

TECHNOLOGY-ENABLED Active Learning, Academic Expectations, and Academic Motivation of Graduate School STUDENTS

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ABSTRACT

This study determined the influence of technology-enabled active learning and academic expectations on the academic motivation of graduate school students. The study aims to share its findings through oral presentations, faculty meetings, and conferences at various levels, with plans to publish in an academic journal for broader public awareness. This study used a quantitative, descriptive, correlational procedure. Quota sampling was used to select the respondents in this study. Data utilized in this study were gathered through adapted and validated questionnaires. The statistical tools used in this study included the mean, standard deviation, Pearson product-moment correlation, and multiple linear regression. Results revealed that the technology-enabled active learning, academic expectations, and academic motivation of graduate students were very high, respectively. Further, there was a moderate positive relationship between technology-enabled active learning and academic motivation and a strong positive relationship between academic expectations and academic motivation among graduate students. Although the combined influence of technology-enabled active learning and academic expectations on graduate students' academic motivation was significant, only academic expectations had a significant impact when considered individually.

KEYWORDS: *Education, technology-enabled active learning,
academic expectations, academic motivation,
Philippines.*

INTRODUCTION

Academic motivation is a student's desire, as reflected in his or her approach, persistence, and level of interest, regarding academic subjects when the student's competence is judged against a standard of performance or excellence (Huiling & Hongmei, 2021). Low academic motivation in PE, especially in higher education, is a major concern for teachers due to its complexity and the many factors influencing it (Claver et al., 2020). Hassandra (2019) highlights that academic motivation among students is shaped by individual differences, social and environmental factors, personal experiences, and exposure to PE, with both positive and negative impacts. In physical activity contexts, limited time and a lack of facilities are major barriers to students' academic motivation (Silva, 2022).

In international contexts, several studies have highlighted low academic motivation in physical education. For instance, in India, research at elite institutions found that students lack academic motivation in physical education due to faculty-related, course-related, and cognitive-related factors (Prasad et al., 2020). In Ukraine, factors such as body composition, well-being, and weight loss influence low academic motivation among students (Zelenskyi and Villaverde, 2018). In New Zealand, the transition to studying abroad can lead to initial low academic motivation due to cultural differences, stress, and potential discrimination, moderated by personal and contextual factors (McInerney & King, 2022).

A study in Quezon, Philippines, concluded that many students excel in physical education; however, graduate school students have low academic motivation due to other challenges (Datu, 2017). In Lyceum of the Philippines University-Batangas, among college and graduate students with math anxiety, low academic motivation was prevalent, particularly among females (Adao et al., 2015). Moreover, at Cebu University, graduate school students showed positive attitudes towards the value of mathematics but had low academic motivation in the subject (Etcuban et al., 2019).

In Region XI, Mindanao, physical factors such as the learning environment, health, and infrastructure are among the factors that affect low academic motivation (Rohman & Karimah, 2018). Additionally, financial status has a weak but significant positive correlation with low academic motivation among college students in Misamis Oriental (Palomares et al., 2024). While in

Davao City, Philippines, Alipio (2020) found that most Filipino graduate school freshmen enrolled in the K-12 curriculum had low academic motivation and high dropout intentions. The study by Hamid (2020) stated that technology-enabled active learning comprises blended learning, online learning, hands-on experimentation, collaborative teaching, and laboratory activities. Wang (2021) adds that technology-enabled active learning may help both teachers and students when used properly. Technology-enabled active learning activities can raise students' academic motivation (Alioon, 2020). Sulaiman (2022) found that technology-enabled active learning positively influenced students' academic motivation.

Academic expectations reflect students' aspirations for higher education, what they intend to achieve, and how they can overcome the challenges posed by the higher education experience (Casanova, 2019). Trinidad (2019) noted in her study that, since parents' and social backgrounds positively influence achievement through academic expectations, negative structural factors and circumstances may, at the same time, prevent the development of positive academic motivations. Arooj (2019) and Almalki (2019) found a positive correlation between academic expectations and academic motivation. Additionally, research has shown a positive correlation between academic motivation and academic expectations, with higher motivation associated with better performance across various dimensions (Křeménková, 2019).

Although research on the influence of technology on academic motivation exists, there is a lack of studies focusing on technology-enabled active learning among students in higher education (Shé, 2023). While early research suggests that technology-enabled active learning classrooms have the potential to enhance student engagement and learning achievement (MacLeod, 2019), there is a lack of comprehensive literature reviews in this area. Further research is needed to explore these underexplored aspects.

The researcher plans to disseminate the results of this study through oral presentations and faculty meetings on future innovations and advancements in the subject matter and physical education classes. The findings will also be submitted for presentation at local, national, and international conferences. Further, the researcher also planned to publish the study in whichever journal accepted it to raise public awareness.

METHODS

Research Design. This study used a quantitative, descriptive, correlational procedure. As defined by Mohajan (2020), quantitative research uses numerical data to measure opinions, behaviors, and traits, enabling generalization of findings to a larger population. Descriptive research design helps address research questions and manage variance (Dulock, 1993). Correlational studies examine how population characteristics vary based on participants' experiences in natural settings (Lau, 2017). In addition, Creswell (2014) stated that correlational research is a quantitative, non-experimental method used to measure the degree of relationship between variables using statistical analysis.

Participants. The respondents in this study were 63 enrolled students in the Master of Arts in Education majoring in physical education at the aforementioned tertiary institutions. As for the selection, the respondent must be an official learner of the institute, at any level, taking the said major for the academic year 2023-2024. Individuals not enrolled in the program during the specified academic year or pursuing a different major were excluded from the study and were not considered respondents.

Instruments of the Study. This study used three sets of adapted and modified questionnaires to collect data from respondents. Some items were altered to fit the requirements of this study. The questionnaires were as follows: Technology-enabled active learning, academic expectations, and academic motivation.

Part I of the questionnaire assessed the status of technology-enabled active learning, adapted from Shroff (2019), and reliability was analyzed using Cronbach's alpha. This construct has four indicators, namely, interactive engagement, problem-solving skills, interest, and feedback. The internal consistency of all measures used in this study ranged from 0.83 to 0.88, exceeding the reliability estimate ($\alpha = 0.70$). As a result, the adapted survey questionnaire is a valid and reliable measurement tool for assessing the status of technology-enabled active learning among graduate students.

Part II determined the level of academic expectation based on its indicators, namely personal and social adjustment, student international mobility, political engagement and citizenship, social pressure, and social

interaction and training for employment, respectively, .87, .85, .85, .79, .75, and .89. This section is adapted from the paper of Cassanova et al. (2019). The result shows that the adapted questionnaire is a valid and reliable measurement tool and can be used to assess graduate students' academic expectations.

Part III will assess the level of academic motivation of graduate students. This tool has 20 items and was reported to have a Cronbach's alpha of .87, indicating the scale's internal consistency. This tool is adapted from the study by Alivernini and Lucidi (2008) titled "The Academic Motivation Scale (AMS): Factorial Structure, Invariance, and Validity in the Italian Context." This questionnaire has four indicators, namely, a motivation, external regulation, introjected regulation, and identified regulation. The result indicates that the adapted survey questionnaire is a valid and reliable tool for measuring academic motivation among graduate students.

Respondents assessed the questionnaire on a scale of 1 (lowest) to 5 (highest). Each descriptive equivalent and interpretation for this range is provided. The data were interpreted using the 5-point Likert scale shown in the table below.

A crucial stage in the data collection procedure involves composing a formal letter addressed to the Graduate School Dean, requesting authorization to conduct the research. To ensure ethical compliance, the researcher submitted their study to the Research Ethics Committee (REC) of the intended location upon receiving approval.

The researcher validated the questionnaire by seeking input from three subject matter experts. After receiving REC approval, the researcher obtained authorization from the selected location to conduct the study. Finally, the researcher obtained informed consent from all participants. Upon receiving approval, the researcher proceeded with the study and administered the questionnaires to participants online.

Respondents received orientation on the aim and importance of the study before the actual data collection, so they were informed of the questionnaires' subject matter. To ensure accurate data collection, the researcher collected all completed surveys on the day they were distributed. Data interpretation occurred upon completion of data collection.

The survey's completion time ranged from 10 to 30 minutes. The survey commenced immediately upon notification of the respondents. The researcher collected and analyzed participants' responses. The researcher handled acquired data with discretion and stored it in a computer system with exclusive access. The collected data was encrypted and securely stored in a location accessible only to the researcher, who is the sole holder of the password. Only the study's specialist and researcher evaluated and interpreted the data. Ensuring privacy during data collection is crucial, particularly post-analysis and interpretation.

Ethical Statement

The Research Ethics Committee (REC) of the University of the Immaculate Conception (UIC) reviewed this research before the study was conducted. This document certifies that the study was conducted ethically.

RESULTS and DISCUSSION

Status of Technology-Enabled Active Learning of Graduate School Students.

The level of academic expectations among graduate students yielded an overall mean score of 4.39, placing it in the very high category. This indicates that graduate students consistently meet high academic standards, and they uphold these expectations throughout their academic journey. Additionally, the standard deviation of 0.43 suggests a high degree of consistency in the responses, reflecting a strong agreement among respondents regarding these expectations.

This finding aligns with Singh et al. (2024), who demonstrated that tech-based interactive approaches in physical education improve student engagement. The study's results also support Li et al. (2024), who stated that incorporating technological tools into classes has made physical education more accessible and engaging for graduate students. These findings are consistent with Johnson (2020), who found that technology-enabled active learning can enhance student engagement and promote active learning across various school levels and disciplines.

Lowerison et al. (2006) suggested that integrating technology in classrooms enhances the perceived effectiveness of courses, fostering active learning among graduate students. Similarly, MacLeod et al. (2019) found that technology-enabled active learning environments have the potential to enhance student engagement and achievement in higher education.

Table 1
Status of Technology-Enabled Active Learning of Graduate School Students

Domains	Mean	SD	Description
Interactive engagement			
Category Mean	4.45	.52	Very High
Problem-solving Skills			
Category Mean	4.45	.48	Very High
Interest			
Category Mean	4.44	.51	Very High
Feedback			
Category Mean	4.52	.54	Very High
Overall Mean	4.47	.44	Very High

The Level of Academic Expectations of Graduate Students

The level of academic expectations among graduate students recorded an overall mean of 4.39, which is categorized as "very high." This indicates that graduate students consistently expect high academic standards and regularly uphold them throughout their academic experience. The corresponding standard deviation of 0.43 reflects a high level of response consistency, suggesting strong agreement among respondents regarding these expectations.

Table 2
Level of Academic Expectations of the Graduate Students

Domains	Mean	SD	Description
Personal and Social Development			
Category Mean	4.59	.51	Very High
Student International Mobility			
Category Mean	4.04	.71	High
Political Engagement and Citizenship			
Category Mean	4.04	.71	High
Social Pressure			
Category Mean	4.14	.72	High
Social Interaction			
Category Mean	4.60	.52	Very High

Training for Employment			
Category Mean	4.56	.55	Very High
Overall Mean	4.39	.43	Very High

The finding affirms the view of Panoy et al. (2022), who found that graduate students have high expectations for their academic experience, particularly regarding their instructors and course content. Kartal (2011) reinforces this by finding that students expect faculty to demonstrate strong communication skills, personal qualities, and academic proficiency. However, the result does not align with the study of Dyrbye et al. (2006), which found that high academic expectations can lead to stress and health issues among graduate students.

Students' objectives and perceptions of their academic performance are referred to as academic expectations (Costa, 2016; Fortney, 2019). Positive expectations lead to better outcomes and serve as a major predictor of academic performance (Fortney, 2019).

The Level of Academic Motivation of the Graduate Students

The overall mean score of 4.23 indicates a very high level of academic motivation among graduate students. This indicates that graduate students consistently demonstrate strong academic motivation. They tend to show high levels of engagement, persistence, and enthusiasm in their studies, reflecting a clear commitment to achieving their academic goals.

Domains	Mean	SD	Description
Amotivation			
Category Mean *	2.07	1.02	Low
External Regulation			
Category Mean	4.29	.51	Very High
Introjected Regulation			
Category Mean	3.86	.74	High
Identified Regulation			
Category Mean	4.44	.65	Very High
Intrinsic Regulation			
Category Mean	4.60	.48	Very High
Over-all Mean	4.23	.44	High

This finding supports the study by Ying-Hsueh Cheng et al. (2019), which found that graduate students, particularly at the master's level, exhibit high academic motivation, which is closely related to and contributes to their ability to overcome academic challenges. In addition, this conclusion aligns with Lew et al. (2020), who found that academic motivation, particularly through strong advisor relationships, it supports student persistence. This result stands in contrast to the findings of Hegarty (2011), who reported that the Academic Motivation Scale (AMS) has shown decreased intrinsic motivation with age in previous studies, although its application to graduate students is a relatively recent development.

The same lens identifies academic motivation as the most significant predictor of perceived academic success among graduate students (Amida et al., 2020). A combination of academic motivation, social integration, and self-directed learning readiness influences academic persistence (Lew et al., 2020).

Significance of the Relationship of Technology-Enabled Active Learning, Academic Expectations, and Academic Motivation of Graduate Students

Technology-enabled active learning shows a moderate, positive correlation with academic motivation among graduate students, as indicated by an R-value of .45. The p-value of .00, which is below the significance level of .05 (two-tailed), confirms that this relationship is statistically significant. This suggests that higher levels of technology-enabled active learning are associated with significantly greater academic motivation among graduate students.

Similarly, academic expectations show a strong, positive relationship with academic motivation ($r = .63$, $p < .05$). This suggests that as academic expectations increase, academic motivation among graduate students increases. The above results imply that both actively using technology in learning and having high academic expectations are strongly and significantly associated with higher motivation among graduate students. The more these factors are present, the more motivated graduate students tend to be.

	r	p-value	Remarks
Academic Motivation			
Technology-Enabled Active Learning	.45	.00	Significant
Academic Expectations	.63	.00	Significant

Significance of the Influence of Technology-Enabled Active Learning and Academic Expectations on Academic Motivation of Graduate Students

The results of the multiple regression analysis indicate that, when considered individually, the independent variable academic expectations is a significant predictor of graduate students' academic motivation. It yields a positive standardized beta coefficient of .53 and a p-value of .00, which is below the .05 significance threshold (two-tailed). This suggests that for every one-unit increase in academic expectations, there is a corresponding. This indicates a 53-unit increase in academic motivation, underscoring the strong predictive power of academic expectations in this context.

Likewise, in the singular capacity, the technology-enabled active learning shows a p-value of .27, which is greater than the .05 level of significance (2-tailed) with a positive standardized beta value of 0.14. It shows that technology-enabled active learning is not a significant predictor of graduate students' academic motivation.

Table 5
Significance of the Influence of Technological Leadership Behavior, and Academic Expectations on Academic Motivation of Graduate Students

Singular Influence of the Predictors	Academic Motivation of Graduate Students			
	Standardized Coefficients	t	p-value	Remarks
Technology-enabled Active Learning	.14	1.11	.27	Not Significant

In addition, the combined influence of the two independent variables, technology-enabled active learning and academic expectations, on academic motivation is significant (2, 60) = 19.20, $p < .05$). Meanwhile, the model explains 39 percent of the variance of the academic motivation of the graduate students based on the independent variables included in this study, as indicated by $R^2 = .39$. This means that 61 percent of the variance in academic motivation of the graduate students can be attributed to other factors aside from technology-enabled active learning and academic expectations.

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