

Effectiveness of AI-ChatGPT-Based Psychoeducation with Social Validation on Gen Z Students' Academic Self-Concept

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Abstract

Generation Z is a digital native generation strongly connected to technological development, including the use of artificial intelligence in education. However, their dependence on gadgets and exposure to digital distractions often undermines students' academic self-concept. This study aims to examine the effectiveness of an AI-ChatGPT-based psychoeducational intervention with social validation in improving high school students' academic self-concept. The research hypothesis proposed that there would be a significant difference between pretest and posttest scores after the intervention. This study employed a quantitative approach with a quasi-experimental one-group pretest-posttest design. The research subjects were 42 10th-grade students of SMAK Bhakti Luhur Malang, who were selected through simple random sampling. The instrument used was the Academic Self-Concept Scale (ASCS), adapted for the Indonesian context. The intervention consisted of four stages, including pretest, reflective dialogue with AI-ChatGPT, social validation involving peers and counseling teachers, and posttest. The results indicated a significant improvement in academic self-concept, $t(41) = -10.63, p < .001$, with a large effect size (Cohen's $d = 1.64$). The percentage of students in the high category increased from 10% to 33%, while those in the low category decreased from 14% to 10%. In conclusion, AI-ChatGPT-based psychoeducation with social validation effectively improved the academic self-concept of Gen Z students, offering relevant insights for adaptive educational interventions in the digital era.

Abstrak

Generasi Z merupakan generasi digital native yang sangat dekat dengan perkembangan teknologi, termasuk pemanfaatan kecerdasan buatan dalam dunia pendidikan. Namun, ketergantungan pada gawai dan distraksi digital seringkali berdampak pada lemahnya konsep diri akademik siswa. Penelitian ini bertujuan untuk menguji efektivitas intervensi psikoedukasi berbasis AI-ChatGPT dengan validasi sosial terhadap peningkatan konsep diri akademik siswa SMA. Hipotesis penelitian menyatakan adanya perbedaan signifikan antara skor pra-tes dan pasca-tes konsep diri akademik setelah diberikan intervensi. Metode penelitian menggunakan pendekatan kuantitatif dengan desain kuasi-eksperimen *one group pretest-posttest*. Subjek penelitian adalah 42 siswa Kelas X SMAK Bhakti Luhur Malang yang dipilih melalui simple random sampling. Instrumen yang digunakan ialah Academic Self-Concept Scale (ASCS) yang telah diadaptasi dalam konteks Indonesia. Intervensi dilakukan melalui empat tahap, meliputi pra-tes, dialog reflektif dengan AI-ChatGPT, validasi sosial melalui teman sebaya dan guru BK, serta pasca-tes. Hasil analisis menunjukkan peningkatan signifikan skor konsep diri akademik dengan nilai $t(41) = -10,63, p < 0,001$ dan ukuran efek besar (Cohen's $d = 1,64$). Jumlah siswa dengan kategori tinggi meningkat dari 10% menjadi 33%, sementara kategori rendah menurun dari 14% menjadi 10%. Penelitian ini menyimpulkan bahwa psikoedukasi berbasis AI-

ChatGPT dengan validasi sosial efektif meningkatkan konsep diri akademik siswa Gen Z. Temuan ini dapat menjadi acuan dalam pengembangan intervensi pendidikan yang adaptif terhadap kebutuhan generasi digital.

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INTRODUCTION

Generation Z (Gen Z) students are digital-native learners who prioritize visualization and interaction, need quick feedback, and are oriented towards independent learning. They also expect education to be inclusive, practical and meaningful (Issacs et al., 2021). The development of technology and information supports an education model that suits the Gen Z psyche. The change in the Indonesian curriculum at every regime change reflects the flexibility and adaptability of national education to the tendencies of each generation, in line with the demands of the times. The ultimate goal is to form a future generation that is adaptive, progressive, and characterized by a strong and relevant academic self-concept, with a foundation in a strong and relevant academic self-concept.

Students' ability to adapt to learning technologies significantly affects their academic self-concept, particularly motivation and learning outcomes. Wang and Li (as cited in Chen et al., 2024) highlight the importance of integrating technology effectively into the teaching and learning process and note that students' readiness to adopt artificial intelligence (AI) can contribute to their academic achievement. If students feel uncomfortable or incompetent with technology, this can affect their assessment of their academic abilities. In this digital era of education, understanding how students interact with new technologies can provide a clearer picture of students' academic self-concept.

Grade 10 students of SMAK Bhakti Luhur Malang (Bhakti Luhur Catholic High School, Malang) in the 2024/2025 academic year are digital natives who cannot be separated from the scope of AI-based technology growth and development. The researcher observed that the school understands this very well, so that the teaching and learning process and even the implementation of learning evaluations are digital-based. On the other hand, this digitalization system also introduces new challenges to the school's educational dynamics. Students are so attached to their gadgets that their concentration during offline learning and cognitive absorption becomes shallow. Students are often distracted by various forms of digital social media content, which can affect their focus and motivation. Some students said they prefer studying on gadgets rather than reading books. They also do not have a good personal learning strategy. SMAK Bhakti Luhur is a school and dormitory, so there are rules for study time in the dormitory, but this time is often neglected due to preoccupation with playing on cellphones.

It should also be noted that students at SMAK Bhakti Luhur Malang come from various regions of Indonesia with diverse backgrounds, cultures, and personalities. Thus, it takes maximum effort to build their academic self-concept in line with the Indonesian character and the principle of unity in diversity. Support from parents, peers, teachers and other stakeholders plays an important role in shaping students' academic self-concept (Adillah et al., 2024). Interviews with counseling teachers indicated that many students have weak fighting skills, are less active in class, and some lack a clear direction for their future. In this context, students need support from various parties to foster a more positive academic self-concept.

In addition to the factors above, students' academic pressure tends to increase alongside the conveniences offered by technological developments. Students are required to be able to accelerate. Research shows that today's students are forced to achieve higher academic standards than previous generations (Lutfiana et al., 2021). When given many tasks, students tend to feel overwhelmed, leading to academic stress that can weaken their motivation and fighting spirit (Johari et al., 2019). Academic stress not only impacts mood but can also affect how students evaluate their academic abilities, potentially clouding their academic self-concept.

The above phenomenon indicates a problem with the academic self-concept of Gen Z students at SMAK Bhakti Luhur Malang. There are problems regarding awareness of academic abilities, learning efforts and strategies, social interactions and future plans. Thus, the academic self-concept in this study can be defined as Gen Z students' perceptions of themselves as a digital generation student which is reflected in their belief in their academic abilities, having good learning habits and strategies, showing more commitment to achieve maximum learning results, establishing good relationships with teachers and friends so that they become active-participative students when participating in classroom learning activities and have clear future plans or targets.

Minchekar (2019) defines academic self-concept as an individual's perception of their academic abilities, encompassing dimensions such as academic ability, learning methods, interest in certain subjects, interactions with teachers and friends, curriculum influence, effort level, learning evaluation, and future plans. In line with Minchekar, Wang & Yu also said that academic self-concept is an important factor in influencing students' motivation, academic performance and personal development (Wang et al., 2023). Low academic self-concept can lead to a lack of motivation to learn and hinder students' academic achievement. A decline in academic self-concept often occurs during the transition to secondary school, which can negatively impact students' academic achievement (Postigo et al., 2022).

To foster a solid, up-to-date academic self-concept among digital-native Gen Z students, an effective intervention is needed that leverages today's rapidly advancing technologies. Research shows that AI-ChatGPT (Generative Pre-trained Transformer) should be used as an interactive, reflective dialogue medium, as it can provide valuable, personalized feedback and support students' academic achievement efforts (Capinding et al., 2024). This is important because the development of a positive academic self-concept not only improves student achievement but also impacts student motivation and confidence in the learning process (Wang et al., 2023). The implementation of a carefully designed AI-ChatGPT-based academic self-concept enhancement program can provide significant benefits for students in secondary schools. Ward et al. (2024) also showed that the use of AI-ChatGPT psychoeducational interventions in education can support personalized learning, adaptive test adjustments, and provide real-time analysis (Ward et al., 2024)

The advantage of using AI-ChatGPT in psychoeducation lies in its ability to provide personalized feedback, answer in real-time, and help students build understanding through scaffolding dialogue (Yang et al., 2023). In addition, this approach is low-cost and can significantly increase student engagement, especially in the context of the digital-native generation who are accustomed to technology (Susilo et al., 2022). The quick and constructive feedback from AI-ChatGPT can help students understand their strengths and weaknesses, which in turn can improve their academic self-concept. Intervention programs using AI-ChatGPT are highly adaptive as virtual mentors to help students recognize their academic potential and strengths and help evaluate areas for improvement, thus supporting their self-development in academic contexts (Capinding et al., 2024).

Nonetheless, interventions that rely entirely on AI-ChatGPT risk negating the important role of humans in the process of academic self-concept formation. Social validation remains necessary even in the context of adaptive technologies, and that humans possess socio-emotional competencies and creativity makes them irreplaceable to AI (Merikko et al., 2022). Therefore, in this study, AI-ChatGPT-based psychoeducation is combined with social validation, which is a process where recommendations from ChatGPT are consulted again with peers, counseling teachers, and families. This is in line with the concept of the looking-glass self, where the judgment of significant others plays a role in the formation of self-concept. AI-ChatGPT is not positioned to replace humans, but rather as a facilitator, while humans, through interpersonal support and feedback, remain integral in affirming, interpreting, and correcting information from ChatGPT (Oh et al., 2024). This synergy is expected to result in a more meaningful improvement in academic self-concept for Gen Z students.

Considering the massive role of AI-ChatGPT technology for Gen Z students and the absence of previous findings showing the specific role of AI-ChatGPT as a digital mentor with social validation that can improve the academic self-concept of Gen Z students, this study aims to explore the effectiveness of AI-ChatGPT-based psychoeducative intervention programs with social validation on the academic self-concept of Gen Z students. It is expected that the results of this study can provide new insights into the development of intervention programs that are effective and relevant to the needs of students in the digital era.

Research Hypothesis

Based on the preliminary description above, the hypotheses proposed in this study are as follows:

1. *Null hypothesis (H_0)*. There is no significant difference between the pretest and posttest scores of Gen Z students' academic self-concept after receiving AI-ChatGPT-based psychoeducational treatment with social validation.
2. *Alternative hypothesis (H_a)*. There is a significant difference between the pretest and posttest scores of Gen Z students' academic self-concept after receiving AI-ChatGPT-based psychoeducational treatment with social validation.

METHODS

This study employed a quantitative approach with a quasi-experimental one-group pretest-posttest design. This design was selected because it enables measurements to be taken within the same group before and after the intervention, thereby allowing the effectiveness of the treatment to be evaluated objectively. Its strength lies in its ability to compare individual scores across pre- and post-intervention conditions, although its limitation is the absence of a control group (Creswell, 2018).

The population of this study comprised all tenth-grade students at SMAK Bhakti Luhur Malang in the 2024/2025 academic year. From this population, a total of 42 students were recruited as participants using simple random sampling, ensuring that each member of the population had an equal chance of being selected (Thomas, 2023). The inclusion criteria were: (1) active tenth-grade students; (2) aged between 15 and 19 years; and (3) willingness to participate in all stages of the study. The exclusion criteria were: (1) absence in any intervention session; (2) failure to complete either the pretest or posttest; and (3) health conditions that could interfere with participation in the study.

The instrument used was the Academic Self-Concept Scale (ASCS) developed by Minchekar (2019) and adapted for the Indonesian high school context into five dimensions: academic ability, learning, academic effort, academic interaction, and academic future. The instrument employed a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). To ensure its psychometric properties, both validity and reliability tests were conducted. Content validity was assessed by examining the appropriateness of the items with the theoretical construct, following the guidelines of

Azwar (2017). Item validity was tested using item-total correlations, and the results showed that five items were discarded because their *r*-count values were lower than the *r*-table ($N = 42; p > .05$). According to the criteria, an item is considered valid if its *r*-count exceeds the *r*-table (Azwar, 2017). After elimination, 27 items were retained. Reliability testing yielded a Cronbach’s alpha coefficient of .891, indicating high reliability (DeVellis, 2016).

The research procedure was carried out over eight weeks and consisted of four stages of intervention. The first stage was the pretest using the ASCS to assess students’ baseline academic self-concept. The second stage involved reflective dialogues with AI-ChatGPT regarding academic challenges. The third stage was social validation through peer groups, guidance and counseling teachers, and family members. The fourth stage consisted of a posttest using the same instrument to measure changes. The sequence of intervention stages is presented in Table 1.

Table 1.
Stages of Intervention

Session	Theme	Action
Week 1–2	Introduction to academic self-concept and pretest.	Exploring potentials and problems regarding academic self-concept.
Week 3–4	Exploration of academic self-concept with ChatGPT.	Reflective dialogue with the help of AI ChatGPT on academic self-concept issues.
Week 5–6	Social validation and academic confidence building.	Dialogue with friends, companions and counseling teachers to get affirmation or negation of ChatGPT answers.
Week 7–8	Action plan, self-commitment, and posttest.	Develop strategies and steps to strengthen academic self-concept.

In this study, ChatGPT is used as an interactive, responsive medium that assists students in individual psychoeducational sessions. The use of ChatGPT as a learning tool aligns with the edtech intervention approach, which combines digital technology with modern educational psychology principles (Holmes et al., 2023). Not limited to AI-ChatGPT, the presence of friends and counseling teachers served as social validators. Furthermore, the whole intervention process is described in stages as follows:

1. *Session I.* The researcher conducted observations, dialogues and interviews to obtain input on the problem of students’ academic self-concept. Sample interview questions: “Do you have a learning strategy that suits your academic ability?” Alternatively, “Do you like to ask the teacher when you do not understand the explanation?” Furthermore, the researcher administered a pretest using the ASCS measuring instrument as a reference for the intervention.
2. *Session II.* Students are invited to conduct a reflective dialogue on the ChatGPT application on their gadgets, asking questions to ChatGPT about the academic self-concept problems they feel and experience, for example: “Hello ChatGPT, can I tell you about my learning experience that makes me doubt my abilities?” or “Hi ChatGPT, I am currently in grade 10 high school. Until now, I feel that my academic abilities are mediocre. Buddy, please give me a solution so that I can improve my academic skills?”
3. *Session III.* The ChatGPT answers are then discussed with a friend and a counseling teacher to get validation in the form of affirmations or negations that convince the subject of his academic

status. For example, a student asked ChatGPT the following question: “Hi buddy, I am currently in grade 10. Until now, I have not known my future direction. I plan to choose a science major in class XI later. Please help me give a solution.” ChatGPT’s answers are: (1) exploration of interests and talents; (2) finding information about majors; and (3) also ask other people. Then they consulted with the counseling teacher, who recommended: “You can become a science teacher, or if the economy allows, you can become a doctor.”

4. *Session IV*. Based on the dialogue with ChatGPT and social validation, students work on independent exercises in this session. In the final stage, each student wrote a letter to themselves as a guide and self-motivation for the next academic journey. At the end of this session, researchers also conducted a posttest to determine the effectiveness of the ChatGPT-based psychoeducation process with accurate social validation.

RESULTS

Demographic Data

This study involved 42 tenth-grade students from SMAK Bhakti Luhur Malang. The demographic characteristics of the participants are presented.

Table 2.
Demographic Data

Variable	Level	Frequency	Total	Proportion
Grade	10	42	42	1.000
Gender	Male	10	42	0.238
	Female	32	42	0.762
Age	15	5	42	0.119
	16	18	42	0.429
	17	16	42	0.381
	18	2	42	0.048
	19	1	42	0.024

Table 2 presents the demographic characteristics of the subjects. The sample consisted of 42 Grade 10 students. Of these, 10 were male (23.8%), and 32 were female (76.2%). The participants’ ages ranged from 15 to 19 years, with five students aged 15 (11.9%), 18 students aged 16 (42.9%), 16 students aged 17 (38.1%), two students aged 18 (4.8%), and one student aged 19 (2.4%). Thus, the majority of subjects were 16 and 17 years old, and most were female.

Pretest and Posttest Analysis

Descriptive analysis revealed an increase in the mean score of academic self-concept from the pretest to the posttest.

Table 3.
Descriptive Analysis of Pretest and Posttest

	<i>N</i>	Mean	<i>SD</i>	<i>SE</i>	Coefficient of Variation
Total Pretest	42	91.74	12.722	1.963	0.139
Total Posttest	42	113.62	8.807	1.359	0.078

Table 3 shows that the posttest mean score ($M = 113.62$) was higher than the pretest mean score ($M = 91.74$). The reduction in the coefficient of variation from 0.139 to 0.078 indicates that the posttest results were more homogeneous.

Categorization Distribution

To assess changes in the level of academic self-concept, scores were categorized into low, moderate, and high. This categorization was derived from empirical data using percentile distribution (cut-off points based on the sample score distribution), rather than from hypothetical assumptions.

Table 4.
Categorical Distribution of Pretest and Posttest

Category	Pretest		Posttest	
	Total	Percentile	Total	Percentile
Low	6	14%	4	10%
Medium	32	76%	24	57%
High	4	10%	14	33%

Table 4 demonstrates that the number of students in the high academic self-concept category increased from 10% to 33%, whereas those in the low category decreased from 14% to 10%. This indicates a positive shift in the distribution of scores following the intervention.

Normality Assumption Test

Prior to hypothesis testing, the Shapiro-Wilk test was conducted to examine data distribution. The results showed $W = 0.981$ with $p = 0.696$, indicating that the data were normally distributed ($p > .05$).

Hypothesis Testing

A paired-sample t-test revealed a significant difference between pretest and posttest scores.

Table 5.
Paired Samples t-test

Measure 1	Measure 2	<i>t</i>	df	<i>p</i>	Cohen’s <i>d</i>	SE Cohen’s <i>d</i>
Total Pretest	Total Posttest	-10.63	41	< .001	-1.640	0.285

The p -value $< .001$ indicates a statistically highly significant difference. The effect size of Cohen’s $d = 1.64$ falls within the category of a large effect, confirming the practical significance of the AI-ChatGPT-based psychoeducational intervention with social validation in enhancing students’ academic self-concept.

DISCUSSION

The results showed that an AI-ChatGPT-based psychoeducative intervention with social validation had a highly significant effect on improving the academic self-concept of Gen Z students. These findings prove one of the advantages of using AI-ChatGPT in psychoeducation, which lies in its ability to provide personalized feedback, answer in real-time, and help students build understanding through scaffolding dialogue (Yang et al., 2023). In addition, this approach is low-cost and can significantly increase student engagement, especially in the context of the digital-native generation who are accustomed to technology (Susilo et al., 2022). Research by Baillifard et al. (2023) in Switzerland also found that the use of ChatGPT-based AI tutors improved student achievement by 15 percentiles, reinforcing the idea that natural interaction-based technologies can shape positive

academic perceptions. Furthermore, a systematic review by Klimova et al. (2025) supports the effectiveness of educational technologies on students' cognitive and affective development, including in terms of academic self-concept. In this context, ChatGPT not only acts as a source of information but also as a learning partner that provides real-time cognitive and emotional scaffolding. As such, this intervention is not only educative but also preventively therapeutic, allowing students to internalize values and psychological skills through innovative, engaging and accessible interactions.

It is also important to realize that the high level of significance (large effect) in improving the academic self-concept of Gen Z students in this study did not solely come from the AI-ChatGPT-based psychoeducational intervention, but was also reinforced by social validation from the surrounding environment. This is supported by research that found that although ChatGPT is able to provide personalized feedback, the process of forming students' evaluative judgment is sharper when the AI output is refined through human peer feedback (Xie et al., 2025). In an educational context, consultation with peers and guidance and counseling teachers serves as an external reinforcer that affirms students' perceptions of themselves, so that positive responses from AI-ChatGPT do not stand alone, but gain social legitimacy that deepens internalization in students. Furthermore, this social validation acts as a catalyst that bridges students' cognitive and affective processes in responding to the AI intervention (Holmes et al., 2024).

Thus, the combination of AI-ChatGPT-based psychoeducation and social validation through peers and counseling teachers creates a stronger synergy than the use of AI alone. This explains why the effects produced in this study reached the large category, because students not only obtained cognitive information, but also emotional and social reinforcement that facilitated the formation of a more positive academic self-concept.

The results of improving the academic self-concept of Gen Z students in this study can be analyzed more deeply by referring to the five main dimensions in the theoretical framework of Minchekar (2019), namely, the academic self-concept of ability, study, effort, interactions, and future. The increase in the academic ability dimension reflected that students felt more confident in their intellectual capacity after participating in the AI-ChatGPT-based intervention. In the academic study dimension, students showed more consistent and positive learning engagement with the subject matter. The academic effort dimension also experienced strengthening, which can be seen from the increasing willingness of students to try and not give up easily in the learning process. Furthermore, academic interaction shows that students are more comfortable and active in the discussion process, both with the AI system and with learning partners, showing an increase in academic communication aspects. Finally, the academic future dimension is evident from the emergence of students' hope, planning, and optimism towards their academic future. This is in line with findings that engagement with interactive technologies can create learning spaces that facilitate the exploration of academic identity and strengthen overall self-perception (Baillifard et al., 2023).

Therefore, the success of this intervention is not only technical-instructional but also contributes to a deep psychological transformation of students, particularly in the context of their academic identity development in the digital age. Given these findings and the supporting literature, it is recommended that future researchers develop interventions that integrate AI literacy so that Gen Z students are not only assisted by technology but also critical of it Baidoo-Anu and Ansah (2023) it is important to ensure that students are not just passive users, but also understand how AI works and its limitations in their learning process (Puppatt & Aru, 2025). It is also important to conduct longitudinal studies to observe the sustainability of the intervention effect, and include moderator or mediator variables such as digital self-efficacy and learning flow in a digital context. In addition, expanding

the sample to more varied educational levels and social backgrounds is also highly recommended to improve generalizability (Zakir et al., 2025). Finally, as the use of AI in education becomes more massive, it is also important to consider the ethical aspects as well as the mental well-being of students so that the integration of technology is truly aligned with the goal of holistic education.

CONCLUSION

The results showed that the psychoeducative intervention based on AI with social validity had a very significant effect on improving the academic self-concept of Gen Z students. An AI-based psychoeducational intervention with strong social validity is effective in strengthening perceptions of academic competence. The superiority of this intervention lies in its ability to provide real-time personalized feedback in accordance with digital-native characteristics, reinforced by social engagement that provides cognitive and emotional support relevant to Gen Z students. The findings of this study are far from perfect, so it is recommended for future researchers to conduct longitudinal studies to observe the sustainability of the intervention effect, as well as include moderator or mediator variables such as digital self-efficacy and learning flow in a digital context. In addition, expanding the sample to more varied educational levels and social backgrounds is also highly recommended to increase generalizability.

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