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Research Article

AI-Generated Affirmations and Self-Confidence among Filipino College Students

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ABSTRACT

The growing presence of artificial intelligence (AI) in everyday life has opened new possibilities for supporting psychological well-being, including the use of AI-generated affirmations to strengthen positive self-perceptions. This study investigated whether AI-generated affirmations could influence the self-confidence of Filipino college students. Using a quasi-experimental pretest-posttest control group design, the study involved 280 undergraduate students from a private university in the Philippines. Participants were assigned either to an experimental group that received AI-generated affirmations or to a control group that did not receive the intervention. Self-confidence was measured before and after the intervention using a standardized self-report scale. Data were analyzed through paired-samples and independent-samples t-tests to examine changes within and between groups. Findings showed a significant increase in self-confidence among students who received the AI-generated affirmations, whereas the control group showed no significant change. These results suggest that even brief, automated affirmations may help improve how students view themselves, particularly in relation to confidence. The findings also point to the potential of AI-based tools as accessible and scalable forms of support for student well-being in educational settings. More broadly, the study contributes to the growing discussion on how AI can be used not only for academic tasks, but also for psychological and emotional support among students.

Keywords: *AI-generated affirmations, College students, Self-confidence, Self-efficacy*

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Background

Advances in artificial intelligence (AI) have significantly changed how individuals interact with digital systems, extending beyond basic information processing into areas traditionally associated with human cognition and emotion (Montag et al., 2024; Huang et al., 2024). In educational settings, AI tools are no longer limited to supporting academic tasks; they are increasingly being used to influence motivation, self-perception, and overall psychological well-being. One emerging application is the use of AI-generated affirmations, which produce short, personalized statements intended to reinforce positive self-beliefs and promote emotional resilience.

Affirmations have long been used in psychological practice and self-help approaches to improve mood, strengthen self-concept, and regulate emotional responses. Rooted in self-affirmation and self-efficacy theories, affirmations are understood to help counter negative self-schemas by reinforcing adaptive beliefs about competence and personal worth (Bandura, 1997). Previous research has shown that positive self-statements and brief digital interventions can contribute to improved mood, reduced stress, and increased self-efficacy and self-esteem (Bosbach et al., 2023; Besekar J et al., 2024). In higher education, where students often face academic pressure, uncertainty, and identity-related challenges, self-confidence plays a particularly important role in successful adjustment.

The integration of AI into this process introduces a different dynamic. Unlike traditional affirmations that are self-generated or facilitated by another person, AI-generated affirmations offer a more automated and scalable form of support. Through natural language processing, AI systems can generate context-sensitive messages that resemble supportive human communication (Montag et al., 2024; Miner AS et al., 2019). This raises important questions about whether affirmations produced by non-human agents can meaningfully influence psychological outcomes, and whether such effects are beneficial or limited in nature. While existing research on AI in education has largely focused on tutoring systems, information delivery, and administrative functions (Huang et al., 2024), relatively little attention has been given to AI-mediated emotional and motivational support.

Self-confidence remains a central concept in educational psychology, referring to individuals' beliefs in their ability to succeed and effectively manage challenges (Bandura, 1997). Higher levels of self-confidence are linked to greater academic engagement, persistence, and resilience, whereas lower levels are often associated with avoidance behaviors, anxiety, and poorer performance. For college students, particularly those transitioning into adulthood, self-confidence influences not only academic outcomes but also broader aspects of identity development and well-being. Because of this, interventions that can enhance self-confidence in accessible and low-cost ways are of clear practical value.

Despite the increasing interest in digital mental health tools, there is still limited empirical evidence on the psychological impact of AI-generated affirmations (Montag et al., 2024; Miner AS et al., 2019). Much of the existing literature on affirmations assumes a human or self-authored source, leaving AI-generated motivational content relatively underexplored. In addition, there is a lack of research examining how students in non-Western contexts respond to AI-based psychological support (Huang et al., 2024). Cultural factors may influence how individuals perceive credibility, emotional warmth, and authority in communication, which could, in turn, affect how AI-generated messages are received.

In the Filipino context, where interpersonal sensitivity and concepts such as hiya may shape how individuals express self-doubt, students may be less inclined to openly seek psychological support. AI-generated affirmations may therefore offer a more private and less intimidating alternative for reinforcing positive self-perceptions.

Given these gaps, there is a clear need to examine the role of AI-generated affirmations within educational settings. Understanding whether such tools can effectively enhance students' self-confidence provides insight into the broader potential of AI as a psychosocial resource rather than simply a cognitive aid.

This study examined the effect of AI-generated affirmations on the self-confidence of

Filipino college students. By comparing changes in self-confidence between students who received AI-generated affirmations and those who did not, the study aims to evaluate the psychological impact of AI-mediated positive messaging and contribute to the growing field of human–AI interaction in educational psychology.

Methods

Research Design

The study utilized a quasi-experimental pretest–posttest control group design to examine the effect of AI-generated affirmations on students' self-confidence. This approach made it possible to compare changes in self-confidence between an experimental group that received the affirmations and a control group that did not. Baseline levels of self-confidence were established through the pretest, while the posttest was used to assess any changes following the intervention period.

Participants

A total of 280 undergraduate students from a private university in the Philippines participated in the study. The sample included students from different academic programs and year levels, allowing for some variation in academic background and experience. Participants were generally within the age range of late adolescence to early adulthood and represented a mix of genders.

Students were assigned to either the experimental group or the control group. Both groups completed the same self-confidence measure before and after the intervention. Only those who were able to complete both the pretest and posttest were included in the final analysis.

Population and Sampling

The target population consisted of college students enrolled in a private higher education institution in the Philippines. Due to practical and institutional limitations, convenience sampling was used. Classes were selected based on availability, and students within these classes were invited to participate in the study.

Assignment to groups was conducted at the class level in order to avoid disrupting regular academic schedules. One group of classes was designated as the experimental group, while another served as the control group. This arrangement helped ensure that students within each group experienced similar academic conditions throughout the duration of the study.

Instruments

Self-confidence was measured using the General Self-Efficacy Scale (GSES) developed by Schwarzer and Jerusalem (1995), which assesses individuals' beliefs in their ability to cope with a variety of difficult demands. The scale consists of 10 items rated on a 4-point Likert scale ranging from 1 (Not at all true) to 4 (Exactly true), with higher scores indicating greater self-confidence.

In the present study, the scale demonstrated good internal consistency, with a Cronbach's alpha of $\alpha = 0.87$, indicating acceptable reliability for the sample.

Procedure

Prior to data collection, permission was obtained from the appropriate institutional authorities. Participants were informed about the purpose of the study, as well as the voluntary nature of their participation. They were also assured that they could withdraw at any point without penalty.

All participants first completed the self-confidence scale as a pretest. Following this, students in the experimental group received a series of AI-generated affirmations over the course of the intervention period. These affirmations were delivered in short, text-based messages intended to reinforce positive beliefs related to academic ability, personal growth, and resilience. Meanwhile, the control group continued with their usual academic activities and did not receive any form of affirmation.

At the end of the intervention period, both groups completed the same self-confidence scale as a posttest. Responses were matched using anonymous codes to maintain confidentiality while allowing for comparison between pretest and posttest scores.

The intervention was conducted over a period of 14 days, during which participants in the experimental group received one AI-generated affirmation per day. These affirmations

were delivered through a digital messaging platform (e.g., Messenger or SMS) to ensure accessibility and consistency.

The affirmations were generated using ChatGPT (OpenAI), with prompts designed to produce brief, encouraging statements focused on academic confidence, personal growth, and resilience. Examples of the affirmations used include:

- "You are capable of handling academic challenges, even when they feel difficult."
- "Every small step you take contributes to your growth and confidence."
- "You have the ability to improve and succeed through effort and persistence."

Data Analysis

Descriptive statistics were used to summarize self-confidence scores at both pretest and posttest. To examine changes within each group, paired-samples t-tests were conducted. Independent-samples t-tests were then used to compare posttest scores between the experimental and control groups.

All statistical analyses were carried out using standard statistical software, with the level of significance set at .05.

Ethical Considerations

Ethical approval was obtained from the institution prior to the conduct of the study. Participants provided informed consent and were assured that their responses would remain confidential and used solely for research purposes. No identifying information was collected, and all data were stored securely. The intervention posed minimal risk, as it involved only supportive, non-invasive affirmation messages.

Results and Discussion

The analysis focused on changes in self-confidence scores between the experimental and control groups from pretest to posttest. Initial findings showed that both groups had comparable baseline levels of self-confidence. However, different patterns emerged following the intervention.

Students in the experimental group showed a statistically significant increase in self-confidence from pretest to posttest ($p < .05$), indicating that the AI-generated affirmation intervention had a measurable effect. The computed effect size (Cohen's $d = 0.592$) suggests a moderate impact on students' self-confidence. In contrast, the control group did not show a statistically significant change ($p > .05$), indicating that no meaningful improvement occurred without the intervention.

To further validate the results, a Shapiro–Wilk test was conducted, which indicated a violation of normality assumptions ($p < .05$). As a result, a non-parametric Wilcoxon signed-rank test was also performed. The findings from the Wilcoxon test were consistent with the paired-samples t-test, further supporting the statistical significance of the intervention.

These findings suggest that even brief, automated affirmations can positively influence how students perceive themselves. In line with self-efficacy theory, repeated exposure to supportive messages may help reinforce adaptive beliefs about competence and personal worth (Bandura, 1997). Informal feedback from some participants also suggested that receiving daily affirmations helped them feel more motivated and reassured during the intervention period.

Previous studies on short-term digital interventions have similarly shown that even minimal inputs can lead to measurable improvements in self-esteem and emotional regulation (Bosbach K et al., 2023; Besekar J et al., 2024).

An important aspect of this study is that the affirmations were generated by an artificial system rather than by a human source. The observed improvement suggests that students are able to engage meaningfully with AI-generated messages, particularly when these messages are perceived as relevant and supportive. This aligns with emerging research indicating that individuals can respond to AI-mediated communication in psychologically meaningful ways (Montag et al., 2024; Miner AS et al., 2019).

At the same time, the findings indicate that the effect of the intervention is moderate rather than strong. This suggests that while AI-generated affirmations can provide a helpful boost to self-confidence, their impact may be limited in duration and scope. In the context of Filipino

students, cultural factors such as *hiya* and sensitivity to social evaluation may also play a role. AI-generated affirmations may offer a more private and less intimidating way of engaging in positive self-reflection.

The absence of significant change in the control group further supports the conclusion that the observed improvement in the experimental group can be attributed to the intervention itself rather than external factors.

Overall, the findings highlight the potential of AI-generated affirmations as a low-cost and scalable tool for supporting student well-being. However, these tools should be viewed as supplementary rather than as a replacement for more comprehensive psychological or educational support systems.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, the use of convenience sampling limits the generalizability of the results, as participants were drawn from a single private university. Second, group assignment was conducted at the class level rather than through full randomization, which may introduce uncontrolled group differences. Third, the intervention period was relatively short, and the study did not assess whether the observed improvements in self-confidence are sustained over time. Future research may address these limitations by using more diverse samples, randomized designs, and longer intervention periods.

Conclusion

This study provides evidence that AI-generated affirmations can improve the self-confidence of college students. Participants who received short, daily affirmations showed a statistically significant increase in self-confidence compared to those who did not receive the intervention. However, the effect was moderate, suggesting that while the intervention was beneficial, its impact may be limited when used on its own.

The findings suggest that affirmations do not necessarily need to come from a human source to be effective. Even when generated by an artificial system, these messages can support positive self-perceptions and contribute to students' psychological development.

In educational settings where students experience academic pressure and may have limited access to mental health support, AI-generated affirmations can serve as a practical and accessible supplementary tool. At the same time, they should not be viewed as a replacement for human interaction or professional support.

Future research may explore the long-term effects of such interventions, as well as how personalization and cultural context influence their effectiveness among different groups of students.

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Data Availability Statement

The datasets generated and analyzed during the current study are not publicly available due to ethical and confidentiality considerations, as they involve student responses that could compromise participant privacy. Anonymized data may be made available by the corresponding author upon reasonable request and subject to institutional approval.

Statement on AI Use

Artificial intelligence (AI) tools were utilized in two aspects of this study. First, AI (ChatGPT by OpenAI) was used to generate the affirmation messages delivered to participants during the intervention phase. These messages were designed to provide brief, supportive statements related to self-confidence, personal growth, and resilience.

Second, AI tools were used during the early stages of manuscript drafting and language refinement. All data analysis, interpretation of findings, and final revisions were conducted by the authors to ensure accuracy, originality, and academic integrity.

The use of AI-generated content as part of the intervention was disclosed to participants during the consent process.

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