

The Mediation Role of Peer Effects, Test Anxiety and Academic Motivation in Relationship Between Intelligence and Self Efficacy Among University Students

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Abstract

The primary aim of this paper is to analyze the mediation role of peer effects, test anxiety, and academic motivation in the relationship between intelligence and self-efficacy among UTAS university students in Oman. A sample size (N = 477) of university students used as the study participants. Moreover, there were 150 males (31.4%) and 327 females (68.6%) in the participant ratios. This research used a deductive research approach to test the 4 study hypotheses. Self-efficacy was accessed using the General Self-Efficacy scale (GSES) tool. GSES measures self-efficacy's self-perception to self-report questionnaires that respond to the hypothesis that analyzes the coping abilities of various research participants. The data was analyzed using SPSS and AMOS software to provide the output for the hypothesis testing. The four hypotheses were then analyzed using the SPSS AMOS software, the mediation phase of structuring equations. The interactions are as follows: academic motivation and intelligence (estimate = 0.182, S.E = 0.052, P-value = 0.00<0.05) and peer effects and test anxiety (estimate = 0.055, S.E = 0.023, P-value = 0.016>0.05). Thus, mediation has an objective role on peer effects, test anxiety and academic motivation in the connection between self-efficacy and intelligence among university students.

Keywords: peer effects, test anxiety, academic motivation, intelligence, self-efficacy, university students

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A-INTRODUCTION**Background Information**

Academic achievement is influenced by factors such as academic motivation, intelligence, self-efficacy, peer effects, test anxiety, and teaching processes. Moreover, through a questionnaire, this study investigates the dispersion of these variables among university students. Correlation coefficients between these variables and between these aspects and undergraduate demographic trends may arise. Such predictors may be helpful in informing interventions to maximize students' academic achievement.

Even though student performance is not the only path to consistent improvement, much effort is put into implications for university advancement. Moreover, it is also thought that higher academic performance will lead to more career possibilities and employment security. According to research, individuals with higher university GPAs have much more satisfying lifestyles, while those with lower GPAs are more likely to engage in drug addiction (Drysdale & McBeath, 2018), become unemployed, or commit suicide (Hyseni Duraku & Hoxha, 2018). The investigation of the variables affecting educational outcomes is thus critical because the expertise of these variables has critical implications for education and learning regarding curriculum layout and instructing method advancement.

Numerous variables, such as cognitive ability (Karaman et al., 2019), personality traits (Konaszewski et al., 2019), mental curiosity (Drysdale & McBeath, 2018), dedication to university (Luo et al., 2019), fulfillment with the university (Ramos Salazar & Hayward, 2018), and socioeconomic status (Morales-Rodriguez & Pérez-Mármol, 2019), have been found to affect students' performance. Lumbantobing (2020) carried out a thorough conceptual on the academic performance of undergraduate students and deduced that students' self-efficacy and

effort legislation are essential predictors of understudies' GPA. According to prior studies, individual, interpersonal, and university-related aspects contribute to understudies' educational excellence.

Problem Statement

To differing extents, all variables that predict student academic success are evaluated by GPA and engagement thresholds. Conceptual studies, for instance, discovered that educational self-efficacy is the main contributing factor of overall GPA and the second most powerful predictor of academic engagement, even after controlling for university student GPA, achievement test scores, and socioeconomic background (Wang, 2022; Trigueros et al., 2020; Taheri-Kharameh et al., 2018). Considering this, some might claim that being conscious of somebody's academic self-efficacy might be a practical diagnostic tool because it may foresee or describe certain behaviors like perseverance in rigorous coursework.

Correspondingly, the percentage of students who leave university within five years of entry has decreased slightly over the last twenty years, falling from 54.4 percent in 1991 to 51.9 percent in 2012 (ACT 2012, incorporating private and public educational establishment scores). NCHEMS estimated the 2009 six-year academic achievement for the USA at 55.5 percent (NCHEMS university graduation rates, 2014). (Note that the population of decades to commencement varies between references.) In the 2010 ACT research, universities were asked about their six-year degree achievement level rather than their five-year degree completion percentage; the average rate was about 50.1 percent. At the same time, the preferred rate (for the 52.7 percent of polled universities with particular six-year degree completion rate objectives) was 56.0 percent.

Problem Gap and Justifications

Problem Gap

Most studies have discovered that undergraduate problems contribute to decreased educational excellence (Ferdian Farhan, 2020; Hamzah et al., 2021). According to some research, among the issues that students, particularly university

students, frequently face are mental anguish, finances, substance abuse, and family problems (Karaman et al., 2019; Lumbantobing, 2020). The academic staff is concerned about participants' low grades, which they attribute to a lack of intelligence and self-efficacy. In several scenarios, university demonstrates that most educators gained lower grades due to numerous variables, including a lack of motivation, low self-efficacy and intelligence, and other factors. Furthermore, this is critical because, according to some research, academic intelligence and self-efficacy correlate to students' educational prowess (Lei et al., 2022; Lei et al., 2021). Students in college and universities with high intelligence and self-efficacy are convinced of their capacity to achieve well academically. Such a move, in turn, impacted their achievement because learners with low intelligence and self-efficacy could underperform in academics compared to students with higher academic preconceptions. As an indicator of intellectual qualifications, intelligence and self-efficacy showed a significant correlation. Thus, this research aims to analyze the relationship between intelligence and self-efficacy with the 3 study variables among university students.

Justifications

To better understand the research gap, this investigation would like to explore the subject mentioned earlier, mainly since there has not been much research on it, particularly in university settings. As a result, this research will be a primary reference in determining the connection between students' empathy, self-efficacy, and educational achievement at the university level.

Research Significance/Impact/Influence

The research has the potential to improve educational practice in a variety of ways. Acknowledging these character structures may be highly advantageous to students, lecturers, and college administrators since they may have a spectacular influence on student accomplishment. If undergraduate characteristics are available (assuming understudies are prepared to disclose this data), these stakeholders can collaborate in their respective disciplines to develop student strengths while also

mentioning possible vulnerabilities (Ashraf et al., 2019; Barragán Marten et al., 2021). While annualized characteristics of students in a course may provide understanding for lecturers while preserving data secret, recognizing specific accounts may provide based on qualitative of students' needs. However, that expertise may lead to evaluation bias, so how undergraduate characteristics are used must be fully thought out.

In many aspects, the research may contribute to academic studies. The consistency assessments of the different instruments presented information to back up or disprove the use of the different instruments. Relationships were discovered between historically unmeasured variables (and demographics). Future studies could specifically target associations and broaden them through propagation with human demographics, in a different discipline or researcher and subjects, and by employing pre-test and post-test initiatives that aim to alter the preconceived notions under evaluation.

Finally, this research has the potential to enhance educational policymaking in a variety of ways. If relationships between the variables under evaluation are discovered, initiatives can be fine-tuned accordingly, possibly improving their efficiency. Universities and colleges could put money into these initiatives to assist students in being successful and staying in school. Such effective interventions (even concise, low-cost ones) have been found to enhance student achievement, well-being, and engagement, especially among students who have a low sensitivity to academic regulation (Ramos Salazar & Hayward, 2018; Tsegay et al., 2019). Given the significant number of students who drop out of college, it seems prudent for higher education institutions to invest in low-cost, easily administered intervention programs and additional training for educators and consultants to participate.

Research Objectives

The primary objective of this research paper is to analyze the mediation role of peer effects, test anxiety, and academic motivation in the relationship between self-efficacy and intelligence among university students. Below are the four specific primary research objectives the study tends to address.

- To assess the mediation role of peer effects in the relationship between intelligence and self-efficacy among university students.
- To investigate the mediation role of test anxiety and academic motivation in the relationship between intelligence and self-efficacy among university students.
- To investigate the mediation role of academic motivation in the relationship between intelligence and self-efficacy among university students.
- To develop the best statistical model to fit the three mediation variables between intelligence and self-efficacy among university students.

Research Questions

The primary objectives of the research questions are to respond to the research aims to formulate the literature and background of the entire study. Below are the four primary research questions of the study.

- What is the mediation role of peer effects in the relationship between intelligence and self-efficacy among university students?
- What is the mediation role of test anxiety and academic motivation in the relationship between intelligence and self-efficacy among university students?
- What is the mediation role of academic motivation in the relationship between intelligence and self-efficacy among university students?
- What is the best statistical model to fit the three mediation variables between intelligence and self-efficacy among university students?

Research Hypotheses

The primary aim of the hypotheses testing in this research is to use various statistical techniques to prove different suggested theorems that respond to the study objectives. This research will use advanced statistical techniques to respond to the four primary research hypotheses shown below.

H₁: There is a strong relationship between the mediation role of peer effects and intelligence and self-efficacy among university students.

H₂: There is a strong relationship between the mediation role of test anxiety and academic motivation and intelligence and self-efficacy among university students.

H₃: There is a significant relationship between the mediation role of academic motivation and intelligence and self-efficacy among university students

H₄: Intelligence and self-efficacy have a linear relationship with the three mediation variables among university students.

B-LITERATURE REVIEW

Introduction

The primary objective of this section of the paper is to use various peer-reviewed articles to respond to the research questions. Moreover, the literature review will use previous studies to respond to the study hypothesis, which will again be analyzed in the data analysis chapter to achieve the research objectives. The four study hypotheses are analyzed below.

H1: *There is a strong relationship between the mediation role of peer effects and intelligence and self-efficacy among university students.*

Barragán Martín et al. (2021) analyzed the correlation between interpersonal skills, empathy, as well as self-efficacy of workplace incivility, negative and positive actual impact, and job work motivation. They discovered that self-efficacy is a strong predictor of participants' positive and undesirable affect peer effects. People with more negative peer effects were likelier to participate in workplace deviance than those who experienced less detrimental impact. Hyseni Duraku and Hoxha (2018) discovered a substantial connection between emotional intelligence, peer effect, and work motivation from an academic standpoint. As a result, elevated concentrations of positive psychology are linked to a higher level of work engagement.

Lumbantobing (2020) demonstrated that self-efficacy effectively modulates the connection between student intelligence and peer effect intent. According to Luo et al. (2019), the amount of psychological labor required by the job substantially moderates the correlation between students' intelligence and peer effect. Still, there is no strong correlation between these variables. According to Tsegay et al. (2019), student intelligence is a powerful predictor of organizational dedication. Empathy accounted for about 15% of the variability in student performance at work and school. Wang (2022) indicate that call center delegates with greater emotional intelligence illustrate client engagement. Dynamic stability can also improve job productivity by enabling individuals to cope more effectively with difficult situations, operate under stress, and adjust to change management (Zheng & Wu, 2019). Based on these findings, the researchers hypothesize that student intelligence, self-efficacy, and the peer effect are associated in such a way that these variables mediate this correlation. In various circumstances, self-efficacy moderates the relationship, connecting a dependent and independent variable. According to the research results, self-efficacy moderates the correlation between student intelligence and the peer effect, as proposed in the research hypothesis.

According to Ashraf et al. (2019), overall and individual self-efficacy and the peer effect are significant predictors of professor interaction, with instructors with higher social and personal effectiveness attempting to have high academic interaction. Ferdian Farhan (2020) discovered that self-efficacy and peer effect

significantly positively impact work engagement among banking professionals. Lei et al. (2021) finally confirmed that self-efficacy and peer effect substantially impact staff's work engagement. As a result, confident professionals completing tasks are much more likely to be retained in the company. According to Sharififard et al. (2020), occupational self-efficacy and the peer effect significantly impact firm contribution. Xie et al. (2018) discovered a link between self-efficacy, intelligence, and peer effect on academic performance. Moreover, other research focused on higher education centers support the connection between these variables in the publications (ÇİÇEK, 2021); Karaman et al., 2019; Ramos Salazar & Hayward, 2018). According to these research results, researchers believe there is a significant correlation between intelligence, self-efficacy, and peer effect on academic performance. Workers are more dedicated to their jobs when they are comfortable knowing their capability to accomplish a task.

H2: *There is a strong relationship between the mediation role of test anxiety and academic motivation and intelligence and self-efficacy among university students.*

Test anxiety is prevalent among university students, with incidence rates ranging from 20 to 40%. Anxiety during a test manifests itself on cognitive, affective, physiological, and behavioral levels. Adversely altered conceptions of the assessment test, significance, and results are frequently reported, along with concentration difficulties (Trigueros et al., 2020). Feelings of hopelessness and despair characterize test anxiety and malfunction, as well as panic-like physical reactions like increased heart rate, bladder, and intestinal activation, sweating, and nausea. Persons suffering from test anxiety may avoid exam circumstances or, at the very least, contemplate avoiding potential examinations.

Test anxiety is linked to poor working recognition memory (Çikrikci et al., 2018) and inefficient mental functioning (Konaszewski et al., 2019). Several considerations on the significant degree of test anxiety have already been obtained in a recent study (Li et al., 2020). Fear increased when the task's output was unclear, passive teaching approaches were used, or learning methods were more personal. Many other anxiety disorders have well-described visual imagery linked with the feared object or situation (Yip, 2019). Imaginings are vivid conceptual information that occurs in all human senses and is regarded as real (Morales-Rodríguez & Pérez-Mármol, 2019). Self-efficacy is "people's assessments of their capacity to plan and implement courses of action necessary to achieve specified types of accomplishments" (Drysdale & McBeath, 2018). Lei et al. (2022) introduced self-efficacy research in the 1970s as part of the social theory of cognitive learning. It has gotten more attention than other similar models (Hamzah et al., 2021). Self-efficacy predicts various behavioral effects, including interpersonal skills, athletic performance, and dealing with feared happenings (Taheri-Kharameh et al., 2018).

Self-efficacy appears to be crucial in learning-related elements as well. In particular, self-efficacy and academic performance are significantly related, as revealed by a conceptual (Yip, 2019) in which self-efficacy projected 14% of the variance in student achievement.

Moreover, there is a strong relationship between self-efficacy, academic motivation, and competence (Wang, 2022; Drysdale & McBeath, 2018). In this regard, university students with high self-efficacy perform better in terms of personality within higher education (Karaman et al., 2019). Another analysis reached a similar conclusion after evaluating 59 research investigating self-efficacy and performance in an academic context. In addition to the anticipated relationship between self-efficacy and academic performance, regulating variables like effort regulation, profound learning techniques, and main objective approaches were discovered.

Numerous studies have revealed a link between test anxiety and academic motivation, as well as intelligence and self-efficacy, as a mediator role (Lei et al., 2021). When students believe in their competence to accomplish the task, confidence rises, and good performance becomes more likely (Li et al., 2020). A regression analysis revealed that self-efficacy significantly contributed to 14% of the variations in test anxiety in a study by Morales-Rodríguez and Pérez-Mármol (2019), while sexual identity was not a good determinant. High test anxiety was established to be correlated with lower self-efficacy. A multiple regression model was used to investigate the fear of arithmetic as a component of personality and discovered comparable findings (Ferdian Farhan, 2020). According to the model, irrespective of gender, a high perceived self-efficacy was linked with test anxiety.

H3: *There is a significant relationship between the mediation role of academic motivation and intelligence and self-efficacy among university students.*

Motivation is the capacity to motivate oneself and others to engage in a specific behavior or behavioral pattern; it also allows people to accomplish great things. Previous studies on confirmed structural systems that depend on the expectancy-value theory provide critical evidence that inspirational average life valuation factors play a crucial role in undergraduate's academic achievement and self-efficacy (Ashraf et al., 2019; Çikrıkci et al., 2018). It also emphasizes the crucial role of motivational expectation confirmation variables in predicting undergraduates' academic achievement. According to Hyseni Duraku and Hoxha (2018), emotional intelligence can improve motivation and linguistic effectiveness while improving self-efficacy (Hamzah et al., 2021). People with a high emotional intelligence and also adapt to different categories of ways of life, use positive coping strategies when faced with problems, and believe in their abilities (Barragán Martín et al., 2021). Luo

et al. (2019) demonstrated that emotional intelligence was positively linked to self-efficacy and could be used to predict educational success. Self-efficacy was a significant achievement component (Konaszewski et al., 2019). According to Lei et al. (2022), self-efficacy can predict students' success in all academic areas. Undergraduates' self-efficacy, feelings of accountability for their initiatives, and final exams were all directly correlated.

Educators recognize some preventive measures for teaching talented university students. Gifted undergraduates may be tempted to constantly perfect their schoolwork if they are educated on the same level as other students. Undergraduates may become unsatisfied with their work and refuse to have it demonstrate them academically (Ramos Salazar & Hayward, 2018). However, if academically capable students are not challenged with their course content, some will lose interest in the subject matter. Underperformance in students' likely results from an unstimulating environment (Tsegay et al., 2019). If when schools are not able to give above-grade-level classes, instructors should distinguish instruction to create a challenging curriculum. Intriguingly, students are more likely to exhibit perfectionism traits if their parents exhibit the same characteristics. According to Taheri-Kharameh et al. (2018), perfectionism disparity is described by a coherent feeling that one is not meeting guidelines; it should be firmly linked to lower levels of self-efficacy.

H4: *Intelligence and self-efficacy have a linear relationship with the three mediation variables among university students.*

Emotion regulation factors influence task completion belief. Zheng and Wu (2019) demonstrated that people with significantly greater self-awareness perform more effectively on cognitive tasks. Moreover, when people with high emotional intelligence struggle to complete complex tasks, they are much more inclined to avoid negative emotional impacts and remain focused. Yip (2019) discovered that emotion use and regulatory oversight were related to student self-efficacy. Also, after adjusting for the influence of demographic factors like gender, age, nation, and personal characteristics, these two factors of interpersonal skills projected student self-efficacy. Xie et al. (2018) also found a link between interpersonal skills and self-efficacy among university students.

According to Ashraf et al. (2019), overall and individual self-efficacy are significant predictors of instructor interaction, with lecturers who generally have higher personal effectiveness attempting to have high academic involvement. ÇİÇEK (2021) discovered that self-efficacy significantly positively affects work engagement among employees in the banking sector. Barragán Martín et al. (2021) finally confirmed that self-efficacy substantially impacts staff's work engagement. As a result, professionals confident in their capability to finish a task seem to be more likely to remain with the company. According to Çikrikci et al. (2018), workplace

self-efficacy directly affects a company's responsibility. On the contrary, Drysdale and McBeath (2018) investigated the impact of goals, dedication, self-efficacy, and personality on physical function. The findings demonstrated that self-efficacy has both an indirect and direct impact on achievement. Ferdian Farhan (2020) identified a substantial, if somewhat weak, correlation between self-efficacy and work engagement. Furthermore, other studies concentrate on healthcare (Hamzah et al., 2021; Hyseni Duraku & Hoxha, 2018; Karaman et al., 2019) and endorse the correlation between these variables. According to these findings, humans believe self-efficacy and work motivation correlate positively. Students are more dedicated to their jobs when they feel comfortable knowing their ability to complete tasks.

In their qualitative survey, Karaman et al. (2019) discovered a positive connection between organizational and emotional intelligence involvement elements of undergraduates in higher learning institutions. Konaszewski et al. (2019), on the other hand, concluded that psychological cognition has no effect either directly or indirectly on work engagement in terms of job satisfaction and job stress. As a result, these findings indicate that psychological cognition and work motivation may be linked via a mediating variable. Lumbantobing (2020) states that empathy and self-efficacy strongly correlate with employee engagement. According to Lei et al. (2021) and Lei et al. (2022), educators with more advanced emotional intelligence have a greater level of self-efficacy, more favorable perceptions toward employment, and increased job satisfaction. Li et al. (2020) found that prospective teachers' self-efficacy, interpersonal relationships, and satisfaction levels with an emotional attachment all had good bonds. Luo et al. (2019) investigated the role of motivation in senior executives' favorable perceptions and situational and task-related achievement and discovered that high emotional intelligence in top management develops emotional connection and devotion to their institutions.

Summary

These psychological components of academic accomplishment have created integrated, captivating, and manifestly significant interconnections and consequences. Further research is needed to enhance educational outcomes, particularly given that initiatives (like form of ongoing qualitative training or reading authoritarian publications on attitudes) can be completed with a short period, dedication, or expense. If undergraduate statuses include more variables and their interdependence is better defined, initiatives may be further streamlined for increased success. While some of the research findings referenced used hypothetical situations with little threat, casting doubt on comprehensiveness or real-world cases, the underpinning behavioral patterns and assumptions suggest that further research into practical systems would be productive. Whereas no approaches were used in this

research, it is desired that the information gathered from the questionnaire tool will be helpful for future scientists, organizations, or lecturers who do.

C-METHODOLOGY OR RESEARCH METHODS

Introduction

This paper chapter provides the research procedure to answer the study hypothesis using various statistical tools and approaches. The methodology will include the research philosophy, methods, design, and approaches for appropriate solutions and data analysis. The most vital part of this chapter will be the research population and participants, tools and instruments, and data collection procedures. These are the key determinants of this research methodology, and they determine the research's accuracy, reliability, and validity. The research methodology will conclude with the data analysis that defines data reliability and validity, statistical techniques, and the hypotheses testing procedure.

Research Philosophy

The concepts of research philosophy are vital in analyzing the study methodology as it classifies the research in axiology, epistemology, and ontology. However, these classifications depend on the nature of the study and the research questions and hypotheses that the research intends to tackle (Žukauskas et al., 2018). The study assumptions or hypotheses determine the types of research hypotheses that the study wishes to apply to achieve the research objectives.

This research uses the positivist research philosophy that involves hypothesis testing. Moreover, positivism depends on the philosophical approach that observes the society entity, such as a university, to realize the work of natural scientists like lecturers. The philosophy involves data collection and hypothesis development to respond to the primary research questions (Žukauskas et al., 2018). Furthermore, the positivism philosophy will help this study facilitate hypothesis testing through a highly structured model. Statistical analysis is involved in this research philosophy to work on quantifiable observations of the research objectives. This is meant to analyze the mediation role of peer effects, test anxiety, and academic motivation in the relationship between self-efficacy and intelligence among university students.

This research philosophy does not provide room for data manipulation during the data collection, as it is subject to independent research. The move allows for an accurate correlation between the study variables. Moreover, this research philosophy uses the previous findings from the peer-reviewed articles to support or contrast the current result on the mediation row between the study variables (Žukauskas et al., 2018). Also, this research philosophy aims to develop 4 study hypotheses and the most appropriate statistical approaches for hypothesis testing to prove such claims. As a result, positivism research philosophy helps this study use statistical tools to test

the 4 hypotheses. The results will help the researchers develop future theories within the university setting.

Research Methods

The study uses mixed (quantitative and qualitative) research techniques to answer the projected questions. A quantitative approach is applied in numerical and statistical analysis of the research data, while qualitative methods will provide meaning for the obtained results (Busetto et al., 2020). The research uses quantitative research techniques to test the 4 primary study hypotheses by systematically collecting and analyzing data while allowing this research to explore secondary data and connect the information to the current outputs.

Furthermore, the research primarily uses the survey research method to obtain data, which is both quantitative and qualitative, depending on the situation and application. A survey allows the study to reach the participants and population (university students) through questionnaires to answer various research questions. The research questions are based on the students' self-efficacy, intelligence, academic motivation, test anxiety, and peer effects. Self-efficacy and intelligence are the dependent variables, while academic motivation, test anxiety, and peer effects are the independent variables. The students respond to the 4 research questions based on their experiences with the study variables. However, various instruments were used to measure these variables to enhance the validity and reliability of the data.

The survey's primary purpose as the research approach is to measure study variables for further data analysis. The survey is vital as it helps obtain a large sample size to represent the entire student population hence an accurate population approximation (Busetto et al., 2020). The data obtained from these research approaches will provide the quantitative and qualitative analysis and interpretation of the research data. Furthermore, the primary advantage of the survey approach is that it is a cost-effective technique for collecting qualitative data for research analysis. However, the weakness of this approach is that it is subject to poor question design caused by insufficient sampling and study bias.

Research Design

The primary function of this research design is to provide the most suitable study framework. Furthermore, the method offers the appropriate approaches for the data collection and ensures that the obtained information is relevant to the study. The collected data should be able to answer the research question upon the analysis using various statistical software and tools. Thus, this research design involves the application of interrelated decisions to achieve the study objectives.

This research uses mixed (quantitative and qualitative) methods to answer the research questions. The design involves semi-structured interviews and well-structured questionnaires for the students participating in university studies. The plan

is for the students to express their feelings on various study variables, such as self-efficacy, intelligence, academic motivation, test anxiety, and peer effects. The responses were mainly obtained by measuring the students' self-efficacy, intelligence, academic motivation, test anxiety, and peer effects using various instruments.

Furthermore, this study uses experimental research design (quantitative) and qualitative research design to analyze the research primary data obtained through the questions and questionnaires. These designs ensure the analysis of the relationship between the study variables to test the hypotheses (Busetto et al., 2020). According to the research questions, the intended outcome is to get the connection between self-efficacy, intelligence, academic motivation, test anxiety, and peer effects. The measure used is the correlation between the research variables, with the university students as the population. The questionnaire is the ideal data collection technique, and correlation is the interrelated characteristic. Moreover, the correct analysis tools are descriptive statistics and Structural Equations with Amos, with secondary data as the dissemination channel.

The research project uses the mixed research design to provide an accurate relationship between the 3 mediation and intelligence and self-efficacy. It will provide relevant phenomena on the individual student characteristics and how these features affect the academic performance at the university. As a result, this research design helps the study collect data from different participants on the mediation role of peer effects, test anxiety, and academic motivation in the relationship between intelligence and self-efficacy among university students. It also helps analyze statistical tools and approaches to respond to the study hypotheses and attain the study objectives.

Research Approach

The research approach is vital for this study as it connects the existing literature from the secondary sources to the finding from the primary data. It explains the research process through an explanation of how the study concluded (Busetto et al., 2020). The research approach defines the entire study process with a blend of interactions between the dependent variables. As a result, this study uses a research approach to illustrate how the study will conclude the hypothesis testing.

This study uses a deductive research approach to test the 4 study hypotheses. The deductive approach is the most suitable technique for hypothesis testing in any field of study. Moreover, the method is ideal for hypothesis testing since it provides the procedure for how the analysis leads to the conclusion (Busetto et al., 2020). The study uses the deductive approach to analyze the mediation role of peer effects, test anxiety, and academic motivation in the relationship between intelligence and self-

efficacy among university students. Furthermore, this is achieved through 4 primary hypotheses testing to conduct the study objectives.

The deductive approach follows the following procedure: theory, hypothesis, test, and hypothesis confirmation or rejection. The theory phase involves the literature review of various peer-review articles on the mediation role of peer effects, test anxiety, and academic motivation in the relationship between intelligence and self-efficacy among university students. Moreover, the study achieved this by researching peer-reviewed articles on the 4 primary hypotheses. The third phase was to develop hypotheses, which had already been formulated in the first chapter of the paper. The study used Structural Equations with Amos to form the third phase of the deductive research approach. Moreover, the significance level (P-value) was used in the hypothesis testing to achieve the study objectives. Finally, based on the variables' significance level, the study will confirm or reject the null hypothesis. Thus, the null hypothesis is rejected for the $P\text{-value} < 5\%$ significance level.

Participants and Population

The study population was the university students who experienced self-efficacy, intelligence, academic motivation, test anxiety, and peer effects. The entire university student population that experienced the mediation variables and self-efficacy and intelligence were eligible for the research. However, the research had to sample a portion of the student population for analysis, considering the huge sample size. A huge sample size enhances the accuracy of the mediation analysis between the variables. The university student population participated in this study, though only a section of the population was used.

Simple random sampling was used to pick a section of the population to test the hypothesis for the mediation between the variables.

A sample size ($N = 477$) of UTAS students from Oman used as the study participants. Moreover, there were 150 males (31.4%) and 327 females (68.6%) as the participant ratios (see figure 1). The study participants are based on the questionnaire responses from the student population. The response rate was 100%, according to the data obtained for this analysis. The 100% response rate implies that no participant left a blank space when responding to the research questions through the questionnaires.

Figure 1: Study Participants

Social Type		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	150	31.4	31.4	31.4
	Female	327	68.6	68.6	100.0
	Total	477	100.0	100.0	

Tools and Instruments

The research used 5 primary research tools and instruments to measure self-efficacy, intelligence, academic motivation, test anxiety, and peer effects. Self-efficacy was assessed employing the General Self-Efficacy scale (GSES). GSES measures self-efficacy's self-perception to self-report questionnaires that respond to the hypothesis that analyzes the coping abilities of various research participants (Villegas Barahona et al., 2018). Moreover, the Wechsler Adult Intelligence Scale (WAIS) was used to measure the intelligence level of the study participants. WAIS has been used to test students' IQ for over 75 years. The instrument measures the students' IQ by analyzing their exam performance through a scale rating.

Furthermore, Academic Motivation Scale (AMS) tool was used to evaluate the academic motivation among the university students. The research used AMS to measure both the extrinsic and the intrinsic academic motivation of the university students, and connecting the two outcomes leads to the total score. Furthermore, the study used Test Anxiety Inventory (TAI) tool to assess the levels of test anxiety in university students. Moreover, the TAI instrument has 20-item points to indicate the anxiety symptoms in the students during and after taking tests at the university (Benson & Tippets, 2018). Finally, a 5 Likert point scale instrument was used to measure peer effects on the university students.

Data Collections and Procedures

The data collection procedure defines the study's primary and secondary data. Moreover, the secondary data was obtained from peer-reviewed articles within the education sector to respond to the research articles. These peer-reviewed articles have been analyzed in the literature review section of the paper. The presiding procedure would be in the discussion section to connect the primary data and the peer-reviewed articles. The primary data was obtained through research questions and questionnaires on a Linkert-point-scale. The students were given 4 research questions to respond to, with various questionnaire ratings on self-efficacy, intelligence, academic motivation, test anxiety, and peer effects.

Data Analysis

The primary objective of this methodology section is to illustrate how data was analyzed with the appropriate statistical tools. The first task is to conduct the validity and reliability of the questionnaires utilized in the study. Statistical techniques and hypothesis testing procedures will follow this.

Reliability

The research uses Cronbach's Alpha to assess the internal consistency of the investigate instruments. The study has Cronbach's Alpha (-0.155), showing the negative reliability of survey instruments due to a negative average covariance

among items (see figure 2). The most reliable instruments should have Cronbach's Alpha ≥ 0.70 . Thus, the measurement instruments had a lower internal consistency.

Figure 2: Reliability Statistics

Reliability Statistics

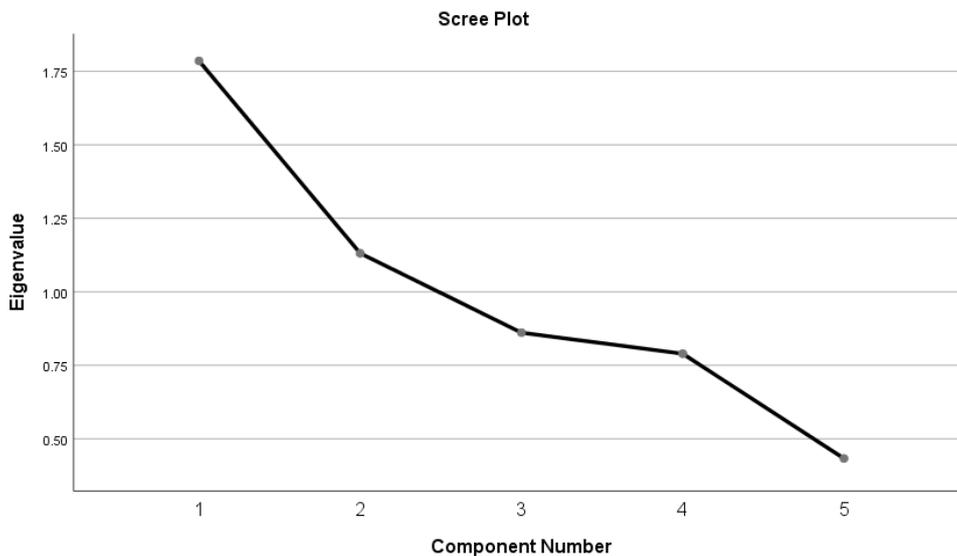
Cronbach's Alpha ^a	Cronbach's Alpha Based on Standardized Items ^a	N of Items
-.155	-.035	5

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item coding.

Validity

The study uses factor analysis to test the validity of the survey instruments. Data validity can be expressed using the correlation matrix (see appendix 5). From the correlation matrix, only the variables with correlation coefficients greater than 0.5 are valid for the study. The scree plot also illustrates the validity of the survey instruments as it provides the variation of the component captures. From figure 3, the scree plot has at least 3 PCs to provide a steep curve that flattens out and bends quickly to show the data validity.

Figure 3: Scree Plot



Statistical Techniques

The data was analyzed using SPSS and AMOS software to provide the output for the hypothesis testing. The participants' analysis by gender was done through descriptive statistics analysis in the SPSS. The research uses factor analysis and Cronbach's Alpha in the SPSS software to test the survey instrument's validity and reliability. The four hypotheses were then analyzed using the SPSS AMOS software, the mediation phase of structuring equations.

Research Hypothesis

Four structural equations were formulated in SPSS Amos to test the study hypotheses. H_1 tested the relationship between the mediation role of peer effects and self-efficacy and intelligence among university students. Moreover, the model provided the estimates of each variable with its P-value. The study rejects H_1 if $P\text{-Value} < 0.05$ between peer effects and intelligence and self-efficacy. H_2 tested the relationship between the mediation role of test anxiety and academic motivation and intelligence and self-efficacy. The study rejects H_2 if $P\text{-Value} < 0.05$ between test anxiety, academic motivation, intelligence, and self-efficacy. H_3 tested the relationship between the mediation role of academic motivation and intelligence and self-efficacy. The study rejects H_3 if $P\text{-Value} < 0.05$ between academic motivation and intelligence and self-efficacy. H_4 analyzed the correlation between self-efficacy and intelligence and the 3 mediation variables. The study rejects H_4 if $P\text{-Value} < 0.05$ between intelligence and self-efficacy and the 3 mediation variables.

D-RESULTS AND DISCUSSIONS

Results

This research section provides the outputs from the data analysis with their interpretations. It tends to answer the research questions through hypothesis testing. The results section uses statistical concepts to interpret the data outputs from the software analysis.

H_1 : There is a strong relationship between the mediation role of peer effects and intelligence and self-efficacy among university students.

Table 1: Regression Weights

VARIABLES		ESTIMATE	S.E.	C.R.	P	LABEL
TOTIQ	<--- TOTSE	.063	.063	.985	.325	par_3
TOTPE	<--- TOTIQ	-.184	.039	-4.722	***	par_1
TOTPE	<--- TOTSE	-.086	.054	-1.587	.112	par_2

Table 1 provides the regression weights of the research variables based on the different correlations. The relationship between intelligence (IQ) and self-efficacy (estimate = 0.63, S.E = 0.63, P-value 0.325 > 0.05), peer effects and intelligence (estimate = -0.184, S.E = 0.039, P-value = 0.00 < 0.05), peer effects and student self-efficacy (estimate = -0.086, S.E = 0.54, P-value = 0.112 > 0.05). The P-values show a strong linear relationship between peer effects and intelligence among university students. However, peer effects reduce student intelligence by 18.4%. Nonetheless, peer effects have a negligent reduction of self-efficacy of 8.6%.

Table 2: Means

VARIABLE	ESTIMATE	S.E.	C.R.	P	LABEL
TOTSE	33.197	.192	173.135	***	par_5

From table 2, the deduction on students' self-efficacy are as follows (mean = 33.197, S.E = 0.192, P-value = 0.00<0.05). The average self-efficacy in university students is 33.197, and self-efficacy shows a strong relationship with peer effects.

Table 3: Intercepts

VARIABLES	ESTIMATE	S.E.	C.R.	P	LABEL
TOTIQ	45.564	2.125	21.445	***	par_4
TOTPE	41.845	2.531	16.531	***	par_6

Table 3 provides the intercepts for intelligence and peer effects as follows (intelligence: intercept = 45.564, S.E = 2.125, P-value = 0.00<0.05) and (peer effects: intercept = 41.845, P-value = 0.00<0.05). These results show a strong relationship between the mediation variables.

Hypothesis 1 Testing

From tables 1, 2 and 3 and appendix 1, since P-value = 0.00<0.05, the research rejects the null hypothesis (H_0). The research then concludes that there is a strong relationship between the mediation role of peer effects and self-efficacy and intelligence among university students.

H₂: There is a strong relationship between the mediation role of test anxiety and academic motivation and intelligence and self-efficacy among university students.

Table 4: Regression Weights

VARIABLES		ESTIMATE	S.E.	C.R.	P	LABEL
TOTIQ	<--- TOTTA	-.070	.025	-2.759	.006	par_1
TOTSE	<--- TOTMO	.350	.025	14.231	***	par_2
TOTSE	<--- TOTIQ	-.031	.028	-1.110	.267	par_4

Figure 4 provides the regression weights to illustrate the relationship between the study variables. The relationships are as follows: student intelligence and test anxiety (estimate = -.070, S.E = 0.025, P-value = 0.006<0.05), self-efficacy and academic motivation (estimate = 0.350, S.E = 0.025, P-value= 0.00<0.05), and self-efficacy and intelligence (estimate =-0.031, S.E = 0.028, P-value = 0.267>0.05). There is a strong correlation between test anxiety and academic motivation and self-efficacy, and intelligence. However, test efficacy has a negative correlation (7%), and academic motivation has a positive relationship (35%).

Table 5: Means

VARIABLES	ESTIMATE	S.E.	C.R.	P	LABEL
TOTTA	38.497	.477	80.656	***	par_5
TOTMO	40.547	.303	133.752	***	par_6

From table 5, the averages are test anxiety (38.497) and academic motivation (40.547). The two mediation variables have a P-value = $0.00 < 0.05$, leading to a positive relationship between self-efficacy and intelligence among university students.

Table 6: Intercepts

VARIABLES	ESTIMATE	S.E.	C.R.	P	LABEL
TOTIQ	50.330	1.010	49.817	***	par_7
TOTSE	20.500	1.541	13.302	***	par_8

Table 6 provides the study intercepts: student intelligence (50.330) and self-efficacy (20.500). Both intelligence and self-efficacy have P-value < 0.05 , which provides positive interaction between the variables.

Table 7: Total Effects

VARIABLES	TOTTA	TOTMO	TOTIQ
TOTIQ	-.070	.000	.000
TOTSE	.002	.350	-.031

Table 7 illustrates the total effects of the mediation variables on the model. Intelligence is reduced by 7%, while self-efficacy is increased by 35% during the interaction with the mediation variables.

Hypothesis 2 Testing

From table 4 and appendix 2, since P-value = $0.00 < 0.05$, the study rejects the null hypothesis (H_2). The study then concludes that there is a strong relationship between the mediation role of test anxiety and academic motivation and intelligence and self-efficacy among university students.

H₃: There is a significant relationship between the mediation role of academic motivation and intelligence and self-efficacy among university students.**Table 8: Regression Weights**

VARIABLES	ESTIMATE	S.E.	C.R.	P	LABEL
TOTMO <--- TOTIQ	.154	.043	3.564	***	par_2
TOTMO <--- TOTSE	.854	.060	14.231	***	par_3

From table 8, the regression weights are represented to show the relationship between the variables with individual estimates. The regression weights are as follows: academic motivation and intelligence (estimate = 0.0154, S.E = 0.043, P-value = $0.00 < 0.05$) and academic motivation and self-efficacy (estimate = 0.854, S.E = 0.060, P-value = $0.00 < 0.05$). Academic motivation positively correlates with intelligence and self-efficacy, with 85.4% and 15.4% effects, respectively.

Table 9: Means

VARIABLES	ESTIMATE	S.E.	C.R.	P	LABEL
TOTIQ	47.639	.266	179.159	***	par_4
TOTSE	33.197	.192	173.135	***	par_5

Table 9 provides the variable averages: intelligence (47.639) and self-efficacy (33.197). Both the variables have $P\text{-value} < 0.05$, showing a positive relationship with academic motivation among university students.

Table 10: Intercepts

VARIABLE	ESTIMATE	S.E.	C.R.	P	LABEL
TOTMO	4.868	2.811	1.732	.083	par_6

From table 10, the intercept for the academic motivation is 4.868, with a $P\text{-value} = 0.083 > 0.05$. The intercept has no impact on the estimation of the model because it remains constant.

Hypothesis 3 Testing

From table 8 and appendix 3, since $P\text{-value} = 0.00 < 0.05$, the research rejects the null hypothesis (H_3). Thus, the study concludes that there is a positive relationship between the mediation role of academic motivation and self-efficacy and intelligence among university students.

H₄: Intelligence and self-efficacy have a linear relationship with the three mediation variables among university students.

Table 11: Regression Weights

VARIABLES		ESTIMATE	S.E.	C.R.	P	LABEL
TOTMO	<--- TOTIQ	.182	.052	3.526	***	par_4
TOTTA	<--- TOTMO	-.267	.071	-3.751	***	par_5
TOTPE	<--- TOTSE	-.064	.057	-1.133	.257	par_2
TOTPE	<--- TOTTA	.055	.023	2.401	.016	par_3

Table 11 provides the regression weights to illustrate the relationship between intelligence and self-efficacy and the three mediation variables. The interactions are as follows: academic motivation and intelligence (estimate = 0.182, S.E = 0.052, $P\text{-value} = 0.00 < 0.05$), test anxiety and academic motivation (estimate = -0.267, S.E = 0.071, $P\text{-value} = 0.00 < 0.05$), peer effect and self-efficacy (estimate = -0.064, S.E = 0.057, $P\text{-value} = 0.257 > 0.05$), and peer effects and test anxiety (estimate = 0.055, S.E = 0.023, $P\text{-value} = 0.016 > 0.05$). These results strongly correlate self-efficacy and intelligence with the three mediation variables.

Table 12: Means

VARIABLES	ESTIMATE	S.E.	C.R.	P	LABEL
TOTIQ	47.639	.266	179.159	***	par_6
TOTSE	33.197	.192	173.135	***	par_7

Table 12 provides the averages on the dependent variables as follows: intelligence (47.639) and self-efficacy (33.197). The $P\text{-values}$ are less than 0.05 showing a positive association between the variables.

Table 13: Intercepts

VARIABLES	ESTIMATE	S.E.	C.R.	P	LABEL
-----------	----------	------	------	---	-------

TOTMO	31.882	2.476	12.878	***	par_8
TOTTA	49.314	2.922	16.877	***	par_9
TOTPE	30.267	2.268	13.342	***	par_10

The intercepts from table 13 are as follows: academic motivation (31.882), test anxiety (49.314), and peer effects (30.267). The P-values for the variables are less than 0.05, showing a significant relationship between intelligence and self-efficacy among university students.

Best Statistical Model Fit

From table 11 and appendix 4, the statistical best fit model for the mediation model is as follows: Self-Efficacy and Intelligence (Y) = 42.63 + 0.182 (Academic Motivation) – 0.267 (Test Anxiety) + 0.055 (Peer Effects).

Testing Hypothesis 4

Table 11 and appendix 4 show that since P-value = 0.00 < 0.05, the study rejects the null hypothesis (H₄). Thus, the study concludes that intelligence and self-efficacy have a linear relationship with the three mediation variables among university students.

Discussion

This section connects the research findings with the existing literature to achieve the research objective. The results will have meaning when related to the findings of the previous peer-reviewed studies on the study topics. The findings will either agree or disagree with the earlier findings.

The primary objective of this research is to examine the mediation role of peer effects, test anxiety, and academic motivation in the relationship between self-efficacy and intelligence among university students. Moreover, the findings supported the hypothesis that student intelligence and self-efficacy significantly affect peer effects, academic motivation, and test anxiety. The results, as anticipated, revealed that self-efficacy and intelligence greatly influence the three mediation variables. Likewise, intelligence and self-efficacy were discovered to mediate the connection between peer effects, academic motivation, and test anxiety.

According to the first research hypothesis, student intelligence and self-efficacy positively impact peer effects among university students. In the regression analysis, student intelligence and self-efficacy accounted for approximately 33.197% of the variance in peer effects, academic motivation, and test anxiety. Additionally, these results are consistent with Trigueros et al.'s (2020) uncovering that positive student intelligence and self-efficacy lead to positive peer effects, academic motivation, and test anxiety. According to Lei et al. (2021), student's ability to use emotional responses is strongly and positively linked to cost-effectiveness, task accomplishment, self-restraint, and dedication. Emotion control and appropriation to

be an effective significant predictor of student self-efficacy by Hyseni Duraku and Hoxha (2018). According to Barragán Martín et al. (2021), students with high intelligence and self-efficacy are more likely to recognize emotional responses, understand feelings, deal with the emotions of their peers, and utilize those emotional states. Karaman et al. (2019) discovered that high intelligence and self-efficacy in university students could enhance peer effects, academic motivation, and test anxiety. The development of student intelligence and self-efficacy, in turn, is probable to result in the growth of peer effects, academic motivation, and test anxiety in students performing responsibilities at the university.

The findings confirm the second hypothesis by demonstrating a positive and robust connection between intelligence and self-efficacy and test anxiety and academic motivation. In the regression model, self-efficacy and intelligence described approximately 47.639% of the variability in peer effects, academic motivation, and test anxiety. These findings corroborate previous peer-reviewed article findings in the literature. According to Li et al. (2020), Ashraf et al. (2019), and Ferdian Farhan (2020), intelligence and self-efficacy have a significant impact on peer effects, academic motivation, and test anxiety among university students. According to Lei et al. (2022), student motivation is illustrated when university students believe in their academic achievement strengths. Students with strong skills and talents pertinent to their responsibilities will outperform their colleagues with low intelligence and self-efficacy (Taheri-Kharameh et al., 2018). As a result, this study demonstrates that the higher the self-efficacy and intelligence of university students, the greater their peer effects, academic motivation, and test anxiety.

Ultimately, this study sought to understand the procedure that interconnects student intelligence and self-efficacy to peer effects, academic motivation, and test anxiety among university students. The research has shown that intelligence and self-efficacy have an oblique influence on academic achievement when peer effects, academic motivation, and test anxiety act as mediator variables. Furthermore, this implies that intelligence and self-efficacy immediately impact students' academic performance. However, their academic performance improves when the intermediary variables boost students' self-efficacy and intelligence. Drysdale & McBeath (2018) found that intelligence and self-efficacy are positively linked to academic performance only when the lecturer moderate GPA. Intelligence positively affects academic performance in tasks requiring a lot of emotional labor, but it negatively influences tasks that necessitate a low GPA. Morales-Rodríguez and Pérez-Mármol (2019) found that intelligence and self-efficacy completely mediate the link between peer effects, academic motivation, and test anxiety. According to Çikrikci et al. (2018), intelligence and self-efficacy completely mediate the association between peer effects, academic motivation, and test anxiety. Lumbantobing (2020)

investigated the role of peer effects, academic motivation, and test anxiety in mediating the connection between students' self-efficacy, intelligence, and interpersonal interaction. According to Tsegay et al. (2019), intelligence and self-efficacy are essential mediators of peer effects, academic motivation, and test anxiety. The existing research proves that intelligence, self-efficacy, and academic performance have a significant and positive relationship. The relationship between intelligence and self-efficacy affirms what so many research studies in various fields have already proven. These findings show no strong correlation between intelligence and self-efficacy; however, these factors correlate with peer effects, academic motivation, and test anxiety.

E-CONCLUSION AND SUGGESTED STUDIES

Conclusion

In summary, the main objective of this research is to look into the role of peer effects, test anxiety, and academic motivation in mediating the relationship between self-efficacy and intelligence among university students. Moreover, the results supported the hypothesis that student intelligence and self-efficacy significantly influence peer effects, academic motivation, and test anxiety. As expected, the findings revealed that self-efficacy and intelligence significantly influence the three mediation variables. Similarly, intelligence and self-efficacy have been found to mediate the relationship between peer effects, academic motivation, and test anxiety. As a result, mediation has an objective role on peer effects, test anxiety, and academic motivation in the relationship between self-efficacy and intelligence among university students.

Among university students, there is a strong relationship between the mediation role of peer effects and intelligence and self-efficacy. Students with a high level of intelligence and self-efficacy are more likely to recognize emotional responses, understand feelings, deal with their peers' emotions, and use those emotional states. Furthermore, high levels of self-efficacy and intelligence in university students may boost peer effects, academic motivation, and test anxiety. The development of student intelligence and self-efficacy, in turn, is likely to lead to an increase in peer effects, academic motivation, and test anxiety in university students.

The findings support the second hypothesis by demonstrating a solid and positive relationship between intelligence and self-efficacy and test anxiety and academic motivation. In the regression model, self-efficacy and intelligence explained approximately 47.639% of the variability in peer effects, academic motivation, and test anxiety. These results back up previous peer-reviewed article findings in the literature. Peer effects, academic motivation, and test anxiety are all

influenced by intelligence and self-efficacy in university students. When university students believe in their academic achievement strengths, they demonstrate student motivation. Students with strong skills and talents relevant to their responsibilities outperform their colleagues with low intelligence and self-efficacy.

The relationship between peer effects, academic motivation, and test anxiety is entirely mediated by intelligence and self-efficacy. Furthermore, intelligence and self-efficacy are critical in mediating peer effects, academic motivation, and test anxiety. Existing research shows a significant relationship between intelligence, self-efficacy, and academic performance. The relationship between intelligence and self-efficacy confirms the findings of numerous research studies in various fields. These findings show that intelligence and self-efficacy have no strong correlation; nevertheless, these factors correlate with peer effects, academic motivation, and test anxiety. Therefore, intelligence and self-efficacy have a linear relationship with the three mediation variables among university students.

The study has the potential to improve educational practice in numerous ways. Recognizing these character structures may be highly beneficial to students, lecturers, and college administrators because they may significantly impact student achievement. If undergraduate characteristics are available (assuming undergraduates are willing to share this information), these stakeholders can work together in their respective disciplines to develop student strengths while also mentioning potential vulnerabilities. While annualized student characteristics in a course may provide lecturers with understanding while keeping data private, recognizing specific accounts may provide based on qualitative of students' needs. However, because that expertise may lead to evaluation bias, how undergraduate characteristics are used must be thoroughly considered.

Suggested Studies

Participants in this study completed the questionnaire electronically, and the research methodology was restricted to those who had direct exposure to the connection. Furthermore, the results of this research are restricted to the test used for assessment. As a result, the study's findings cannot be generalized. Furthermore, 33.197% of the sample's respondents have been at university for less than a year, which might also call their academic performance into inquiry. A further constraint is that the current study tested the hypotheses using the computed average rankings of intelligence, self-efficacy and peer effects, academic motivation, and test anxiety. Intelligence has one deliverables, self-efficacy has one, and peer effects, academic motivation, and test anxiety have three. As a result, the research did not investigate the impact of each deliverable on the other reliant subscales. It might be fascinating to investigate each impact separately, but this would result in multiple modeling techniques. Future research may concentrate on variations in intelligence, self-

efficacy and peer effects, academic motivation, and test anxiety among university students at various levels of study, outlining discrepancies between lecturers and low-level GPA students.

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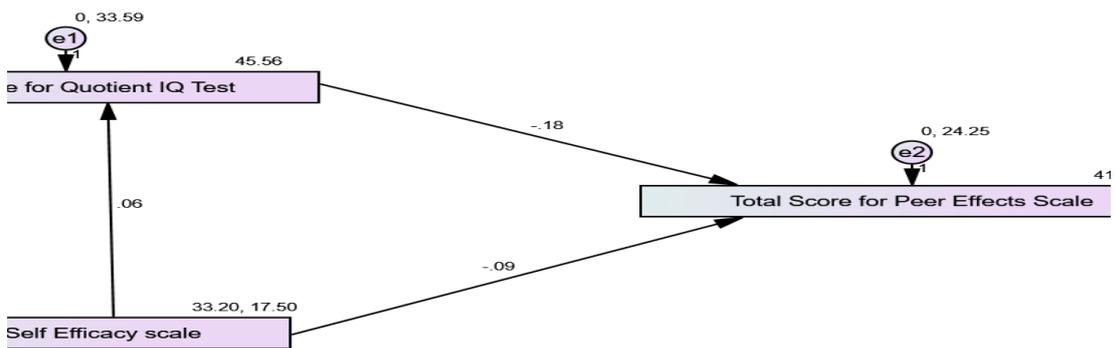
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G-Appendixes

Appendix 1: Hypothesis 1 Structural Equation



Appendix 2: Hypothesis 2 Structural Equation

