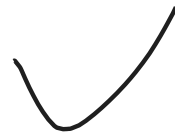




Faculty of Cognitive Sciences and Human Development

**GENDER DIFFERENCES IN ACHIEVEMENT EMOTIONS AND SELF-EFFICACY
IN LEARNING AMONG UNDERGRADUATE UNIVERSITY STUDENTS IN
MALAYSIA**



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Bachelor in Psychology

2024

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MALAYSIA**

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This project is submitted
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The project entitled '**Gender Differences in Achievement Emotions and Self-Efficacy in Learning among Undergraduate University Students in Malaysia**' was prepared by *Nurul Syafiqah Binti Sapar* and submitted to the Faculty of Cognitive Sciences and Human Development in partial fulfilment of the requirements for a Bachelor in Psychology.

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ABSTRACT

This study aimed to investigate gender differences in achievement emotions and self-efficacy in learning among undergraduate students in Malaysia and to explore their interrelationships. Utilising a quantitative survey method, questionnaires were distributed to undergraduate students in Peninsular Malaysia, Sabah, and Sarawak. The results of the independent sample t-test revealed no significant gender differences in hope, anger/frustration, and self-efficacy between male and female students, except anxiety. These findings partially support and contradict the Control-Value Theory of Achievement Emotions. The notable gender differences observed in anxiety levels underscore the need for tailored interventions.

Additionally, the study identified significant correlations between self-efficacy and positive emotions like hope and negative correlations with anxiety and anger/frustration, supporting Bandura's Self-Efficacy Theory. This research highlights the importance of addressing gender differences in achievement emotions and self-efficacy to improve educational outcomes. Future research should investigate a broader range of emotions and task value dimensions, considering cultural influences, to develop effective strategies for managing achievement emotions and fostering positive academic outcomes.

Keywords: Gender differences, Achievement emotions, Self-efficacy, Learning

ABSTRAK

Kajian ini bertujuan untuk menyiasat perbezaan jantina dalam emosi pencapaian dan efikasi sendiri dalam pembelajaran dalam kalangan pelajar prasiswazah di Malaysia dan untuk meneroka perkaitan mereka. Menggunakan kaedah tinjauan kuantitatif, borang soal selidik diedarkan kepada pelajar prasiswazah di Semenanjung Malaysia, Sabah, dan Sarawak. Keputusan ujian-t sampel menunjukkan tiada perbezaan jantina yang signifikan dalam harapan, kemarahan/kekecewaan, dan efikasi sendiri antara pelajar lelaki dan perempuan, kecuali kebimbangan. Penemuan ini sebahagiannya menyokong dan bercanggah dengan Control-Value Theory of Achievement Emotions. Perbezaan jantina yang ketara yang diperhatikan dalam tahap kebimbangan menekankan keperluan untuk intervensi yang disesuaikan.

Selain itu, kajian ini mengenal pasti korelasi yang signifikan antara efikasi sendiri dan emosi positif seperti harapan dan korelasi negatif dengan kebimbangan dan kemarahan/kekecewaan, menyokong Self-Efficacy Theory oleh Bandura. Penyelidikan ini menekankan kepentingan menangani perbezaan jantina dalam emosi pencapaian dan efikasi sendiri untuk meningkatkan hasil pembelajaran. Penyelidikan masa depan harus menyiasat emosi dengan julat yang lebih luas dan dimensi nilai tugas, mempertimbangkan pengaruh budaya, untuk membangunkan strategi yang berkesan untuk mengurus emosi pencapaian dan memupuk hasil akademik yang positif.

Kata kunci: Perbezaan jantina, Emosi pencapaian, Efikasi sendiri, Pembelajaran

CHAPTER ONE

INTRODUCTION

1.0 Introduction

The present study investigated the differences between males' and females' achievement emotions and self-efficacy in learning and examined the relationship between achievement emotions and self-efficacy. Achievement emotions are essential for learning. What are achievement emotions? Emotions students feel throughout learning, in the classroom, and achievement environments are referred to as achievement emotions (Haciomeroglu, 2019). Scholars across diverse fields, such as personality research, which has examined students' exam anxiety since the 1930s, have acknowledged the significance of emotions experienced in educational settings (Zeidner, 1998). In addition, students' moods and emotions significantly impact their health, education, motivating force, and performance in academic settings (Pekrun et al., 2002). Emotions significantly impact students' education and performance (Pekrun et al., 2011); investigating how emotions affect learning is fundamental to providing crucial information for educators, policymakers, and students (Ghaderi et al., 2022).

The control-value theory (CVT) of achievement emotions has led to an increase in scholarly interest over the last ten or so years in examining many antecedents in forecasting the permanence of learning among students (Tang et al., 2021). In various academic domains, CVT provides a thorough theoretical framework for assessing the causes and consequences of behaviours and performance associated with achievements (Tang et al., 2021). In particular, CVT indicated that essential variables in predicting learning perseverance and achievement-related performance are students' perceptions of the learning environment, control appraisals

(such as self-efficacy), and emotions (including hope, anxiety, and anger/frustration) (Pekrun, 2006).

Research has revealed gender-specific behavioural differences (Lodewyk & Muir, 2017; Fierro-Suero et al., 2023). For instance, it has been noted that, despite exceptions, there was a likelihood to identify the "obedient girl" and the "resistant boy" profiles (Barker et al., 2019, p. 886). Females placed more weight on aspects linked to external reasoning, whereas males typically ascribed their feelings to internal logic elements (Alcaraz-Munoz et al., 2017). Therefore, because gender differences existed in perceived control and academic values, there might be differences in the emotional footprints experienced by males and females (Pekrun, 2006).

As stated in the previous paragraph, self-efficacy was one of the essential factors that could impact and predict students' academic performance. Self-efficacy measures individuals' confidence in completing various academic tasks (Mutisya et al., 2016). Bandura (1986) stated that higher levels of self-efficacy corresponded to increased effort and perseverance in a task. Therefore, even with challenging assignments, students with self-efficacy and solid views on the subject were inclined to work very hard.

Educational academics have not given much attention to students' achievement emotions and self-efficacy as factors affecting their performance in a subject (Mutisya et al., 2016). Therefore, the present study's objectives are to determine gender differences in achievement emotions and self-efficacy and to identify the correlations between self-efficacy and achievement emotions among students.

1.1 Background of Study

Emotions associated with educational, occupational, or athletic accomplishment actions and consequences (success or failure) are called achievement emotions. According to previous research, achievement emotions are associated with the cognitive, self-regulation, and motivational mechanisms needed for academic achievement (Camacho-Morles et al., 2021). According to the Control-Value Theory (CVT), student participation and performance in the classroom can be impacted by achievement emotions. Moreover, emotions are claimed to affect learning techniques, self-regulation versus external regulation, motivation, and cognitive resources (Pekrun et al., 2007).

Academic settings elicit many emotions: students love learning something new, are proud of their test scores, are irritated by the homework assigned, or are bored during a boring lesson (Bieleke et al., 2021). Research focusing on the effects of achievement emotions in educational settings is growing, but there are knowledge gaps involving the mediating variables of individual differences, such as gender (Wu & Yu, 2022). The present study will identify the gender distinctions in achievement emotions and their antecedent, self-efficacy, in learning.

Effective learning interventions require understanding the sources and antecedents that cause students' positive and negative emotions. In some cases, negative emotions in students can be produced by a lack of motivation to learn, such as a lack of interest in the learning topic (Ha & So, 2023). Self-efficacy is a component that has been extensively researched as a motivational method to influence achievement emotions and performance (Pekrun et al., 2011). In existing literature, motivational approaches seek to impact students' intrinsic and extrinsic motivation, consequently boosting learning enjoyment and task engagement (Hulleman et al., 2017).

The interplay between achievement emotions and the significant predictor of students' perceived capabilities, which is self-efficacy, remains underexplored (Yu et al., 2022). Furthermore, implementing targeted interventions requires an awareness of the differences in students' self-efficacy that influence emotional experience in learning.

1.2 Problem Statement

Despite acknowledging achievement emotions' influence on learning, empirical studies comparing the achievement emotions and self-efficacy in different genders are still lacking, which limits the ability to effectively tailor educational practices to support and enhance students' emotional well-being.

The exploratory study of Marchand and Gutierrez (2011) provided evidence of the role of achievement emotions and self-efficacy in education. Until recently, there has been a relatively small amount of study about achievement emotions and self-efficacy in Malaysia's education system (Lai et al., 2021), focusing on male and female undergraduate students. The study aims to investigate the differences in male and female Malaysian students' achievement emotions (hope, anxiety, and anger/frustration), the predictor of achievement emotions (self-efficacy) in learning, and the correlation between self-efficacy and achievement emotions.

1.3 Research Objectives

1.3.1 General Objective

1. To investigate achievement emotions and self-efficacy in learning, with a particular focus on gender differences among undergraduate university students in Malaysia.
- 

1.3.2 Specific Objectives

1. To identify if there is any gender difference in the mean level of hope, anxiety, and anger/frustration in learning among students.
 2. To identify if there is any gender difference in the mean level of self-efficacy in learning among students.
 3. To examine the correlation between self-efficacy and achievement emotions (hope, anxiety, anger/frustration).
- 

1.4 Research Questions

1. Is there a gender difference in the mean level of achievement emotions among students in learning?
2. Is there a gender difference in the mean level of self-efficacy among students in learning?
3. Is there a significant correlation between self-efficacy and achievement emotions (hope, anxiety, anger/frustration)?

1.5 Research Hypotheses

H01: There is no significant gender difference in the mean level of hope among students.

H02: There is no significant gender difference in the mean level of anxiety among students.

H03: There is no significant gender difference in the mean level of anger/frustration among students.

H04: There is no significant gender difference in the mean level of self-efficacy among students.

H05: There is no significant correlation between self-efficacy and hope.

H06: There is no significant correlation between self-efficacy and anxiety.

H07: There is no significant correlation between self-efficacy and anger/frustration.

1.6 Conceptual Framework



Figure 1 Conceptual Framework of The Gender Differences in Achievement Emotions and Self-Efficacy in Learning

1.7 Significance of Study

Popular literature has drawn theoretical links between self-efficacy and achievement emotions in learning, with an emerging insight into gender-specific dynamics (Mutisya et al., 2016). The knowledge of the achievement emotions and self-efficacy in learners' learning experience, particularly considering gender differences, may lead to significant advances in the course and learning material design to create more effective, emotionally supportive, gender-inclusive learning environments, leading to improved learning outcomes. Besides that, a deeper understanding of gender-specific achievement emotions and self-efficacy in learning can contribute to strategies to boost students' engagement, motivation, and satisfaction in learning. The current study has the potential to impact educational practices and significantly improve learning quality.

1.8 Definition of Terms

1.8.1 Gender

Conceptual Definition: A broad definition of gender is a multifaceted concept encompassing gender identity and expression and social and cultural expectations about behaviour, social position, and features associated with particular sex features (National Academies, 2022).

Operational Definition: Operationally, gender is the differentiation between two genders. Gender generally refers to the precise standards or markers applied in a specific study or situation to categorise people into discrete gender groups (Australian Bureau of Statistics, 2016).



1.8.2 Achievement Emotions

Conceptual Definition: Achievement emotions bind with achievement actions or results (Pekrun et al., 2007). Because they are associated with actions and outcomes frequently evaluated by quality standards, most emotions connected to students' academic learning and accomplishment are viewed as achievement emotions by implication. (Pekrun et al, 2007).

Operational Definition: A self-report assessment tool specialised in measuring students' achievement emotions was initially developed by Pekrun and Goetz (2005). The Achievement Emotions Questionnaire (AEQ), which contains 232 items, is an established tool in educational research and beyond to assess students' achievement emotions. Hope (8 items), anxiety (12 items), and anger/frustration (6 items) are three out of eight discrete achievement emotions that can be measured using AEQ.

1.8.3 Hope

Conceptual Definition: Hope is the conviction that one can find a method to achieve one's objectives and motivate oneself to act by applying agency thinking (Snyder, 2002). Hope is the belief that things will improve and that one can change them for the better.

Operational Definition: Hope in this study will be measured using the AEQ, which consists of an 8-item scale such as “I am confident when I go to class,” “I am full of hope,” “I am optimistic that I will be able to keep up with the material,” and such others (Pekrun & Goetz, 2005).

1.8.4 Anxiety

Conceptual Definition: Feeling tense, having worried thoughts, and experiencing physical changes like high blood pressure are all signs of anxiety. The possible symptoms might include severe shaking, sweating, dizziness, or an accelerated heartbeat (Encyclopedia of Psychology, 2000).

Operational Definition: Anxiety in this study will be measured using the AEQ, which includes 12 items such as “Thinking about class makes me feel uneasy,” “I feel scared,” “I feel nervous in class,” and so on (Pekrun & Goetz, 2005).

1.8.5 Anger/frustration

Conceptual Definition: Anger/frustration is a strong emotion people experience when something goes wrong or someone wrongs them. It is usually characterised by stress, annoyance, and irritation (Ohwovoriole, 2023).

Operational Definition: Anger/frustration in this study will be measured using the AEQ, which consists of 6 items such as “I feel frustrated in class,” “I am angry”, and “Thinking about the poor quality of the course makes me angry”, among others (Pekrun & Goetz, 2005).

1.8.6 Self-efficacy

Conceptual Definition: Self-efficacy (efficacy expectations) refers to the ability to learn or perform behaviours at specific levels. Self-efficacy is a type of cognitive belief (Schunk, 2012).

Operational Definition: The motivational factor of self-efficacy will be measured using an 8-item scale adopted from the Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich, Smith, Garcia, and McKeachie (1991). The items include “I am certain that I can master the skills taught in this course”, “I believe I will receive an excellent grade in this class”, and so on.

1.9 Summary

This study investigated diverse achievement emotions, such as hope, anxiety, and anger/frustration, that could influence students’ learning experiences. It was by focusing on the interplay between achievement emotions and self-efficacy. Besides that, by addressing these objectives, the researcher could identify the emotional experiences between genders in learning.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Wu and Yu (2022) advocated for additional research on gender-specific achievement emotions and self-efficacy in learning, referencing research from general education theory and practice to illustrate the significance of comprehending emotions' sources, paths, and impacts in learning. Considering this need, research on how emotions affect learning has grown recently. In this chapter, the researcher provides previous studies on emotions in learning, the theory related to achievement emotions, the antecedents, and previous findings on gender-specific achievement emotions and self-efficacy, as well as the correlation between self-efficacy and achievement emotions.

2.1 Achievement Emotions

Most research on achievement emotions comes from studies with students in conventional classroom environments (Marchand & Antonio, 2011). Pekrun and colleagues found that undergraduate student populations' common academic emotions in class, learning, and test-related contexts include enjoyment, hope, pride, relief, fear, humiliation, hopelessness, anger, and boredom (Pekrun et al., 2011; Pekrun et al., 2002; Marchand & Antonio, 2011). Pekrun et al. (2011) found that while negative emotions like anger have been linked to lower levels of effort, lower performance, and lower levels of self-regulated techniques for learning, positive emotions like hope have been linked to higher levels of effort, self-control, intrinsic motivation, and complex learning techniques (Pekrun et al., 2009).

Students in educational settings experience these emotions in various accomplishment circumstances, including learning, doing assignments, engaging in class, or taking tests. This taxonomy's emotions affect the drive to complete specific tasks and the cognitive resources needed to concentrate attention on them (Ghaderi et al., 2022). These emotions also impact learners' self-regulation and usage of flexible learning practices (Pekrun et al., 2007).

Students' overall performance will likely drop due to debilitating negative emotions like pessimism and boredom, which limit cognitive resources, lower motivation, and enhance effortless cognitive processing (Pekrun et al., 2006). Considering emotions' short- and long-term effects on success and learning, educators and teachers must foster adaptive achievement emotions during learning and performance activities (Ghaderi et al., 2022).

2.1.1 Theory Related to Achievement Emotion

2.1.1.1 Control-Value Theory of Achievement Emotions

The control-value theory is the main theoretical framework for analysing achievement emotions (Pekrun, 2006). How achievement emotions impact students' motivational performance, performance, engagement, contentment, and accomplishment in diverse educational settings is explained by the control-value theory of achievement emotions (Pekrun et al., 2011) and how emotions in achievement events affect an individual's perceptions of control appraisals and task value (Pekrun, 2006).

1. Control appraisals refer to how people believe they can regulate their learning and task results. Control perception can range from high to low based on goal clarity, task difficulty, and the availability of resources and assistance. Control appraisals are classified into two types: action-control expectancies and action-outcome

expectancies. Action-control expectancies are frequently operationalised as self-efficacy, academic self-concept, or self-efficacy expectations (Pekrun et al., 2011).

2. Task value refers to the degree to which a person considers an activity to be significant, relevant, or interesting to them. Personal interests, relevance to future goals, and the perceived importance of the activity to others can all influence a task's perceived value (Pekrun, 2006).

Emotions experienced in achievement settings, according to the control-value theory of achievement emotions, are the outcome of the interaction between control and value. When individuals feel they are significantly in control over their actions, the likelihood for them to feel positive emotions such as hope is higher. Conversely, people who sense poor control and are undervalued are more likely to feel negative emotions (Pekrun et al., 2009).

Furthermore, the control-value theory of achievement emotion posits that environmental influences are essential for shaping students' achievement emotions and appraisals, influencing their achievement-oriented activities. For example, students who feel uneasy in the classroom are less likely to enjoy learning and feel competent, and they also express increased anxiety before exams. Over time, they are less likely to be involved in classroom achievement tasks (Tang et al., 2021).

Regarding gender differences in the correlation between control and value appraisals and achievement emotions, these factors should have an equivalent effect on achievement emotions in both males and females. Nevertheless, emotional experiences may vary depending on gender differences in perceived control and task value. A study conducted by Frenzel, Pekrun, Goetz, and von Hofe (2006) discovered that the relationships between control and value appraisals and emotions in mathematics were structurally identical for both male and

female individuals. Despite this structural similarity, girls reported significantly lower perceived control levels than boys. Consequently, girls encountered reduced enjoyment and increased anxiety and shame when it came to mathematics. The gender gaps in appraisals mediated the affective differences, supporting the theory's assumptions.

2.1.1.2 Self-Efficacy Theory

Self-efficacy beliefs, or individuals' convictions about their ability to achieve their objectives by planning particular courses of action, have been argued by social cognitive theorists to play a unique role in the adjustment of emotions (Bandura, 1997; Caprara, 2002; Caprara et al., 2022). According to the self-efficacy theory, people typically only take on activities they think they can complete and avoid taking on activities they think they will not succeed in (Bandura, 1994).

Anxiety, stress arousal, fatigue, and mood states are physiological states that reveal information about efficacy beliefs. Since people can alter their thinking, self-efficacy beliefs can also significantly affect the physiological conditions themselves (Bandura, 1994). Bandura (1997) states that when people encounter aversive thoughts and anxieties about their abilities, those adverse affective reactions may further weaken people's beliefs of their capability and cause tension and agitation that contribute to poor performance. This is not to suggest that the usual anxiety experienced before an important task is an indicator of low self-efficacy. However, strong emotional responses to a task offer clues to the expected success or failure of the result (Bandura, 1997).

2.2 Antecedents of Emotion in Learning

2.2.1 Self-efficacy

The control-value theory states that students enjoy their learning activities if they are interested and have tremendous confidence in completing them successfully (high self-efficacy). Students will feel proud of themselves When they value their accomplishments and feel responsible for their progress (Luo et al., 2016). ✓

It is believed that self-efficacy has a multiplicative role in control appraisal. For instance, if a student believes he or she can pick up knowledge in a classroom, he or she tends to experience positive emotions and persevere with class tasks and activities (Tang et al., 2021). Anxiety and enjoyment have also been identified as essential emotions in the relationship between control appraisals and achievement-related behaviours (Tang et al., 2021). ✓

2.3 Previous Findings

2.3.1 Gender-Specific Achievement Emotions

There has been little research on gender-specific distinct emotions in learning. Discrete emotions studied in higher education include enjoyment, boredom, and anger/frustration (Marchand & Antonio, 2011). Based on the study by Wu & Yu (2022), positive achievement emotions increase learning motivation, whereas negative achievement emotions have a detrimental effect on learning motivation.

The study by Fierro-Suero et al. (2023) indicates that men experience positive emotions more than women, and women experience negative emotions more than men. A moderate effect size was observed in the areas of hopelessness, anxiety, and enjoyment between both genders. Moreover, though with a negligible impact size, pride and boredom showed

substantial gender differences. Lastly, there were statistically insignificant variations regarding academic achievement and anger between the genders.

As previously indicated, according to Fierro-Suerro et al.'s analysis from 2023, both males and females had pleasant emotional experiences, with positive emotions receiving significantly higher scores than negative ones. However, the values of positive and negative emotions were significantly lower and somewhat higher in women. In this regard, there were statistically significant gender differences for every emotion investigated, except for anger, and most of these differences had medium effect sizes.

Furthermore, a study by Mutisya, Kinai, Dinga, and Mutweleli (2016) indicates significant gender differences in students' achievement emotions. Both positive and negative emotions were found to have positive and significant gender differences, with all the differences in favour of the male students. Based on the control value theory, there should be no gender differences in the relationships between control appraisals and achievement emotions. However, gender differences in perceived control and academic values lead to different emotional experiences (Frenzel et al., 2007; Mutisya et al., 2016).

2.3.2 Gender-Specific Self-Efficacy

Based on the observation of women in the workforce at all levels of public sector management, women are underrepresented in positions of administrative authority (Hartman & Barber, 2019). Besides that, the underrepresentation of women in academia and the concentration of most female academics in lower positions have long been observed (Schoen & Winocur, 1988). According to Schoen and Winocur (1988), the self-efficacy theory provides a potential explanation for the disproportionate representation of female academics in lower academic positions.

In the study investigating male and female self-efficacy by Schoen and Winocur (1988), female academics lacked confidence in completing research projects instead of teaching assignments. In addition, their confidence in conducting research was also lower than that of administrative work. While male academics were likewise most confident lecturing, they were just as confident conducting research and handling administrative duties.

However, the studies of Mahato, Gayen, and Mahato (2023), Mutisya, Kinai, Dinga, and Mutweleli (2016), and Hartman and Barber (2019) reveal that there is no significant gender difference in self-efficacy. However, the research findings from Hartman and Barber (2019) suggest that women may think they can handle difficult jobs, but this belief does not always translate into action. There could be several causes for the inaction. Although women may try to act on the assumption that they can complete tasks, obstacles are created for them by power imbalances, especially in organisations (Acker, 1998, 2008; Hartman & Barber, 2019).

2.3.3 The Relationship Between Achievement Emotions and Self-Efficacy

Concerning the correlation between self-efficacy and achievement emotions, Bandura and Schunk (1991) have explored where high self-efficacy in students would result in a relaxed manner when tackling challenging tasks because they are confident in their capacity to accomplish them, while those with low self-efficacy beliefs would become anxious and form a restricted perspective on how to handle the problem (Mutisya et al., 2016).

Zhang and Wang (2020) investigated the correlation between interest in mathematics and mathematics achievement mediated by mathematics anxiety and self-efficacy. They found that self-efficacy and subsequent mathematics anxiety partially mediated the positive correlation between interest in mathematics and mathematics achievement. According to Tang

et al.'s study (2021), students who are assured of their academic skills are less prone to worry, enjoy themselves more in class, and persist in learning calculus.

Besides that, Hacıomeroglu (2019) proves that self-efficacy and achievement emotions are closely linked. This study found that students' increased enjoyment of mathematics improved their sources of self-efficacy. They could draw lessons from these experiences regardless of how well or poorly they performed in a mathematical task. Additionally, students could control their emotions and showed less anxiety and boredom with mathematics.

2.4 Improvement in the Present Study

This study's initial objective was to test a model derived from Pekrun's (2006) and Artino's (2009a, 2009b) work, which investigated gender-specific achievement emotions and their antecedent, self-efficacy, in learning. This will give educators insight into the importance of the emotional landscape and gender differences in learning, especially as they can be indicators for assessing students' future performance and learning outcomes.



2.5 Summary

Overall, this chapter provided a deeper understanding of gender-specific achievement emotions and self-efficacy in learning by summarising previous research and outlining the essential findings.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter covered the research methodology employed in this study in more detail. There are seven sections describing the research design, population and sample, instruments, instrument structure, procedures, pilot study, data analysis procedures, descriptive data analysis, inferential data analysis, and conclusion.

3.1 Research Design

Good research designs frequently have attributes like adaptability, suitability, economy, efficiency, etc. A good study design is generally seen as one that minimises bias and maximises the dependability of the data gathered and processed (Kothari, 1988; Singh, 2021). The present study used a cross-sectional survey design to collect quantitative data. A cross-sectional study is a research design that simultaneously collects data from many people (Thomas, 2020).

Cross-sectional surveys might be considered a graphic that illustrates the topic the researcher wants to explore (Connelly, 2016). This particular survey was selected since it is both cost-effective and an excellent way for the researcher to gather many samples quickly. Research planning will be aided by the data these designs provide regarding the prevalence of exposures or outcomes. However, deducing causal relationships from cross-sectional data is difficult because exposure and results are measured only once (Setia, 2016).

A list of close-ended questionnaires was distributed among potential respondents to collect pertinent data on achievement emotions and self-efficacy in learning between males and females. A distinctive method of obtaining data from a sizable cohort was questionnaire

surveys. According to Jones et al. (2013), some of the advantages of surveys included huge populations, which resulted in increased statistical power, the capacity to gather vast amounts of data, and the accessibility of validated models.

3.2 Population and Sample

3.2.1 Location

Public and private universities in Malaysia will be the targeted location for the data collection—the rationale for this decision as the research site is that Malaysian universities provide a diverse student population, creating an ideal setting for collecting extensive data on achievement emotions and self-efficacy in learning for both male and female students across various academic fields. Focusing on institutions in Malaysia for data collecting offers significant benefits in terms of convenience of access and a wide range of diversity.

3.2.2 Population

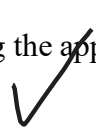
According to Banerjee and Chaudhury (2010), a target population refers to any inferences drawn from a sample applied to the designated population from which the sample was carefully chosen. A population in statistics is an entire group about which specific data must be determined. The researcher surveyed local undergraduate Institut Pengajian Tinggi (IPT) students in Malaysia in this study. Based on the information obtained from the Statistics of Higher Education 2021, the population of undergraduate students enrolled in public and private universities as of 2021 makes up 806,339. The researcher can yield a vast number of samples from this large population.

3.2.3 Sample

Sampling involves selecting specific individuals or units from the sample frame (Mesa et al., 2016). Defining the sampling strategy in advance is crucial since the chosen method can impact the sample size estimation (Krause et al., 2011; Mesa et al., 2016). A robust sampling plan is essential to prevent skewed study estimates (Suresh et al., 2011; Mesa et al., 2016).

Sampling methods are broadly categorised into probability and non-probability sampling. In probability sampling, every unit in the target population has a nonzero likelihood of being included in the study, ensuring everyone has an equal chance of selection. In contrast, non-probability sampling does not guarantee that any part of the target population will be chosen, often resulting in a non-representative sample that may not be generalisable to the broader population (Mesa et al., 2016). However, non-representative samples can still be valuable for specific research goals, such as addressing particular questions or generating new hypotheses (Rothman et al., 2013).

For this study, the sample size was determined using the table by Krejcie & Morgan (1970), with a minimum required sample size of 384 local undergraduate students in Malaysia. The study employs convenience sampling, a type of non-probability sampling, where participants are selected sequentially based on their accessibility and willingness to participate. This selection might be due to proximity, availability at a specific time, or interest in participating (Nikolopoulou, 2022). The table indicating the appropriate minimum sample size for this study is provided below:



<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Table 3.0: Krejcie & Morgan (1970) table for indicating sample size.

3.3 Instruments

Instruments are tools a study uses to collect, measure, and analyse data relevant to the research topic (Trigueros, 2017). A self-administered questionnaire has been designed for respondents to fill out independently, without any assistance from researchers, to facilitate their responses to the questions (Lavrakas, 2008; Osman et al., 2021; Rahman, 2021). In this survey, the researcher used three assessment tools adopted from previous research to identify the gender distinctions of achievement emotions and self-efficacy among students.

The inventories included in the questionnaire are the Achievement Emotion Questionnaire (AEQ) (Pekrun et al., 2005) and the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1991).

respond

3.3.1 Instrument Structure

The survey was divided into three sections: Section A, Section B, and Section C, and English will be used as the language to convey the questionnaire.

3.3.1.1 Section A: Demographic

This section covered the respondents' personal information and background. The details include gender, race, and university.

3.3.1.2 Section B: Achievement Emotions

This section of the survey relates to the feelings that participants could feel in a university classroom. The 6-item before class and 20-item during class achievement emotions are adopted from the Achievement Emotion Questionnaire (AEQ) developed by Pekrun et al. (2005). The Cronbach's Alpha value for the 8-item scale measuring Hope is $\alpha=.79$, the 6-item measuring Anger/Frustration is $\alpha=.86$, and the 12-item measuring Anxiety $\alpha=.86$ shows that all items in this survey are reliable. Respondents assess their emotional experiences using a five-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5).

3.3.1.3 Section C: Self-Efficacy for Learning and Performance

In this section, the questions were designed to ask the respondents about their motivation and attitudes about the online subject. Eight items were adopted from the Motivation Strategies for Learning Questionnaire (MSLQ) developed by Pintrich et al. (1991).

This part of the questionnaire demonstrates a high Cronbach's Alpha value ($\alpha=.93$), indicating that they are reliable. The scales range from “not at all true of me” (1) to “very true of me” (7).

Table 3.1: The Components and Criteria of the Questionnaire Sections

Section	Items	Measures	Content/Sources	Cronbach's Alpha Value
A	3	Respondents' background information	Gender, race, and university.	-
B	26	Achievement Emotions	Adopted from the Achievement Emotions Questionnaire (AEQ) by Pekrun et al. (2005)	Hope, $\alpha=.79$ Anger/Frustration, $\alpha=.86$ Anxiety, $\alpha=.86$
C	8	Self-Efficacy in Learning and Performance	Adopted from the Motivation Strategies for Learning Questionnaire (MSLQ) by Pintrich et al. (1991)	$\alpha=.93$

3.3.2 Procedures

The research participants for this study must be expressly set up, such as people or groups. According to Singh (2021), the data will be collected after the research design is decided. Quantitative methods, like instrument questionnaires, or qualitative methods, like focus groups and discussions, can be used to gather data.

In this study, the data will be gathered by utilising the instrumentation of an online survey questionnaire (Google Form). Quantitative data use numbers to depict phenomena, behaviour, or experiences in varying degrees or amounts along a continuum from less to more. This research tool can convert abstract ideas (latent variables) into measurable variables (parameters that can be quantified) and provide quantitative data (Cooper & Schindler, 2014; Fraenkel et al., 2012; Osman et al., 2021; Rahman, 2021). According to Osman et al. (2021), the quantitative approach has several benefits, including the ability to provide concrete proof, more broadly generalise data and the ability for researchers to use statistical analysis to conclude the data.

The chosen group of reachable responders will receive the questionnaire. For this study, an electronic survey will be used, and prospective respondents will receive it via social media such as WhatsApp. After contacting the participants, those who finish the web-based survey are usually directed to a website. They will use the Internet to finish the survey and submit their answers (Edmonds & Kennedy, 2016). These computerised methods of gathering data are inexpensive and time-efficient, but they both need access to technology.

Concerning research involving human participants, many ethical considerations should be considered. Ethical considerations are guidelines that direct research ideas and procedures. Researchers must adhere to ethical principles when collecting individual data (Bhandari, 2021).

On the Google Form's front page, respondents must read and agree to the informed consent provided before answering the questionnaire. They also have the right to refuse and not participate in this study. Besides that, every responder was notified that participation in the survey is entirely voluntary and that the confidentiality of all replies and information provided will be maintained.

3.4 Pilot Study

A pilot study is a small-scale study conducted to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a more extensive study (Abu et al., 2006). It serves as a preliminary experiment to assess the suitability of the instruments for the main study (Altman et al., 2006; Sundram & Romli, 2023). Therefore, when evaluating the appropriateness and quality of an instrument, validity and reliability are essential. Validation typically involves consulting experts in the research field to ensure the instrument's accuracy and validity. Reliability, conversely, entails conducting small-scale testing before using the instruments with actual samples (Pratt, 1980; Sundram & Romli, 2023).

Since pilot studies are generally not used to test hypotheses, the sample size is often not predetermined (In, 2017). However, some researchers recommend having more than 30 samples per group (Browne, 1995), while others suggest as few as 12 (Julious, 2005). Reliability is usually tested to enhance accuracy with a sample that closely resembles the actual study sample. The pilot study was conducted with 30 local undergraduate students at Universiti Malaysia Sarawak (UNIMAS).

3.5 Data Collection Procedures

3.5.1 Primary Data

Primary data were collected through an online questionnaire distributed to West Malaysia, Sabah, and Sarawak undergraduate students. The questionnaire aimed to gather specific information on gender-related achievement emotions and to explore the relationship between achievement emotions and self-efficacy. The survey comprised three main sections: demographic information, achievement emotions, and self-efficacy for learning and performance.

3.5.2 Secondary Data

Secondary data were collected from third-party sources to support and strengthen the findings by thoroughly understanding research theories and issues. This data was acquired through computer-based and library research, encompassing a variety of online and physical formats such as books, journal articles, past students' theses, public reports, and other published materials. Essential resources included the Perpustakaan Tun Abdul Rahman Ya'kub (PeTARY) at UNIMAS, the Centre of Academic Information Services (CAIS) online portal, and other websites offering public access to downloadable PDF files.

3.6 Data Analysis Procedures

Data analysis involves collecting, modelling, and evaluating data using various logical and statistical methods (Calzon, 2023). It includes the application of analytical and logical thinking to interpret the gathered data and identify patterns, correlations, and trends.

For this study, the data was analysed using the Statistical Package for the Social Sciences (SPSS version 29.0), a widely used statistical software. SPSS consists of computer programs

designed to analyse scientific data related to the social sciences. Its fast visual modelling environment allows for the creating of even the most complex models (Williams, 2023).

3.6.1 Descriptive Data Analysis

Descriptive statistics are numerical summaries that describe the characteristics of events within a sample (Thompson, 2008). They organise and summarise a data set's attributes, consisting of collected observations or responses from the entire population or a sample (Bhandari, 2020).

In this study, descriptive statistics were used to calculate measures of central tendency, summarising the data into frequencies or percentages for items from Section A: Demographic (gender), Section B: Achievement Emotions, and Section C: Self-Efficacy in Learning and Performance. Measures of central tendency estimate the centre or average of a data set, typically using mean, median, and mode (Bhandari, 2020). Additionally, frequency tables provide an overview of the findings and illustrate the variations in the collected data.

3.6.2 Inferential Data Analysis

Using numbers and inferential statistics, researchers can determine whether differences exist between two or more samples and assess the likelihood of these differences occurring in the population of interest (Thompson, 2008). Inferential statistics are frequently utilised to assess disparities across treatment groups by utilising measurements from the sample to conclude the larger population (Kuhar, 2010).

In this study, an independent sample t-test was utilised to compare the mean levels of items in Section B: Achievement Emotions and Section C: Self-efficacy for Learning and Performance between males and females. The independent sample t-test is a widely used

statistical method to assess whether the mean difference between two groups is statistically significant (Mishra et al., 2019).

Additionally, Spearman's rho coefficient (r_s) was employed to measure the linear correlation between items in Section B: Achievement Emotions and Section C: Self-efficacy for Learning and Performance. Spearman's rho is a non-parametric statistical measure that quantifies the magnitude and direction of the association between two variables. It is suitable for ordinal data and does not assume a normal distribution (Hauke & Kossowski, 2011).

3.7 Summary

In summary, this chapter summarises the research design, data collecting, and analysis techniques for the study, thereby encapsulating the critical components of the methodology chapter.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.0 Introduction

The research findings were derived from data analysis obtained from undergraduate students in Malaysia. The study aimed to compare achievement emotions and self-efficacy across male and female students and investigate the correlation between achievement emotions and self-efficacy. The discussion and argument will be connected to the objectives and hypotheses established in Chapter 1. This chapter has two main parts: demographic data and inferential data. The inferential data was divided into two categories: the differences in achievement emotions and self-efficacy between male and female students and the correlation between self-efficacy and achievement emotions.

4.1 Demographic Data

The questionnaire gathered data on various demographic attributes such as gender, race, and university. While all three elements were gathered to ensure representation from the desired population, this analysis's primary focus will be gender. The study aimed to involve 384 local undergraduate students in Malaysia; however, the researcher could only collect 321 sets of answered questionnaires due to time constraints. The data analysis is presented in Table 4.0 and *Figure 2*, which shows the frequency and percentage of respondents' gender and the overall demographic properties.

4.1.1 Gender of Respondents

Table 4.0: *Frequency and Percentage of Respondents' Gender*

Gender	<i>n</i>	%
Male	150	46.73
Female	171	53.27
Total	321	100

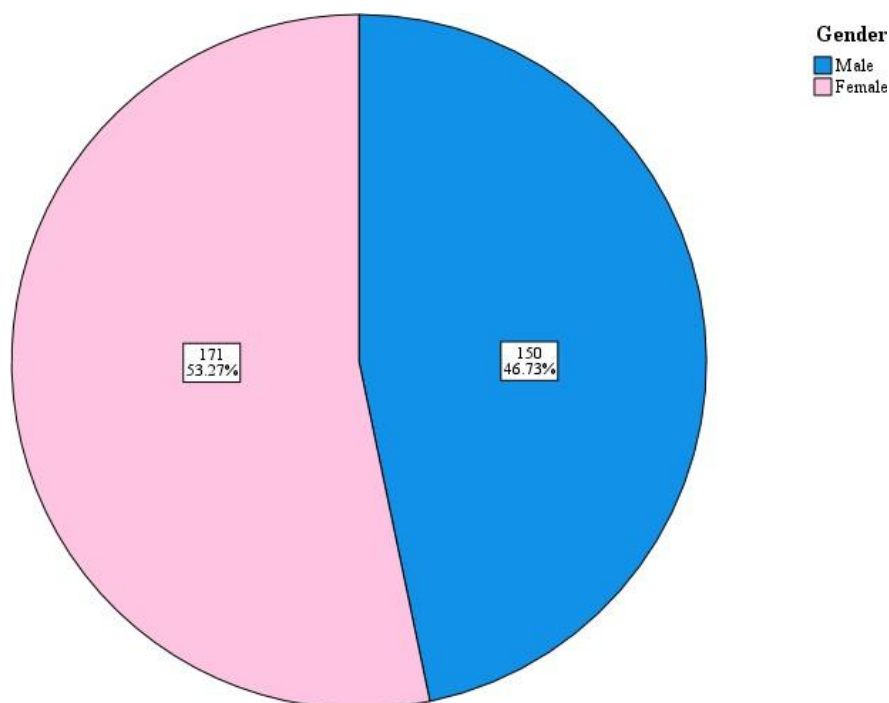


Figure 2: *Pie Chart of Respondents' Gender*

The descriptive statistics of respondents' gender were presented in Table 3 and *Figure 2*. As stated in Table 3 above, 321 respondents (150 males and 171 females) from public and private universities in Malaysia took part in this study. The balance of males and females is crucial to achieve accurate results.

4.2 Inferential Data (Main Findings)

4.2.1 Gender Differences in Achievement Emotions

Table 4.1: Statistical analysis of male and female undergraduate students scoring on achievement emotions and self-efficacy.

	Male		Female		<i>df</i>	<i>t</i>	<i>p</i>	<i>Cohen's d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>				
Hope	3.7525	.72316	3.6959	.61297	293.735	.751	.453	.085
Anxiety	2.8378	.78612	3.0058	.70430	319	-2.020	.044	-.226
Anger/Frustration	2.4389	.97612	2.3197	1.26297	293.831	1.171	.243	.132
Self-Efficacy	4.9292	1.26297	4.7281	1.15016	319	1.493	.136	.167

4.2.1.1 Discussion

H01: There is no significant gender difference in the mean level of hope among students.

The Independent Sample T-Test result above indicated that null hypothesis 1 failed to be rejected, as $p=.453$, $p>0.05$. Table 4.1 shows the mean scores of males were 3.7525, the standard deviation was .72316, while the mean scores of females were 3.6959, and the standard deviation was .61297. Due to the p-value being higher than 0.05, it indicates that there is no significant gender difference in the mean level of hope among students. This aligns with some previous research while contradicting others. ✓

Snyder & al. (1991) define hope as a combination of goal-oriented drive (agency) and strategic preparation to achieve those goals (pathways). Prior studies have discovered that hope is a characteristic that remains relatively consistent among different genders. For example,

Andersen and Smith (2022) found no substantial gender disparities in hope levels among college students, which aligns with the present discovery. In addition, Penzar et al. (2021) discovered that both male and female students demonstrate similar levels of hope in education. This implies that academic environments can potentially cultivate equivalent levels of hope regardless of gender.

However, several studies have documented differences between genders in different psychological variables. For instance, Penzar et al. (2021) discovered that male college students displayed greater hope than their female peers. These disparities are occasionally ascribed to diverse socialisation processes and standards around emotional expressiveness. Moreover, this study indicates a similar level of hope among male and female students, which partially supports the findings of Fierro-Suero et al. (2023). While Fierro-Suero et al. indicated that men experience positive emotions more than women, the results show that hope, a positive emotion, is experienced equally by both genders.

In addition, it is possible to understand the insignificant difference between male and female students by the Control-Value Theory (CVT) of Achievement Emotions, proposed by Pekrun (2006), which provides a framework for understanding emotions in academic settings. CVT proposes that students' emotions are influenced by their perceived level of control in learning activities and the importance they assign to these activities. The insignificant difference in hope between genders can be attributed to similar levels of perceived control and the importance put on academic achievement by both male and female students. According to this idea, if students have comparable educational experiences and settings, their emotional reactions, such as hope, may not vary considerably based on gender.

H02: There is no significant gender difference in the mean level of anxiety among students.

Table 4.1 clearly showed that null hypothesis 2 was rejected, with a p-value of 0.044, less than the significance level of 0.05, indicating a significant gender difference in anxiety between male and female students. The mean scores for males were 2.8378, with a standard deviation of .78612, whilst the mean scores for females were 3.0058, with a standard deviation of .70430. This implies that female students show higher levels of anxiety in educational settings compared to male students.

Multiple studies have consistently shown that females tend to report higher levels of anxiety compared to males. According to a meta-analysis conducted by McLean et al. (2011), women had almost twice as high a likelihood of experiencing anxiety disorders in comparison to men. This disparity is frequently ascribed to a combination of biological and societal influences. Investigating biological influences, studies indicate that hormonal variations and changes explicitly in estrogen and progesterone can impact the levels of anxiety experienced by women (Kundakovic & Rocks, 2022). The variations in hormones can impact the brain regions associated with anxiety and the body's response to stress which may explain the higher levels of anxiety observed in females.

Moreover, female students may encounter higher levels of academic-related anxiety as a result of societal expectations and the burden to excel academically. Research conducted by Conley and Lehman (2012) indicates that females frequently experience greater levels of academic stress, leading to increased anxiety. Women are also more prone to exhibiting perfectionistic tendencies, which are closely linked with anxiety. A study conducted by Burgess and DiBartolo (2016) revealed a positive correlation between perfectionism and higher

levels of anxiety. Additionally, it was shown that females tend to establish higher academic standards for themselves.

Apart from that, Graves et al.'s (2021) research reveals that males and females employ distinct coping strategies, with males displaying a higher tendency towards problem-focused coping, while females exhibit a greater tendency towards emotion-focused coping. Engaging in emotion-focused coping strategies can occasionally result in higher levels of anxiety, as it entails focusing on stresses instead of actively confronting them. This study also aligns with Fierro-Suero et al.'s (2023) finding that women experience more negative emotions than men.

H03: There is no significant gender difference in the mean level of anger/frustration among students.

The result above indicated that null hypothesis 3 failed to be rejected, as the p-value was .243, which is greater than 0.05. Table 4.1 shows that the mean score for males was 2.4389 with a standard deviation of .97612, while the mean score for females was 2.3197 with a standard deviation of 1.26297. Because the p-value exceeds 0.05, it suggests no significant gender difference in the mean level of anger/frustration among students. This finding is consistent with some prior research but contradicts others.

Several studies have discovered no substantial differences between genders in expressing anger/frustration. According to a study by Fischer et al. (2018), gender variations exist in how emotions are expressed and experienced. However, anger/frustration does not consistently exhibit these differences. Both males and females can feel and display anger/frustration; however, their methods may vary. A study conducted by Kobylinska and

Kusev (2019) suggests that context and situational elements frequently influence the way anger/frustration is felt and displayed, which might result in similar levels of reported anger among genders in specific locations such as educational settings.

However, several studies indicate that females report more tremendous anger, potentially attributed to their increased tendency to express it. At the same time, males experience less intense anger or express it less frequently due to better control mechanisms (Burt, 2015). Fierro-Suero et al. (2023) also noted that women tend to experience more negative emotions than men, contributing to higher expressed anger among females.

H04: There is no significant gender difference in the mean level of self-efficacy among students.

Table 4.1 shows that null hypothesis 4 could not be rejected since the p-value was .136, above 0.05. This indicates that the mean score for males was 4.9292 with a standard deviation of 1.26297, whereas the mean score for females was 4.7281 with a standard deviation of 1.15016. Given that the p-value is greater than 0.05, it suggests no significant difference in the mean self-efficacy levels between male and female students.

Huang's (2013) research revealed that gender disparities in self-efficacy frequently depend on the environment and are not universally present in all areas. Both males and females in academic contexts can demonstrate similar degrees of self-efficacy, especially in mixed-gender environments where they are exposed to the same educational experiences and opportunities. In addition, as per a study by Affuso et al. (2023), when both males and females receive equal support and resources in educational environments, their levels of self-

efficacy tend to be equal. This is because self-efficacy is significantly impacted by mastery experiences, social modelling, and verbal persuasion, all of which are equally accessible to both genders in an educational setting.

For example, mastery experiences are essential for cultivating self-efficacy. The absence of notable differences could be attributed to both genders having similar academic experiences. Bandura (1997) observed that self-efficacy is mainly developed through successful experiences. If these experiences are equally accessible to both genders, it can result in similar levels of self-efficacy.

Nevertheless, some studies have documented gender disparities in self-efficacy within particular areas. For instance, Huang (2013) discovered that males frequently express greater self-efficacy in mathematics and science, but females typically exhibit higher self-efficacy in language arts and social sciences. These differences are commonly ascribed to social prejudices and varying levels of support in different fields.

4.2.2 Correlation between Self-Efficacy and Achievement Emotions

Table 4.2: *Spearman Rank-Order Correlation between Self-efficacy and Hope*

	Mean	SD	Self-Efficacy	Hope
Self-Efficacy	4.8220	1.20648		.756**
Hope	3.7224	.66627	.756**	

** . Correlation is significant at the 0.01 level (two-tailed)



p value?

4.2.2.1 Discussion

H05: There is no significant correlation between self-efficacy and hope.

Table 4.2 demonstrates the Spearman Correlation Analysis of the relationship between self-efficacy and hope, rejecting the null Hypothesis 5. Based on the table above, the mean score for self-efficacy is 4.8220, and the standard deviation is 1.20648, while the mean score for hope is 3.7224, and the standard deviation is .66627. Besides that, the result above showed the value of the Spearman Correlation coefficient, $r_s=.756$, indicating a significant strong positive correlation between self-efficacy and hope. This means that as self-efficacy increases, the level of hope also tends to increase significantly.

According to Albert Bandura's theory, self-efficacy, which refers to the belief in one's ability to accomplish a goal or attain a desired outcome, plays a critical role in motivating individuals and promoting persistence. When individuals strongly believe in their abilities, they set more ambitious goals and tackle challenges head-on. This process inherently cultivates a feeling of hope, characterised as the perceived capacity to formulate strategies to achieve desired objectives and move oneself forward through innovative thinking (Bandura, 1997; Snyder, 2002).

Multiple research has repeatedly demonstrated a robust and affirmative correlation between self-efficacy and hope. D'Souza et al. (2020) discovered a positive correlation between high self-efficacy and a higher level of hope. Their belief in attaining their objectives promotes a higher level of optimism towards what lies ahead. This discovery reinforces the current study's observation of a substantial and favourable association.

Students with a robust sense of self-efficacy are more inclined to actively engage in demanding tasks within educational environments. Consequently, this leads to enhanced academic achievements and hope regarding their future. A study conducted by Gallagher et al. (2017) found that students who possessed higher levels of self-efficacy exhibited a greater sense of hope. This was attributed to their increased confidence in their academic capabilities and more positive outlook on attaining their academic objectives.

Table 4.3: *Correlation between Self-efficacy and Anxiety*

	Mean	SD	Self-Efficacy	Anxiety
Self-Efficacy	4.8220	1.20648		-.182**
Anxiety	2.9273	.74721	-.182**	

** . Correlation is significant at the 0.01 level (two-tailed)

4.2.2.2 Discussion

H06: There is no significant correlation between self-efficacy and anxiety.

In Table 4.3 above, the findings of the Spearman Correlation Analysis rejected null Hypothesis 6, showing a significant but weak negative correlation ($r_s = -.182$) between self-efficacy and anxiety. The mean score for self-efficacy is 4.8220 with a standard deviation of

1.20648, while the mean score and standard deviation for anxiety are 2.9273 and .74721, respectively. The result implies that higher levels of self-efficacy are associated with lower levels of anxiety.

According to Bandura (1997), self-efficacy plays a vital role in managing anxiety. Individuals who possess a high level of self-efficacy exhibit greater confidence in their capacity to handle and overcome obstacles effectively, lowering anxiety emotions.

Various research has identified a negative association between self-efficacy and anxiety. For instance, Mercader-Rubio et al. (2023) conducted a study that showed individuals with better general self-efficacy reported reduced state and trait anxiety levels. This validates the present observation of a moderately significant negative relationship between self-efficacy and anxiety.

Students who have higher degrees of self-efficacy in learning environments typically have lower levels of academic anxiety. There was a positive association between academic self-efficacy and academic achievement and a negative correlation between academic self-efficacy and anxiety (Hayat et al., 2020). This is particularly applicable to the most recent research done on undergraduate students.

Table 4.4: *Correlation between Self-Efficacy and Anger/Frustration*

	Mean	SD	Self-Efficacy	Anger/Frustration
Self-Efficacy	4.8220	1.20648		-.168**
Anger/Frustration	2.3754	.90074	-.168**	

** . Correlation is significant at the 0.01 level (two-tailed)

4.2.2.3 Discussion

H07: There is no significant correlation between self-efficacy and anger/frustration.

The Spearman Correlation Analysis above rejected the null Hypothesis 7, indicating a significant but weak negative correlation ($r_s = -0.168$) between self-efficacy and anger/frustration. As self-efficacy increases, students' anger and frustration tend to decrease slightly. The mean score for self-efficacy is 4.8220 with a standard deviation of 1.20648, while the mean score for anger/frustration is 2.3754 with a standard deviation of 0.90074.

Bandura (1997) stated that self-efficacy has an impact on emotional states. Individuals with high self-efficacy tend to view challenges as easily overcome and maintain a composed attitude when confronted with stress, leading to decreased levels of anger and frustration. They exhibit superior coping strategies, decreasing unpleasant feelings in the face of challenges.

The study conducted by Caprara et al. (2020) provides evidence that those with greater self-efficacy tend to experience reduced levels of negative emotions, such as anger/frustration. Their research revealed that persons with high self-efficacy had less anger in reaction to stressors, most likely related to their confidence in effectively handling difficulties.

In the context of education, students who possess a strong sense of self-efficacy are better at managing the pressures of academic stress, hence reducing their experiences of anger/frustration. According to a study by Lei (2022), students with stronger self-efficacy demonstrated better emotional management abilities, which led to reduced levels of anger/frustration when confronted with academic difficulties.

4.3 Summary of Findings

Table 4.5 describes the results of the hypotheses tested in this study. It includes the hypothesis statement, the statistical methods used for data analysis, and the results. The table indicates that four out of seven null hypotheses were rejected, while the remaining three were not rejected.

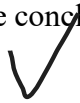
Table 4.5: The Overall Summary of the Hypotheses Testing Results

Hypothesis	Hypothesis Statement	Data Analysis Technique	Result
H01	There is no significant gender difference in the mean level of hope among students.	Independent Sample T-Test	H01 failed to be rejected, $p=.453$ ($p>0.05$)
H02	There is no significant gender difference in the mean level of anxiety among students.	Independent Sample T-Test	H02 is rejected, $p=.044$ ($p<0.05$)
H03	There is no significant gender difference in the mean level of	Independent Sample T-Test	H03 failed to be rejected, $p=.243$ ($p>0.05$)

	anger/frustration among students.		
H04	There is no significant gender difference in the mean level of self-efficacy among students.	Independent Sample T-Test	H04 failed to be rejected, $p=.136$ ($p>0.05$)
H05	There is no significant correlation between self-efficacy and hope.	Spearman's Rho Coefficient	H05 is rejected, $r_s=.756$, strong positive correlation
H06	There is no significant correlation between self-efficacy and anxiety.	Spearman's Rho Coefficient	H06 is rejected, $r_s=-.182$, weak negative correlation
H07	There is no significant correlation between self-efficacy and anger/frustration.	Spearman's Rho Coefficient	H07 is rejected, $r_s=-0.168$, weak negative correlation

4.4 Conclusion

This chapter summarises and analyses the data collected from the study. Two categories of statistical analyses were performed: descriptive and inferential. The study employed descriptive analysis to explain the contextual characteristics of the subjects. Additionally, the inferential analysis examined gender differences in achievement emotions and the relationship between self-efficacy and achievement emotions. The study employed the Independent Sample T-Test and Spearman's Rho Coefficient. The conclusions derived from this chapter are briefly outlined in the subsequent chapter.



CHAPTER FIVE

LIMITATION, IMPLICATION, RECOMMENDATION AND CONCLUSION

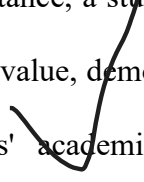
5.0 Introduction

This chapter highlights three primary concepts, summarising the analysis, providing recommendations, and concluding that the study has been effectively presented. It comprehensively examines the research, including the limitations, implications, and recommendations.



5.1 Limitations of Study

Several limitations were identified during the course of this research. A significant limitation that should be emphasised is the limited emphasis on control appraisals. As proposed by Pekrun et al. in their Control-Value theory of Achievement Emotions. This theory suggests that control appraisals and task value significantly impact achievement emotions. However, this study focuses exclusively on control appraisals, specifically self-efficacy. The study's focus on control appraisals overlooks the equally significant aspect of task value, which encompasses the individual's perception of the activity's relevance, interest, and utility (Pekrun, 2006). The significance of task value is seen in its influence on achievement emotions, including enjoyment, pride, anxiety, and boredom. Disregarding the importance of task value, the study presents an insufficient picture of the components that influence differences between genders in achievement emotions. For instance, a study by Gan et al. (2023) emphasised the correlation between self-efficacy and task value, demonstrating that both factors, individually and in combination, influenced students' academic decisions and determination. This



interaction implies that to comprehend achievement emotions fully, it is necessary to consider both aspects simultaneously.

In addition, although the recommended sample size for this study is 384 participants, the researcher could only gather data from 321 undergraduate students. The shortfall has various constraints that could affect the study's reliability and generalizability. Generalizability pertains to the degree to which the findings of a study can be generalised to the broader population. A study by Moerbeek (2021) found that increasing the sample size improves the sample's representativeness, leading to greater generalizability of the findings. Given the smaller sample size, the generalizability of the results to a larger student population may be limited.

Moreover, the study's population involves undergraduate students from various regions of Malaysia, presenting another notable limitation. This community's extensive and varied demographics may lead to environmental and cultural variations, impacting the study's findings. Regional differences can significantly impact undergraduate students' educational experiences and achievement emotions. Malaysia is a diverse nation with significant differences in educational systems, resources, and cultural norms among its various areas. Hofstede's cultural dimensions theory posits that cultural disparities might impact students' attitudes, behaviours, and emotional responses (Hofstede, 2001). Urban students may have distinct academic experiences compared to their rural peers due to differences in educational resources and opportunities. Tomaszewski et al. (2022) conducted a study that revealed that students from various regions possess unique learning styles and achieve diverse educational outcomes. This indicates that the regional context has a substantial impact on educational experiences.

Furthermore, using a quantitative approach employing close-ended questions in this study has significant limitations. Although quantitative methods are advantageous because they can gather extensive data and offer statistical analysis, they frequently fail to capture the complexity and depths of human experiences and the causal relationships between variables. It also relies heavily on the integrity and awareness of the respondents, significantly influencing the dependability of the data. The respondents' integrity and awareness significantly influence the data's dependability. Self-report surveys are vulnerable to many biases, such as social desirability bias. This prejudice occurs when respondents give answers they believe are socially acceptable or ideal rather than their genuine emotions or behaviours. According to Flom et al. (2012), self-report measures are prone to frequent procedure biases that might influence the accuracy of the results. Respondents may provide answers influenced by their perception of the researchers' expectations or their desire to present themselves favourably, resulting in biased outcomes.

5.2 Implications of Study

5.2.1 Theoretical Implications

5.2.1.1 Control-Value Theory of Achievement Emotions

The findings offer partial support for the Control-Value theory. The strong positive correlation between self-efficacy and hope and the negative relationships between self-efficacy and anxiety and anger/frustration correspond to the theory's predictions. Besides that, the absence of notable differences between genders in self-efficacy, hope, and anger/frustration also supports the theory's prediction of the expected similar emotional outcomes for both genders.

However, the rejection of null Hypothesis 2, which suggests a significant gender difference in anxiety where females experience higher levels of anxiety, partially contradicts the Control-Value theory. According to this theory, gender differences in achievement emotions may occur if both genders differ in their perceived control (self-efficacy) and value appraisals. Nevertheless, the study shows equivalent levels of self-efficacy between genders. Therefore, to provide a more comprehensive explanation for gender differences in anxiety despite similar levels of self-efficacy, the Control-Value theory should integrate the impact of other factors, such as external factors, coping strategies, and perceived support.

5.2.1.2 Self-Efficacy Theory

Bandura's Self-Efficacy Theory defines self-efficacy as confidence in one's ability to handle future events (Bandura, 1997). The results of this study demonstrate a robust and favourable association between self-efficacy and hope, which aligns with Bandura's claim that increased self-efficacy is connected to pleasant feelings and enhanced motivation. In addition, the observed inverse relationships between self-efficacy and both anxiety and anger/frustration provide further evidence for Bandura's theory. According to Bandura (1986), individuals with high self-efficacy are more capable of managing stress and difficulties, leading to a decrease in negative emotions. This study offers concrete evidence to validate these theoretical assumptions.

Moreover, the lack of significant gender differences in self-efficacy (H04) implies that self-efficacy may develop similarly among genders in this particular setting. This finding supports Bandura's idea that self-efficacy is shaped by mastery experiences, social modelling, and verbal persuasion, which are equally accessible to individuals of all genders in the educational environment studied.

5.2.2 Practical Implications

Due to the significant difference in anxiety levels across genders, educators must develop specific strategies to tackle anxiety in male and female students separately, potentially incorporating gender-sensitive methodologies. For example, given that female students are prone to experiencing increased levels of anxiety because of societal expectations, academic pressure, and perfectionism (Frost et al., 1990; Klinger et al., 2015), interventions should prioritise stress management techniques, fostering a growth mindset, and establishing a supportive classroom environment that minimises the burden of achieving perfection. On the other hand, implementing interventions tailored explicitly to male students' distinct coping mechanisms and social constraints might be helpful. This is because males frequently employ problem-focused coping mechanisms and may tend to underreport anxiety as a result of societal expectations around masculinity (Graves et al., 2021).

Next, educators should prioritise the improvement of students' self-efficacy to promote positive emotions, such as hope, and reduce negative emotions, such as anxiety and anger/frustration. Interventions focused on enhancing self-efficacy can have more comprehensive emotional advantages for students. For illustration, educators' positive feedback and encouragement can enhance students' self-efficacy. Providing constructive feedback that emphasises work and progress rather than innate ability might assist students in cultivating a development attitude and reinforcing their confidence (Bandura, 1997).

5.2.3 Policy Implications

Policies should support initiatives and provide resources that can address negative achievement emotions (such as anxiety) and foster self-efficacy and belief in one's abilities among students. Possible options may encompass mentorship initiatives designed to enhance

students' confidence in their capacity for learning. For example, implementing faculty membership facilitates the connection between students and faculty mentors. Both genders may benefit from this program by helping them overcome academic obstacles, establish attainable objectives, and cultivate a firm belief in their abilities. Faculty mentors can offer individualised support, which helps cultivate students' confidence in their skills (Lechuga, 2011) and help them develop strategies for managing anxiety in academic and social situations (Kutsyuruba & Godden, 2019).

Another example of mentorship initiatives is the implementation of peer mentoring programs. There is a widespread tendency to self-comparison with others in modern society, especially among the younger generation. These phenomena are driven mainly by the influence of social media and cultural expectations, decreasing individuals' self-efficacy and self-value. To mitigate this situation, peer mentors serve as exemplary figures who can motivate mentees by sharing personal experiences and effective coping mechanisms. This makes mentees realise they are not the only ones facing challenges and can succeed by putting in effort and showing determination (Graham et al., 2022). Instead of comparing themselves to an unrealistic representation of success depicted on social media, mentees can establish more practical and attainable goals by drawing from the experiences of their mentors.

5.3 Recommendations

Several recommendations were suggested by the researcher for subsequent research. Firstly, future studies should explore the second critical cognitive appraisal of achievement emotions task value to gain a more thorough knowledge of the factors influencing gender differences in achievement emotions. Task value comprises multiple dimensions, such as

intrinsic value (pleasure derived from the task), attainment value (significance of performing well), utility value (practical usefulness of the task), and cost (perceived effort and adverse outcomes) (Pekrun, 2006). Besides that, future research should also expand the emotional range by examining other achievement-related emotions, such as pride, boredom, and shame, to comprehensively comprehend how self-efficacy impacts a broader spectrum of emotions among different genders.

Other than that, to understand the significant difference in anxiety across genders and the lack of such differences in other emotions, future studies must investigate the underlying mechanisms thoroughly. This can entail employing qualitative methodologies to collect comprehensive insights into individual experiences and cultural backgrounds. These methods can facilitate the discovery of the rich and detailed experiences and perceptions of male and female students about their academic environment and the origins of their anxiety. Comparative studies involving students from diverse cultural backgrounds can also reveal the influence of cultural norms and values on gender-specific anxiety.

Moreover, the subsequent studies should focus on resolving the limitations found in this study, such as increasing the sample size to reach recommended thresholds and improving the generalizability of the findings. By increasing the size and diversity of the sample, the findings can be more reliably generalised to larger populations (Faber & Fonseca, 2014). This involves advocating for and representing diverse demographic groups, encompassing various age groups, socioeconomic backgrounds, and academic fields.

5.4 Conclusion

In summary, this research has highlighted several crucial insights into gender differences in achievement emotions, mainly focusing on hope/anxiety, anger/frustration, and self-efficacy. Key findings include significant correlations between self-efficacy and positive emotions like hope and negative correlations with anxiety and anger/frustration, aligning with Bandura's Self-Efficacy Theory.

Despite the absence of notable gender differences in hope, anger/frustration, and self-efficacy, the study identified significant gender variations in anxiety levels, suggesting the need for tailored interventions. Future research should expand on the exploration of task value dimensions and investigate a broader range of emotions to understand their impact across genders comprehensively.

Addressing study limitations, such as sample size and methodological rigour, will be critical in enhancing the reliability and generalizability of findings. Cultural comparative studies can provide deeper insights into how cultural norms influence emotional experiences among students.

By implementing these recommendations, future research can contribute to developing effective strategies and interventions that support students in managing achievement emotions and fostering positive academic outcomes.

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APPENDIX A

RAW SPSS OUTPUTS

- a) The Independent Sample T-Test for the gender differences in achievement emotions and self-efficacy between male and female undergraduate university students in Malaysia.

→ T-Test

[DataSet1] C:\Users\User\Documents\RMV3103 FYP 1&2 (Dr Kartini)\RMV3104 FYP2\FYP2.sav

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Anxiety	Male	150	2.8378	.78612	.06419
	Female	171	3.0058	.70430	.05386
Hope	Male	150	3.7525	.72316	.05905
	Female	171	3.6959	.61297	.04688
Anger	Male	150	2.4389	.97612	.07970
	Female	171	2.3197	.82791	.06331
SelfEfficacy	Male	150	4.9292	1.26297	.10312
	Female	171	4.7381	1.15016	.08795

Independent Samples Test											
Levene's Test for Equality of Variances				t-test for Equality of Means							
		F	Sig.	t	df	Significance One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Anxiety	Equal variances assumed	1.139	.287	-2.020	319	.022	.044	-.16807	.08319	-.33174	-.00440
	Equal variances not assumed			-2.006	301.628	.023	.046	-.16807	.08379	-.33296	-.00318
Hope	Equal variances assumed	4.247	.040	.759	319	.224	.449	.05659	.07458	-.09014	.20333
	Equal variances not assumed			.751	293.735	.227	.453	.05659	.07539	-.09178	.20497
Anger	Equal variances assumed	4.445	.036	1.184	319	.119	.237	.11920	.10070	-.07892	.31732
	Equal variances not assumed			1.171	293.831	.121	.243	.11920	.10179	-.08112	.31952
SelfEfficacy	Equal variances assumed	.981	.323	1.493	319	.068	.136	.20110	.13471	-.06393	.46613
	Equal variances not assumed			1.484	303.749	.069	.139	.20110	.13554	-.06561	.46780

Independent Samples Effect Sizes					
		Standardizer ^a	Point Estimate	95% Confidence Interval	
				Lower	Upper
Anxiety	Cohen's d	.74364	-.226	-.446	-.006
	Hedges' correction	.74540	-.225	-.445	-.006
	Glass's delta	.70430	-.239	-.459	-.018
Hope	Cohen's d	.66671	.085	-.135	.304
	Hedges' correction	.66828	.085	-.134	.303
	Glass's delta	.61297	.092	-.127	.312
Anger	Cohen's d	.90018	.132	-.087	.352
	Hedges' correction	.90230	.132	-.087	.351
	Glass's delta	.82791	.144	-.076	.364
SelfEfficacy	Cohen's d	1.20417	.167	-.053	.387
	Hedges' correction	1.20701	.167	-.053	.386
	Glass's delta	1.15016	.175	-.045	.395

a. The denominator used in estimating the effect sizes.
 Cohen's d uses the pooled standard deviation.
 Hedges' correction uses the pooled standard deviation, plus a correction factor.
 Glass's delta uses the sample standard deviation of the control group.

Frequencies

Statistics				
	Anxiety	Hope	Anger	SelfEfficacy
N	Valid	321	321	321
	Missing	0	0	0
Skewness	.230	-.198	.519	-.267
Std. Error of Skewness	.136	.136	.136	.136
Kurtosis	-.036	-.175	-.053	-.060
Std. Error of Kurtosis	.271	.271	.271	.271

b) The Spearman's Rho Coefficient for the correlation between achievement emotions and self-efficacy.

i) The correlation between hope and self-efficacy.

➔ **Nonparametric Correlations**

Correlations				
			SelfEfficacy	Hope
Spearman's rho	SelfEfficacy	Correlation Coefficient	1.000	.756**
		Sig. (2-tailed)	.	<.001
		N	321	321
	Hope	Correlation Coefficient	.756**	1.000
		Sig. (2-tailed)	<.001	.
		N	321	321

** . Correlation is significant at the 0.01 level (2-tailed).

Confidence Intervals of Spearman's rho

	Spearman's rho	Significance(2-tailed)	95% Confidence Intervals (2-tailed) ^{a,b}	
			Lower	Upper
SelfEfficacy - Hope	.756	<.001	.703	.800

a. Estimation is based on Fisher's r-to-z transformation.

b. Estimation of standard error is based on the formula proposed by Fieller, Hartley, and Pearson.

ii) The correlation between anxiety and self-efficacy.

➔ **Nonparametric Correlations**

Correlations				
			SelfEfficacy	Anxiety
Spearman's rho	SelfEfficacy	Correlation Coefficient	1.000	-.182**
		Sig. (2-tailed)	.	.001
		N	321	321
	Anxiety	Correlation Coefficient	-.182**	1.000
		Sig. (2-tailed)	.001	.
		N	321	321

** . Correlation is significant at the 0.01 level (2-tailed).

Confidence Intervals of Spearman's rho

	Spearman's rho	Significance(2-tailed)	95% Confidence Intervals (2-tailed) ^{a,b}	
			Lower	Upper
SelfEfficacy - Anxiety	-.182	.001	-.289	-.071

a. Estimation is based on Fisher's r-to-z transformation.

b. Estimation of standard error is based on the formula proposed by Fieller, Hartley, and Pearson.

iii) The correlation between anger/frustration and self-efficacy.

➔ **Nonparametric Correlations**

Correlations				
			SelfEfficacy	Anger
Spearman's rho	SelfEfficacy	Correlation Coefficient	1.000	-.168**
		Sig. (2-tailed)	.	.003
		N	321	321
	Anger	Correlation Coefficient	-.168**	1.000
		Sig. (2-tailed)	.003	.
		N	321	321

**. Correlation is significant at the 0.01 level (2-tailed).

Confidence Intervals of Spearman's rho				
	Spearman's rho	Significance(2-tailed)	95% Confidence Intervals (2-tailed) ^{a,b}	
			Lower	Upper
SelfEfficacy - Anger	-.168	.003	-.275	-.056

a. Estimation is based on Fisher's r-to-z transformation.

b. Estimation of standard error is based on the formula proposed by Fieller, Hartley, and Pearson.

APPENDIX B

MATERIALS/INSTRUMENT

a) The questionnaire used in this study was shared via Google Forms.

Gender Differences in Achievement Emotions and Self-Efficacy in Learning among Undergraduate University Students in Malaysia

Assalamualaikum w.b.t and Salam Sejahtera,
I am Nurul Syafiqah Binti Sagar, a third-year psychology student from the Faculty of Cognitive Sciences and Human Development (FCHSD) of Universiti Malaysia Sarawak (UNIMAS). I am currently conducting a Final Year Project (FYP) on Gender Differences in Achievement Emotions and Self-Efficacy in Learning among Undergraduate University Students in Malaysia.

A. Inclusion Criteria
To take part in this study, you must be:
1. A Malaysian undergraduate student (studying in Malaysia).
2. Able to understand English.
3. Able to provide consent and take part in this study.

B. Purpose of the study
The purpose of this study is to investigate "The Influence of Gender on Achievement Emotions: The Mediating Role of Self-Efficacy".

C. Disclaimer

ELECTRONIC INFORMED CONSENT FORM
(BORANG PERSETUJUAN/KEIZINAN PESERTA ELEKTRONIK)

By clicking on the "agree" button indicates that:

(Dengan menekan butang "setuju", saya mengesahkan bahawa):

1. I have been read and understood the information for the above study. (Saya telah membaca dan memahami segala maklumat maklumat tentang penyelidikan di atas).

2. I have sufficient time to consider participation in the study. (Saya telah diberikan masa yang secukupnya untuk mempertimbangkan penyertaan saya dalam penyelidikan ini).

3. I understand that my participation is voluntary, and I can freely withdraw my participation from the study without giving a reason. I understand the risks and benefits related to my participation in the study. (Saya juga faham bahawa penyertaan saya adalah secara sukarela dan pada bila-bila masa saya bebas menarik diri daripada penyelidikan ini tanpa harus memberi sebarang alasan. Saya juga memahami tentang risiko dan manfaat penyelidikan ini).

Section 2 of 4

Demographic Information

Description (optional)

Gender *

☐ Male

☐ Female

Race *

☐ Malay

☐ Chinese

☐ Indian

☐ Bumiputera Sabah

Achievement Emotions

This part of the questionnaire concerns your beliefs and opinions about the time you have spent at university up until now. There are no right or wrong answers - we are simply trying to find out how you feel and think about your university experience. Before answering the questions on the following pages, please recall some typical situations of being in class which you have experienced during the course of your studies.

Read each item carefully and RESPOND USING THE SCALE PROVIDED.

BEFORE CLASS

The following questions pertain to feelings you may experience **BEFORE** being in class. Please indicate how you feel, typically, before you go to class.

Even before class, I worry whether I will be able to understand the material. *

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

DURING CLASS

The following questions pertain to feelings you may experience **DURING** class. Please indicate how you feel, typically, during class.

I worry whether I am sufficiently prepared for the lesson. *

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

My confidence motivates me to prepare for class. *

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

I worry whether the demands might be too great. *

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

When I do not understand something important in class, my heart races. *

1 2 3 4 5

Strongly Disagree ☐ ☐ ☐ ☐ ☐ Strongly Agree

After section 3 Continue to next section

Section 4 of 4

Self-Efficacy for Learning and Performance

The following questions ask about your motivation for and attitudes about class. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, choose 7; if the statement is not all true of you, choose 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.