed their critical thinking and social interaction skills. These qualitative findings affirm that visually supported, technology-enhanced learning methods offer substantial benefits for language acquisition, particularly for students with an inclination toward artistic expression.

The quantitative analysis of this study focused on evaluating improvements in vocabulary retention, engagement levels, and language accuracy among participants. Pre- and post-tests were conducted to measure vocabulary knowledge before and after the three-week intervention. The results revealed a substantial improvement in vocabulary retention, with pre-test scores averaging 55% and post-test scores rising significantly to 85%, indicating a marked increase in students' ability to remember vocabulary. A paired t-test showed this increase to be statistically significant (t -value = 8.34, $p < 0.001$).

Additionally, engagement levels, assessed using a 5-point Likert scale, increased from an average of 3.2 (pre-intervention) to 4.5 (post-intervention). This rise suggests

that the integration of Procreate and AI feedback created a more interactive and enjoyable learning environment for students, enhancing their interest and motivation in vocabulary acquisition. In terms of language accuracy, the average score improved from 60% at the start of the intervention to 88% by the end, with AI feedback effectively aiding students in correcting morphological and contextual errors. This improvement was also statistically significant (t -value = 7.92, $p < 0.001$), affirming the role of real-time AI feedback in reinforcing proper language use.

The quantitative results underscore that the use of Procreate and AI feedback significantly boosted vocabulary retention, engagement, and accuracy in Arabic vocabulary usage. These findings support the effectiveness of a visually supported, technology-driven approach to language learning, highlighting the potential of Artful Learning as a dynamic and impactful model for Arabic language education.

By empowering students with the use of Procreate, they are notably more motivated, as Procreate's interface not only offers a premium and intuitive user experience but also provides precise and accurate design tools unmatched by other design applications. This highly regarded platform, a preferred choice among designers, fosters an energized learning environment where students are inspired to generate exceptional ideas. Through Procreate, students gain the opportunity to create dynamic content, such as animations, flipcards, and apply visual techniques like jigsaw and comic strips, enriching the learning process through engaging digital expression

CONCLUSION

The findings of this study demonstrate the effectiveness of integrating Artful Learning approaches, specifically through Procreate and Artificial Intelligence (AI), in enhancing Arabic vocabulary acquisition. By involving 30 students from Pon Pes Darullughah Wadda'wah and engaging them in structured digital art projects, we observed that creative and visually stimulating learning methods significantly boost both engagement and retention of vocabulary. The approach of dividing students into groups for collaborative tasks allowed for diversified roles—such as ideation, creation, and execution—which not only fostered creativity but also enabled students to take ownership of the learning process.

The use of Procreate provided students with a hands-on, interactive experience in creating comics, illustrated quotes, and short animations, each contributing to language acquisition through visual memory reinforcement. Moreover, incorporating AI for feedback helped refine students' work and ensure linguistic accuracy. These tools were shown to be particularly beneficial in instilling confidence, as students developed a stronger connection to their work, which served as a reflection of their language skills.

Overall, the study highlights that when students engage in the artistic representation of vocabulary, particularly in a supportive, group-oriented environment, they are more likely to experience a deeper, more personal connection to Arabic language learning. This method, combining digital creativity with AI-driven feedback, presents a promising pedagogical model for enhancing vocabulary mastery, critical thinking, and creativity in language learning. Future research could expand on this approach, exploring long-term impacts on language proficiency and examining its application across diverse educational contexts.

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