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Grit, AI Literacy, and Academic Motivation among Generation Z Allied Health Students of Mercado College: Implications for Outcomes-Based Education

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Abstract

The increasing use of artificial intelligence in education and healthcare requires allied health students to develop not only technical competence but also the motivation and resilience needed to use emerging technologies responsibly. This study examined grit, AI literacy, and academic motivation among Generation Z allied health students of Mercado College and considered their implications for strengthening Outcomes-Based Education (OBE). Using a descriptive-correlational action research design, the study surveyed 230 Generation Z students enrolled in allied health programs. The instrument measured grit in terms of perseverance of effort and consistency of interest; AI literacy in terms of functional knowledge and use, critical evaluation and ethics, and application in learning; and academic motivation in terms of intrinsic motivation, extrinsic motivation, and self-regulation and engagement. The instrument demonstrated excellent internal consistency, with a Cronbach's alpha coefficient of 0.977. Findings showed that students reported high levels of grit, AI literacy, and academic motivation. Grit significantly predicted academic motivation, while AI literacy did not significantly predict academic motivation based on the available regression model. These findings suggest that while students demonstrate functional familiarity with AI tools, their technological competence may not yet be fully connected to their academic drive or professional identity. The study recommends a structured instructional intervention integrating resilience-building, ethical AI literacy, and motivation-enhancing strategies within the OBE curriculum.

Keywords: *academic motivation; AI literacy; allied health education; Generation Z learners; grit; outcomes-based education*

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1. Introduction

The increasing integration of artificial intelligence (AI) into education and healthcare has created new expectations for the preparation of allied health students. Health care students have reported gaps in AI knowledge and preparation, even as AI becomes increasingly visible in clinical and educational environments (Teng et al., 2022). More recent work in biomedical and allied health contexts also indicates that perceptions of generative AI remain mixed, with opportunities for learning and practice accompanied by concerns about accuracy, ethics, and professional readiness (Chapman et al., 2026). In this setting, allied health students are no longer expected merely to access digital tools; they are also expected to evaluate, apply, and use these tools responsibly in contexts that require ethical judgment, clinical reasoning, and evidence-based decision-making. This broader shift is consistent with healthcare analytics frameworks that treat data integration, analytics capability, and decision quality as linked requirements for clinical and organizational outcomes (Atento, Quinto, Espelita, & Castaneda, 2025). In the Philippine health workforce context, Atento, Quinto, and Espelita (2025) also emphasized competency alignment, digital documentation, and analytics-driven planning as readiness concerns for health education systems.

Within allied health education, this development raises an important pedagogical concern. Digital familiarity does not automatically translate into AI literacy. Students may be comfortable using technology for communication,

search, and productivity, yet still lack the critical capacity to assess AI-generated information, determine appropriate use, and connect AI-enabled learning with professional competence. Kalantzis and Cope (2025) argued that literacy in the age of AI requires learners to participate critically in technology-mediated knowledge environments, while Southworth et al. (2023) emphasized the need to embed AI literacy across the curriculum. For institutions implementing Outcomes-Based Education (OBE), this issue is significant because OBE emphasizes demonstrable competencies rather than mere exposure to learning content.

At the same time, technology-related competence alone may be insufficient to explain student success. Allied health programs are academically demanding, requiring sustained effort, long-term commitment, and the ability to persist through difficult concepts, clinical expectations, and repeated performance-based assessments. Grit is relevant in this context because it refers to perseverance and passion for long-term goals (Duckworth et al., 2007). Studies in health professions education have also treated grit and resilience as non-cognitive traits associated with academic success and professional preparation (Bliss & Jacobson, 2020). Although grit has also been linked to performance and innovation in broader organizational contexts (Mooradian et al., 2016), its importance in allied health education lies particularly in helping students sustain effort during rigorous academic formation.

Academic motivation is particularly important in OBE-oriented allied health programs because students are expected to take active responsibility for achieving defined learning outcomes. Motivation theories explain the direction, initiation, intensity, and persistence of learning behavior (Urhahne & Wijnia, 2023). Intrinsic motivation may encourage students to engage deeply with complex health concepts, while extrinsic motivation may reinforce goal-directed behavior related to grades, family expectations, or future career opportunities (Ryan & Deci, 2020). Self-regulation and engagement further determine whether students can manage time, participate actively, and monitor their own academic progress. In technology-mediated learning contexts, ethical academic conduct also remains important, especially when digital tools may shape students' study habits and academic decision-making (Lolong et al., 2026).

Although prior studies have examined grit, AI literacy, academic motivation, and OBE as separate educational concerns, there remains a need for localized inquiry into how these constructs interact among allied health students in the Philippine context. The present study addresses this gap by examining these variables among Generation Z allied health students of Mercado College. Its practical contribution lies in using the findings as the basis for an instructional intervention program that may strengthen student resilience, responsible AI use, and academic motivation within an OBE framework. This is aligned with the broader view that health-related education increasingly requires technological readiness, evidence-based analytics, institutional adaptation, and workforce sustainability (Quinto, 2026).

This study aimed to examine the levels and interrelationships of grit, AI literacy, and academic motivation among Generation Z allied health students of Mercado College and to propose an instructional intervention program supportive of Outcomes-Based Education. Specifically, the study sought to:

1. determine the level of grit among allied health students in terms of perseverance of effort and consistency of interest;
2. determine the level of AI literacy among allied health students in terms of functional knowledge and use, critical evaluation and ethics, and application in learning;
3. determine the level of academic motivation among allied health students in terms of intrinsic motivation, extrinsic motivation, and self-regulation and engagement;
4. examine the relationship among grit, AI literacy, and academic motivation based on the available statistical results; and
5. develop a proposed instructional intervention program to enhance grit, AI literacy, and academic motivation in support of improved OBE implementation in allied health education.

2. Review of Related Literature

2.1 Generation Z Learners and Technology-Enabled Health Education

Generation Z students in health-related programs are commonly associated with digitally mediated learning environments, interactive instruction, and preference for immediate feedback. Shorey et al. (2021) found that Generation Z healthcare students tend to prefer flexible, interactive, collaborative, and technology-supported learning activities. In allied health education, these characteristics have implications for pedagogy because students are expected to acquire not only theoretical knowledge but also applied competencies that prepare them for clinical and professional practice. In a Philippine-focused synthesis, Bermido, Quinto, and Atento (2025) similarly emphasized that Gen Z learning preferences, digital learning environments, curriculum-practice alignment, faculty capacity, and leadership pressures operate as interconnected issues in health professions education.

The expansion of AI in health education adds another layer to this learner profile. Teng et al. (2022) reported that health care students recognized the growing relevance of AI but also showed gaps in knowledge and formal preparation. Chapman et al. (2026) similarly showed that biomedical academics with healthcare-related career trajectories viewed generative AI as both useful and challenging, particularly because of issues of trust, implementation, and professional appropriateness. These findings suggest that technology-enabled learning must be accompanied by explicit guidance rather than treated as a natural outcome of students' digital exposure.

Digital familiarity should therefore not be equated with professional digital competence. Generation Z learners may be accustomed to using technology for communication, entertainment, and academic assistance, but this does not automatically mean that they can evaluate digital information critically or use AI tools responsibly. Kalantzis and Cope (2025) argued that literacy in the time of AI requires the ability to interpret and evaluate meaning in technology-mediated knowledge environments. For OBE implementation, technology-enabled pedagogy must help students demonstrate learning outcomes related to knowledge application, ethical reasoning, clinical readiness, and self-directed learning.

2.2 Grit, Academic Motivation, and Student Persistence

Grit is relevant to allied health education because students in these programs must persist through demanding academic requirements, scientific concepts, skill-based learning, and professional preparation. Duckworth et al. (2007) defined grit as perseverance and passion for long-term goals, emphasizing sustained effort and consistency of interest over time. In the present study, grit is examined through perseverance of effort and consistency of interest, both of which are important for students who must remain committed despite academic difficulty and repeated competency-based assessments.

In health professions education, grit has been examined as a non-cognitive factor associated with academic success. Bliss and Jacobson (2020), for example, found that grit was associated with cumulative grade point average among Doctor of Physical Therapy students, suggesting that persistence and resilience may matter in academically demanding health programs. Although Mooradian et al. (2016) examined grit in an entrepreneurial rather than health education context, their work also reinforces the broader argument that perseverance and consistency of interest may influence goal-directed success across demanding performance environments.

Academic motivation complements grit by explaining why students continue to engage in learning. Ryan and Deci (2020) distinguished between intrinsic and extrinsic motivation, noting that students may be driven by interest, satisfaction, external expectations, or future goals. Urhahne and Wijnia (2023) further emphasized that motivation theories explain the direction, initiation, intensity, and persistence of learning behavior. The learning environment also shapes motivation and engagement. Cayubit (2022) showed that classroom conditions, learning strategies, and engagement are linked to academic motivation. Within an OBE framework, grit and motivation are pedagogically important because students must actively participate in achieving defined competencies.

2.3 AI Literacy, Ethical Use, and Academic Application

AI literacy has become increasingly relevant in higher education because students are now exposed to AI-supported tools for searching, writing, summarizing, problem-solving, and learning support. Southworth et al. (2023) argued that AI literacy should be embedded across the curriculum so that students develop not only technical familiarity but also critical understanding of AI systems and their implications. In allied health education, this is important because students must learn to distinguish between convenient use of AI and responsible academic or professional application. Survey evidence from varied educational settings similarly indicates that AI is perceived as more useful for engagement, content relevance, and learning analytics than for direct performance gains, pointing to the need for pedagogically guided implementation rather than mere tool availability (Rao et al., 2025).

AI literacy may be understood as a multidimensional competency involving functional knowledge, critical evaluation, ethical awareness, and practical application. Functional knowledge refers to the ability to understand and use AI tools for learning tasks. Critical evaluation refers to the capacity to assess the accuracy, limitations, and reliability of AI-generated information. Ethical awareness involves responsible use, academic integrity, and recognition of risks associated with unverified or inappropriate AI dependence. Lolong et al. (2026) highlighted that academic dishonesty remains a persistent concern in learning contexts shaped by performance pressure and technology-mediated tasks, making ethical AI use especially relevant to student formation. For health-related education, this ethical dimension also extends to patient-centered data use, as narrative health analytics requires interpretability, cultural context, privacy, consent, and fairness when patient experience is converted into data signals (Atento, Quinto, Espelita, & San Juan, 2025).

In medical and pre-medical education, the need for structured AI literacy training has become more visible. Hopson et al. (2025) emphasized the value of educational interventions that improve AI literacy among undergraduate pre-medical students. Li et al. (2026) examined AI literacy among Chinese medical students and highlighted the influence of individual and environmental factors on AI-related competence. Chen et al. (2026) also found that AI literacy was associated with academic resilience among undergraduate nursing students, with self-efficacy and AI anxiety functioning as mediating mechanisms. These studies support the view that AI literacy should be deliberately taught, practiced, and assessed within educational programs rather than left to informal student experimentation.

2.4 Instructional Intervention and OBE Support

OBE requires that teaching, learning activities, and assessment be aligned with clearly defined outcomes. In allied health education, this means that students must demonstrate competencies related to knowledge, skills, ethical practice, and professional readiness. The present study is positioned within this framework because it examines grit, AI literacy, and academic motivation as learner-readiness factors that may support or constrain OBE implementation.

Instructional intervention is necessary when student attributes or learning competencies are present but not yet fully integrated into academic practice. For example, students may report relatively high AI literacy but still lack confidence in applying AI to clinical reasoning or structured academic tasks. Similarly, students may report high motivation but still need support in self-regulation, time management, or sustained engagement. These gaps indicate that learner characteristics should be supported by intentional pedagogical design rather than assumed as naturally developed traits.

Pan et al. (2024) emphasized the value of learning analytics-supported instructional interventions, particularly those involving feedback systems, dashboards, detection tools, and prompting mechanisms. Such interventions are relevant to OBE because they allow educators to monitor learning progress, identify areas of difficulty, and provide timely academic support. In the context of the present study, instructional intervention may include resilience-building activities, ethical AI literacy modules, reflective learning exercises, peer mentoring, and feedback-driven assessments. The broader health education context also supports the need for institutional adaptation, analytics, and workforce sustainability as part of resilient health systems (Quinto, 2026). At the curriculum level, Atento (2025) noted that e-learning adoption in Philippine HEIs is often framed as instructional continuity rather than strategic curricular

integration, which supports the present study's call for intentional AI literacy design. Peer mentoring also has a defensible student-development basis because Balut et al. (2026) linked peer influence with personal-social competencies and recommended enhancement activities in emotional regulation, responsibility, assertiveness, resilience, and prosocial peer dynamics.

2.5 Synthesis and Literature Gaps

The reviewed literature indicates that Generation Z allied health students require learning environments that are interactive, technology-enabled, ethically guided, and aligned with measurable outcomes. Shorey et al. (2021), Teng et al. (2022), Chapman et al. (2026), and Kalantzis and Cope (2025) support the need to understand students' digital learning context while avoiding the assumption that digital familiarity equals professional competence. Duckworth et al. (2007), Bliss and Jacobson (2020), Cayubit (2022), Ryan and Deci (2020), and Urhahne and Wijnia (2023) provide the basis for examining grit and academic motivation as learner-related factors associated with persistence, engagement, and self-directed learning. Southworth et al. (2023), Hopson et al. (2025), Li et al. (2026), Chen et al. (2026), and Lolong et al. (2026) support the inclusion of AI literacy and ethical technology use as emerging educational concerns in medical and health-related education. Pan et al. (2024) provides support for structured instructional intervention using learning analytics and feedback systems.

Despite these contributions, the literature remains fragmented. Grit, AI literacy, and academic motivation are often examined separately, while fewer studies integrate them within one framework for allied health education. The gap is especially relevant in localized Philippine settings where OBE implementation, student resilience, AI adoption, and professional readiness intersect. The present study addresses this gap by examining the levels and interrelationships of grit, AI literacy, and academic motivation among Generation Z allied health students of Mercado College and by using the findings as the basis for a proposed OBE-supportive instructional intervention.

3. Methodology

3.1 Research Design

This study employed a descriptive-correlational action research design to examine grit, AI literacy, and academic motivation among Generation Z allied health students of Mercado College. The descriptive component was used to determine the students' reported levels of grit, AI literacy, and academic motivation. The correlational component was used to examine the statistical relationship among the major variables. The action research orientation of the study was reflected in the use of the findings as a basis for developing a proposed instructional intervention program supportive of Outcomes-Based Education.

The design was considered appropriate because the study did not manipulate variables or apply an experimental treatment. Instead, it gathered survey-based data on learner characteristics and used the results to inform possible pedagogical interventions.

3.2 Respondents of the Study

The respondents consisted of 230 Generation Z allied health students enrolled in selected allied health programs at Mercado College in Tanauan City, Batangas. Generation Z students were defined in the study as those born from 1997 to 2012. The respondents were selected from classes where AI-integrated and OBE-based instruction was being implemented.

3.3 Sampling Technique

The study used purposive sampling. Respondents were intentionally selected based on their relevance to the research objectives. The inclusion criteria were enrollment in an allied health program at Mercado College, classification within the Generation Z age cohort, and exposure to AI-integrated and OBE-based instruction. This

sampling approach was appropriate because the study focused specifically on students whose learning context included both allied health education and exposure to AI-supported or OBE-oriented instruction.

3.4 Research Instrument

The primary instrument was a self-made semi-structured questionnaire designed to measure the respondents' demographic profile, grit, AI literacy, and academic motivation. The questionnaire contained Likert-scale items using a five-point response scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree. Higher mean scores indicated higher levels of the measured construct.

The instrument measured three major constructs. First, grit was measured in terms of perseverance of effort and consistency of interest. Second, AI literacy was measured in terms of functional knowledge and use, critical evaluation and ethics, and application in learning. Third, academic motivation was measured in terms of intrinsic motivation, extrinsic motivation, and self-regulation and engagement.

To establish content validity, the questionnaire was reviewed by three subject-matter experts. A pilot test was also conducted among 30 students who were not included in the final sample. The reliability of the instrument was assessed using Cronbach's alpha. The instrument obtained a Cronbach's alpha coefficient of 0.977, indicating excellent internal consistency.

3.5 Data Gathering Procedure

Data were gathered through the administration of the survey questionnaire to qualified allied health students of Mercado College. Prior to data collection, permission was secured from the appropriate institutional authority. The respondents were informed about the purpose of the study, the voluntary nature of their participation, and the confidentiality of their responses. The survey data were then encoded, checked, and prepared for descriptive and inferential statistical analysis.

3.6 Data Analysis

The study used both descriptive and inferential statistics. Weighted mean was used to determine the respondents' levels of grit, AI literacy, and academic motivation. The interpretation scale was 4.20-5.00 = Very High/Strongly Agree; 3.40-4.19 = High/Agree; 2.60-3.39 = Moderate/Neutral; 1.80-2.59 = Low/Disagree; and 1.00-1.79 = Very Low/Strongly Disagree. Multiple linear regression was used to examine the predictive relationship among the study variables at the 0.05 level of significance, with academic motivation treated as the criterion variable and grit and AI literacy treated as predictors.

3.7 Ethical Considerations

The study observed ethical safeguards. Participation was voluntary, and informed consent was obtained from the respondents. Permission to conduct the study was secured from the Vice-President for Academic Affairs of Mercado College. The confidentiality and privacy of respondents' data were maintained, and no known risks to the respondents or researchers were identified during the data-gathering process.

4. Results and Discussion

4.1 Level of Grit among Allied Health Students

The students reported a generally high level of grit. As shown in Table 1, the composite mean for grit was 4.07, interpreted as Agree. Between the two dimensions, perseverance of effort obtained a slightly higher mean of 4.10, while consistency of interest obtained a mean of 4.05. The result indicates that the respondents generally perceived themselves as capable of sustaining effort and remaining committed to their academic and professional goals.

Table 1. Level of Grit among Allied Health Students

Dimension	Weighted Mean	Verbal Interpretation
Perseverance of Effort	4.10	Agree
Consistency of Interest	4.05	Agree
Composite Mean	4.07	Agree

The findings suggest that the students possess a relatively strong capacity to persist despite the demands of allied health education. This is important because allied health programs require sustained effort, repeated mastery of scientific concepts, and long-term commitment to professional preparation. The slightly higher rating for perseverance of effort indicates that students may be more confident in continuing academic tasks than in maintaining completely stable interests over time. In relation to Duckworth et al. (2007), the findings imply that the students demonstrate the effort component of grit more strongly, although their consistency of interest also remains within a favorable range.

The result is also coherent with health professions literature in which grit and resilience are treated as non-cognitive traits related to academic success (Bliss & Jacobson, 2020). For OBE implementation, this level of grit is educationally relevant because students who are willing to continue working despite difficulty are more likely to engage with performance-based learning activities, repeated practice, and competency-oriented assessment. However, since the overall rating remained within Agree rather than Strongly Agree, the result also suggests room for structured resilience-building activities, particularly those that help students sustain interest in long-term healthcare goals.

4.2 Level of AI Literacy among Allied Health Students

The respondents also reported a high level of AI literacy. Table 2 shows that the overall composite mean for AI literacy was 4.05, interpreted as Agree. Among the three dimensions, critical evaluation and ethics received the highest mean of 4.14, followed by functional knowledge and use with 4.12. Application in learning received the lowest mean of 3.90, although it remained within the Agree range.

Table 2. Level of AI Literacy among Allied Health Students

Dimension	Weighted Mean	Verbal Interpretation
Functional Knowledge and Use	4.12	Agree
Critical Evaluation and Ethics	4.14	Agree
Application in Learning	3.90	Agree
Composite Mean	4.05	Agree

The results indicate that the students generally know how to use AI tools and recognize the importance of responsible and ethical AI use. The highest rating for critical evaluation and ethics is encouraging because it suggests awareness of the need to verify AI-generated information and avoid irresponsible academic use. This is consistent with the view that AI literacy must include ethical and critical dimensions rather than mere operational familiarity (Kalantzis & Cope, 2025; Southworth et al., 2023).

However, the lower rating for application in learning is significant. It implies that while students may understand and ethically approach AI tools, they may be less confident in applying these tools systematically to academic learning or clinical reasoning tasks. This supports the need for structured AI literacy instruction rather than informal or self-directed AI use. Research among medical and nursing students similarly suggests that AI literacy should be connected with educational support, self-efficacy, and reduced AI-related anxiety rather than treated only as a tool skill (Chen et al., 2026; Li et al., 2026). Without curricular integration, AI may remain a general-purpose academic aid rather than an OBE-aligned learning competency.

4.3 Level of Academic Motivation among Allied Health Students

Academic motivation was also rated positively by the respondents. Table 3 shows that the composite mean for academic motivation was 4.16, interpreted as Agree. Intrinsic motivation received the highest mean of 4.40,

interpreted as Strongly Agree. Extrinsic motivation followed with 4.09, while self-regulation and engagement obtained 4.00.

Table 3. Level of Academic Motivation among Allied Health Students

Dimension	Weighted Mean	Verbal Interpretation
Intrinsic Motivation	4.40	Strongly Agree
Extrinsic Motivation	4.09	Agree
Self-Regulation and Engagement	4.00	Agree
Composite Mean	4.16	Agree

The findings indicate that the students are strongly motivated by internal academic satisfaction, particularly the enjoyment of learning and the fulfillment associated with understanding difficult topics. This is a favorable result for allied health education because intrinsic motivation supports deeper engagement with complex content. Ryan and Deci (2020) emphasized that intrinsic motivation is associated with learning driven by interest, satisfaction, and internalized value. In this study, the high intrinsic motivation score suggests that the respondents do not merely study for external compliance but also find personal meaning in academic learning.

At the same time, extrinsic motivation remained high, indicating that students are also influenced by grades, expectations, and future healthcare careers. This combination of intrinsic and extrinsic motivation is educationally useful. Urhahne and Wijnia (2023) emphasized that motivation theories explain learning behavior by considering goals, action, outcomes, and consequences. For Generation Z allied health students, motivation may therefore be sustained when learning activities are both personally meaningful and clearly connected to professional goals. However, self-regulation and engagement received the lowest mean among the three dimensions, suggesting that students may benefit from explicit support in time management, goal setting, active participation, and responsibility for learning progress.

4.4 Relationship among Grit, AI Literacy, and Academic Motivation

Table 4 presents the regression results showing the relationship among the major variables. The model indicates that grit significantly predicted academic motivation, with a standardized beta coefficient of .77 and a p-value of .000. In contrast, AI literacy did not significantly predict academic motivation, with a standardized beta coefficient of .02 and a p-value of .720.

Table 4. Regression Analysis of Grit and AI Literacy as Predictors of Academic Motivation

Predictor	B	SE B	β	T	p
Constant	1.13	.19	.00	5.97	.000
Grit	.73	.04	.77	16.93	.000
AI Literacy	.01	.04	.02	0.36	.720

Note. B = unstandardized regression coefficient; SE B = standard error of the coefficient; β = standardized coefficient.

The regression findings suggest that grit is strongly associated with academic motivation among the respondents. Students who demonstrate greater perseverance and commitment tend to report higher academic motivation. This result is theoretically coherent because grit reflects sustained effort and commitment toward long-term goals (Duckworth et al., 2007), while academic motivation reflects the reasons and energy that sustain learning behavior (Ryan & Deci, 2020; Urhahne & Wijnia, 2023). In allied health education, grittier students may be more likely to view academic demands as part of professional preparation rather than merely as isolated academic requirements.

In contrast, AI literacy did not significantly predict academic motivation. This finding should not be interpreted to mean that AI literacy is unimportant. Rather, it suggests that students' current AI competence may not yet be psychologically or professionally integrated into their academic motivation. Students may know how to use AI tools and may understand ethical guidelines, but they may not yet see AI literacy as central to their identity as future

healthcare professionals. This interpretation is consistent with the descriptive finding that application in learning was the weakest AI literacy dimension.

4.5 Discussion

The findings indicate that Generation Z allied health students of Mercado College reported generally high levels of grit, AI literacy, and academic motivation. Among the three constructs, academic motivation received the highest composite mean, largely due to the very high rating for intrinsic motivation. Such motivation is valuable in allied health education because students must engage deeply with complex scientific and professional concepts. The findings are consistent with motivation scholarship emphasizing the role of intrinsic and extrinsic drivers in learning behavior (Ryan & Deci, 2020; Urhahne & Wijnia, 2023).

Grit also emerged as an important learner characteristic. The students' high rating in perseverance of effort indicates that they are generally willing to continue working despite academic difficulty. This finding is consistent with the theoretical framing of grit as sustained effort and commitment toward long-term goals (Duckworth et al., 2007). In an OBE context, this matters because competency attainment requires persistence, repeated practice, and willingness to improve through feedback. However, the result also shows that grit remains developmental rather than fully maximized. This supports the inclusion of resilience-building activities, mentoring, and reflective learning tasks in the proposed intervention.

The AI literacy results present a more nuanced picture. Students reported relatively high functional and ethical AI literacy, suggesting that they are familiar with AI tools and aware of responsible use. However, the comparatively lower score for application in learning indicates that they may not yet be fully prepared to integrate AI into higher-order academic or clinical reasoning tasks. This aligns with the argument that AI literacy should be embedded across the curriculum rather than assumed as a natural by-product of digital familiarity (Southworth et al., 2023). It is also consistent with health education studies showing that AI learning requires formal preparation and psychological support, including confidence-building and reduced anxiety toward AI use (Chen et al., 2026; Hopson et al., 2025; Li et al., 2026).

The regression analysis further strengthens this interpretation. Grit significantly predicted academic motivation, while AI literacy did not. This suggests that the students' academic drive is more closely linked to persistence and long-term commitment than to their present level of AI literacy. The nonsignificant result for AI literacy may indicate that students still view AI mainly as a tool for academic assistance rather than as a core professional competency. Therefore, the issue is not the absence of AI literacy but the lack of integration between AI literacy, motivation, and professional identity.

These findings have direct implications for OBE implementation. OBE requires students to demonstrate measurable learning outcomes, but such outcomes depend on both internal learner readiness and structured pedagogical support. Grit provides the persistence needed to pursue outcomes, academic motivation provides the psychological energy for engagement, and AI literacy provides technological competence for modern learning environments. The institutional challenge is to connect these three areas into a coherent instructional program. Such a program should include grit development workshops, ethical AI literacy modules, application-based AI learning tasks, feedback-driven assessments, and reflective activities that help students connect academic work with healthcare practice.

5. Conclusions, Recommendations, and Implications

5.1 Conclusions

The study concludes that Generation Z allied health students of Mercado College generally demonstrate favorable learner characteristics in terms of grit, AI literacy, and academic motivation. The students reported high levels of grit, indicating that they tend to persevere in academic tasks and remain committed to their long-term

academic and professional goals. This suggests that the respondents possess an important psychosocial foundation for coping with the academic demands of allied health education.

The students also reported a high level of AI literacy, particularly in functional knowledge and ethical awareness. However, the comparatively lower rating for application in learning suggests that students may still need structured support in using AI tools for deeper academic tasks, especially those related to clinical reasoning, evidence evaluation, and discipline-specific learning. Thus, AI literacy appears to be present but not yet fully integrated into students' academic and professional formation.

Academic motivation was also rated favorably, with intrinsic motivation emerging as the strongest dimension. This indicates that students are motivated not only by grades, expectations, or career prospects but also by the personal satisfaction of learning and understanding difficult academic content.

The regression findings indicate that grit significantly predicts academic motivation, while AI literacy does not significantly predict academic motivation based on the available model. This suggests that students' motivation is more strongly connected to perseverance and sustained commitment than to their current level of AI literacy. The nonsignificant result for AI literacy should not be interpreted as evidence that AI literacy is irrelevant. Rather, it points to a pedagogical gap: students may know how to use AI tools, but they may not yet perceive AI literacy as central to their academic motivation, clinical preparation, or professional identity.

Overall, the study concludes that grit, AI literacy, and academic motivation are important learner-readiness factors for OBE implementation in allied health education. However, these factors require deliberate curricular integration. The findings support the development of a proposed instructional intervention program that connects resilience-building, ethical AI literacy, self-regulated learning, and outcomes-based academic engagement.

5.2 Recommendations

Mercado College may develop and institutionalize an OBE-aligned instructional intervention program that integrates grit development, AI literacy, and academic motivation strategies. This program should be designed not as a separate add-on activity but as a structured component of teaching and learning in allied health courses.

First, faculty members may incorporate resilience-building activities into selected courses. These may include reflective journaling, peer mentoring, academic goal-setting exercises, guided reflection after difficult assessments, and structured discussions on perseverance in healthcare education. These activities may help strengthen students' perseverance of effort and consistency of interest.

Second, AI literacy should be taught as a formal academic and professional competency. Instruction should go beyond basic tool use and include source verification, ethical AI use, prompt evaluation, bias awareness, academic integrity, and appropriate limits of AI-generated information. In allied health courses, AI-related activities may be linked to case analysis, concept clarification, literature searching, and evidence-based reasoning.

Third, faculty members may design learning tasks that explicitly connect AI literacy with professional identity. Students should be guided to understand how responsible AI use can support patient safety, clinical reasoning, ethical judgment, and lifelong learning. This may help address the observed gap between AI literacy and academic motivation.

Fourth, motivation-enhancing strategies should be embedded into classroom practice. These may include gamified learning activities, collaborative projects, formative feedback, progress monitoring, and authentic assessments connected to future healthcare roles. Since intrinsic motivation was the highest-rated dimension, teachers may build on students' interest in learning by making lessons more meaningful, applied, and professionally relevant.

Fifth, the institution may provide faculty development training on AI-integrated OBE instruction. Faculty members need support in designing AI-related tasks, assessing student outputs ethically, and aligning AI use with course outcomes. Without faculty readiness, AI literacy may remain informal and unevenly implemented.

Finally, future studies should test the proposed intervention using a stronger action research or quasi-experimental design. A pretest-posttest structure may be used to determine whether the intervention improves grit, AI literacy application, motivation, academic performance, or OBE competency attainment.

5.3 Implications of the Study

The study has several implications for allied health education and OBE implementation. From a pedagogical perspective, the findings imply that learner readiness should be understood as both psychosocial and technological. Students need perseverance and motivation, but they also need responsible and applied AI literacy. An OBE curriculum that focuses only on technical outcomes may overlook the internal learner characteristics that support sustained engagement and competency attainment.

From an institutional perspective, the study suggests that AI literacy should not be treated as a purely technical or optional skill. Since AI literacy did not significantly predict motivation, institutions may need to design learning experiences that help students see AI as relevant to their academic growth and professional preparation. This requires curricular mapping, faculty training, ethical guidelines, and assessment practices that connect AI use with program outcomes.

From a student development perspective, the findings highlight the continuing importance of grit and intrinsic motivation in allied health programs. Even in technology-rich learning environments, students' perseverance, interest, self-regulation, and sense of academic purpose remain central to learning success. Therefore, interventions should not focus only on digital skills but also on resilience, reflective learning, and professional identity formation.

From a research perspective, the study contributes a localized framework for examining grit, AI literacy, and academic motivation among Generation Z allied health students. Its main scholarly value lies in identifying a possible disconnect between AI literacy and academic motivation. This finding may guide future studies on how AI-related competencies can be transformed from functional tool use into meaningful, professionally relevant learning outcomes.

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