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Case Study of EAP Assessments and the Affective Advantages of Student Enjoyment in Hong Kong Higher Education

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Introduction

Research Background

For higher education, an array of environmental, contextual, and personal challenges have redefined the characteristics of classroom involvement, engagement, and motivation. Notably, motivation concerning ESL leaning/teaching plays a pivotal role (Al-Obaydi & Iddagoda, 2022). Forming the basis for an emotional relationship between student learning and academic performance, these changing conditions are continually shaping the educational experience, and by virtue of pedagogical, classroom, and systemic effectiveness, the performance achievements of the student body. Schillinger et al. (2021), for example, have demonstrated empirically that there is a direct, negative correlation between student anxiety and course performance, with particular vulnerabilities observed in relation to higher-pressure scenarios such as mid-term testing or end-of year examinations. Predicated upon what Goetz et al. (2008) observed as the affective influence of self-conceptualisation on student performance, it is this tension between expected and realised performance outcomes that ultimately predicts the positive or negative influence of student emotions on performance results.

Where students are presented with an array of positive and negative learning experiences, the capacity for self-regulatory behaviour plays a critical role in determining the degree to which student emotions impact (positive or negative) upon academic performance (Pekrun et al., 2011; Trigueros et al., 2020). The array of pressures and challenges encountered by students in Hong Kong's higher education community over the past two years due to the Covid-19 pandemic, remote learning, and classroom changes has resulted in varying experiences that may have direct implications for academic performance outcomes. Accordingly, the current study has applied a multi-dimensional strategy to capturing and analysing evidence related to the effects of students' emotional states on academic performance, synthesising end-of-year results from a large scale sample into a representative model of the mediative role of emotional vulnerability and support in higher education classroom settings.

Research Overview

The remaining sections progress from a literature-based, theoretical overview of the effects of student emotion on academic performance to an in-depth empirical assessment of student performance effects in Hong Kong higher education institutions. The evidence captured via this study is subsequently compared

with the theoretical foundations of the thought leaders in this diverse field of educational psychology. Through a triangulation of these results with a critical review of prior models and predictions, summative conclusions are drawn that address the core research objectives and questions, highlighting opportunities for improving engagement-oriented solutions to enhance student self-efficacy, coursework interest, and emotional positivity in future educational settings.

Research Methodology

Research Paradigm

The constructs of empirical research are inherently based upon the paradigm or worldview that focuses the investigation on problem-centred outcomes (Bryman, 2015). Positivism, for example, represents a rigid and structured philosophy derived from the natural sciences that seeks to apply replicable methods to the assessment of patterns, traits, or characteristics (Jonker & Pennink, 2010). In contrast, constructivism applies a phenomenological lens to the exploration of socially constructed phenomena, behaviours, and experiences by capturing observations and subjective perspectives (Jonker & Pennink, 2010). Whilst both of these paradigms have been adopted in academic research, for the current study, the exploration of the linkage between emotion and performance required a rigid, structured approach that could exploit a replicable instrument for current and future comparisons. Therefore, a positivist paradigm was adopted, and a purely quantitative instrument was developed for the collection and interpretation of evidence from The Hong Kong Polytechnic University College of Professional and Continuing Education.

Research Design

The research approach involved several overlapping stages including developing a structured survey instrument, identifying a sample target population, administering the survey, collecting the results, and analysing the evidence. The design of the survey instrument was adapted from Goetz et al. (2012, p. 230) who outlined five different categories of homework-related emotion (enjoyment, pride, anxiety, anger, and boredom). For the current study, however, prompts related to only three of these categories (enjoyment, anxiety, boredom) were selected, restricting the scope and quantitative variability of the outcomes. The underlying theoretical justification for this comparison between emotion and student performance is derived from Pekrun's (2006) theory of control-value, Bandura's (1997) theory of self-efficacy, and the Goetz et al. (2008) model of self-concept. Therefore, several core hypotheses were developed that could be tested quantitatively by comparing students' emotional perceptions of varying courses with their end-of-year performance outcomes:

> **Hypothesis 1:** If students have a higher level of course enjoyment, then there will be a positive performance outcome on their end-of-year scores when compared with students with lower levels of course enjoyment.
>
> **Hypothesis 2:** If students have a higher level of anxiety or nervousness during their course, then their performance outcomes will be lower than students with lower anxiety levels.
>
> **Hypothesis 3:** If students experience higher levels of boredom during the course, then their end-of-year performance will be negatively impacted when compared with students with lower boredom levels.

To test these hypotheses, three different sets of prompts were presented to students for each of the five different courses. The first set addressed enjoyment, the second boredom, and the third anxiety. The responses to each of these sets could then be compared both within each course (e.g., AI, OP, LP) or

across each of the various courses to frame the mean responses in relation to their weighted effects on both individual and grouped perceptions. Finally, the end-of-year results for each student were captured, paired with their responses to each of the 5 course-based surveys, and then analysed to determine whether there was a statistically significant relationship between any of the three dimensions (enjoyment, boredom, anxiety) and performance outcomes for each course.

Sampling and Participant Selection

The sample population for this study was constrained by several underlying conditions including the openness of the university to academic research, the willingness of the instructors to participate in this research, and the participation of the students themselves via the dedicated, online survey link. By applying what Bryman (2015) describes as a purposive, non-probabilistic sample, this study has restricted its sample population to a representative population of students attending the same course series (5 courses) at PolyU CPCE. The sample population was based upon a two-year sampling procedure that involved collecting the entire classroom results from 658 students. Although this sample target resulted in high rates of participation in some of the survey instruments (e.g., AI), for other courses (e.g., OP, LP), the participation rates were more than halved. Despite this limitation, the composite results from all participants were collected, any responses to any of the five questionnaires were accepted and subsequently paired with the end-of-year performance results. Several core traits were observed in the general demographic prompts presented to these participants:

- All of the participants were from Hong Kong
- All of the participants reported that their native language was Cantonese
- The majority of the participants reported that their non-native languages consisted of Putonghua and English

Data Analysis

The data analysis of these results involved a highly structured, multi-stage comparison of the responses to the survey instruments with student performance. Microsoft Excel was used to download and normalise the responses, eliminate any identifying information regarding the participants, and visualise the grouped responses via histograms and charting. Once normalised, the results were then exported to SPSS and were statistically analysed by applying various tests including correlation, ANOVA, and linear regression to determine the strength of any statistically significant relationships between student emotion and course performance (Bryman, 2015; Singh, 2007). To test the reliability of the results, an individual question was presented in each of the five surveys that asked the participants to select a specific response so that deviance could be weighed on the basis of a failure to follow instructions or answer intentionally. The following offers the reliability percentage for each of the five tests: AI: 95.6%, MT: 84.4%, RE: 86.8%, OP: 88.2%, LP: 78.6%. With each of these indicators over the idealised average of 70% accuracy, the results were considered reliable and internally consistent.

Results

Introduction

The statistical analysis involved several critical stages including a normalisation of data, tests of reliability and correlation, and statistical analyses including ANOVA and Linear Regression Tests. The following sections subdivide these findings into the individual courses, presenting the visual and

statistical insights provided by the participants in relation to each of the three subsets of prompts (expectations, anxiety, boredom). A subsequent comparison of participant perceptions and concerns with performative outcomes based on end-of-year data facilitates the causal interpretation of significance and effect.

Tutorial on Academic Integrity

The first of the five courses was an overview course designed to provide the students with an introduction to academic integrity expectations during their higher education career. Accordingly, it was predicted that student optimism and expectations regarding this course would be primarily positive. From an enjoyment perspective, the grouped mean of 3.46 (SD = 0.97) reported by 637 of the participants was the second highest mean response when compared with all other prompts across the other five categories, signalling a positive orientation towards the AI lesson. There was a low level of nervousness and anxiety for this course as visualised in Figure 6 with a grouped mean of 2.62 (SD = 0.954) as reported by 637 participants. Finally, the majority of the sample population disagreed with the claim that they were bored during the course on academic integrity, reporting a mean response of 2.73 (SD = 0.932).

Midterm Test

The midterm test (MT) was the first of the courses in which an end-of-year score was attained. To assess the statistical relationship between each of the three emotional dimensions and MT, a linear regression analysis was performed with each grouping of four prompts. Table 1 summarises the core results for this statistical test, highlighting statistical significance across all three elements, with boredom predicting the highest level (9%) variance in student grade performance during the course.

TABLE 1
Linear Regression Analysis MT

Regression Analysis MT				
Factor	***F***	***P***	***R Square***	***Std Error***
Enjoyment	11.99	0.00	0.07	8.39
Anxiety	3.18	0.01	0.01	8.62
Boredom	15.67	0.00	0.09	8.30

Whilst this bias would have predicted that such anxiety had a higher impact on student MT performance, the statistically larger relationship to boredom suggests a stronger, more damaging effect when students are disinterested, unmotivated, or uninspired. Through a crosstabular analysis of the data, the evidence revealed that no single student scoring over 56 on the MT reported that they were bored or could not stay awake. In contrast, testing anxiety was found to have a significant, positive effect for the student population, with 23.5% of those students scoring over 60 reporting strong levels of anxiety during the course/testing.

Research Essay

The second assessed course was the research essay (RE), the results of which are visualised in the Figure 3 histogram. Distinct from the MT, the mean score for the RE, an independent assignment of 65.03 (*SD* = 6.424) was substantially higher and suggested improved student performance for this assignment.

The linear regression analysis revealed a strong, statistically significant relationship between each of these emotional dimensions and student performance on the RE, with boredom (31%) and anxiety (17%) accounting for the most significant effects. A crosstabular comparison of the results revealed that participants who disagreed with any emotional experiences related to anxiety in these four prompts were

more likely to score lower on the RE. In fact, the highest scoring participants reported a mid-range anxiety score, whilst mid-range scorers were more likely to report high levels of anxiety. The results may indicate that for an individual assignment like the RE, moderate anxiety and nervousness is a positive motivator that can be linked to higher performing outcomes.

TABLE 2
Linear Regression Analysis RE

Regression Analysis RE				
Factor	***F***	***P***	***R Square***	***Std Error***
Enjoyment	6.21	0.00	0.07	6.38
Anxiety	13.51	0.00	0.17	6.08
Boredom	29.27	0.00	0.31	5.55

This relationship can be visualised in Figure 1 which provides a distribution histogram of the participant agreement with relation to the score range (50-78), highlighting a higher degree of upper-level performance effects associated with moderate anxiety. This figure has the legend included highlighting the degree of agreement charted against the range of scores. As the scores progress from low to high, if there is a higher frequency of agreement in higher scoring responses or a higher frequency of disagreement in lower scoring responses, then there is an outcome that draws conclusions about the effects of the weighted responses in relation to the scoring. A similar emotional response was also observed in relation to boredom, where low performance indicated that they were not bored with the RE course/assignment, whilst a small number of high performers suggested that they did feel bored across all four prompts. This finding may suggest a degree of self-confidence and self-efficacy in completing the RE that allowed some students to meet the expectations without being actively stimulated or engaged in the course.

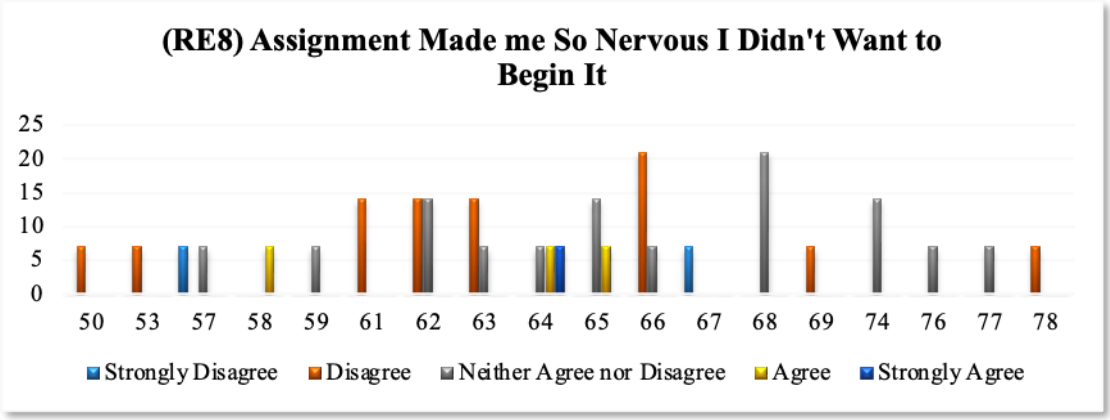

Figure 1. Frequency distribution of scores to responses to RE8.

Figures 2-4 provide visual confirmation of the response distribution across all three emotional prompt segments, with higher enjoyment, moderate anxiety, and moderate to low boredom.

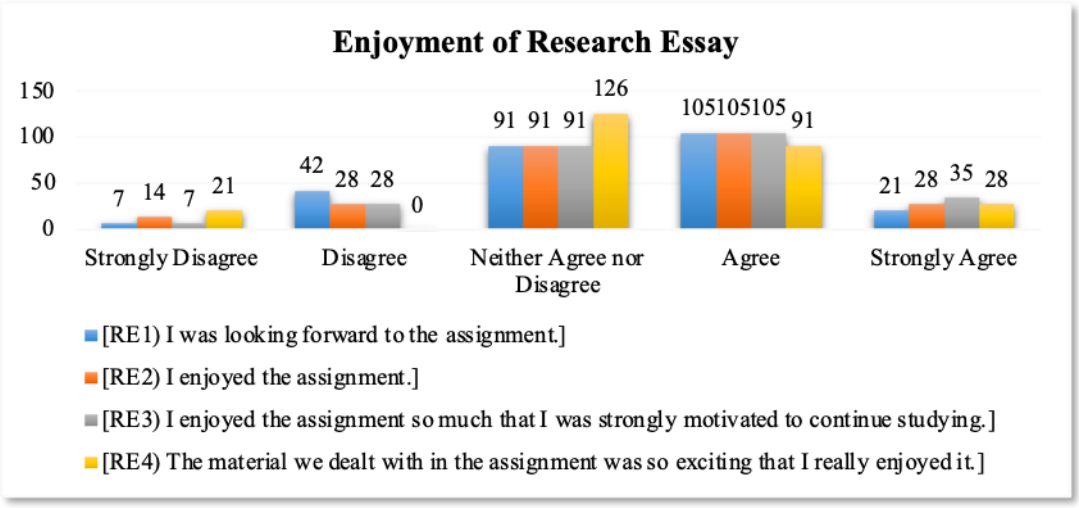

Figure 2. Enjoyment of research essay.

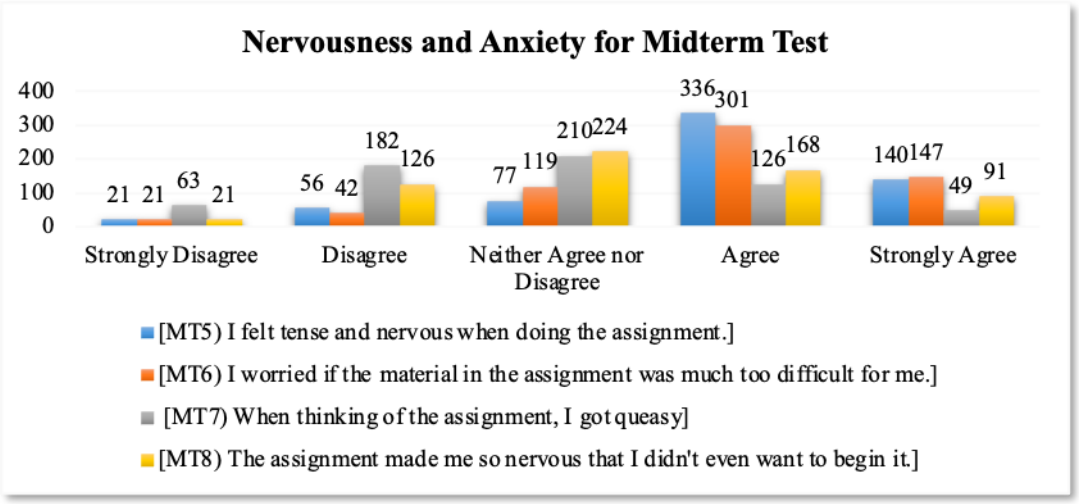

Figure 3. Nervousness and anxiety for research essay.

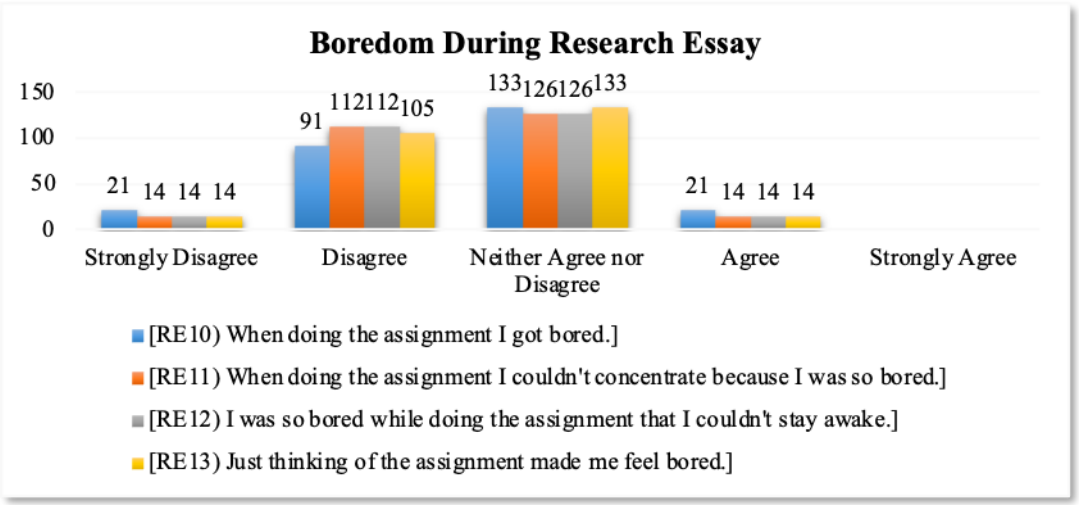

Figure 4. Boredom during research essay

Oral Presentation

The third course with performance data was the oral presentation (OP) and the performance results. Although the performance benchmark was higher than the MT and grouped similarly to the RE, the mean of 72.14 (*SD* = 5.471) was substantially higher and suggested a higher level of participant performance. The linear regression analysis confirmed that all three emotions had a statistically significant effect on OP performance, with anxiety (9%) identified as the leading impact factor, followed by boredom (6%).

A crosstabular comparison of the emotional dimensions with the student performance confirmed that nervousness (OP5) and concern about the difficulty of the materials (OP6) had more robust moderating effects on student performance than queasiness (OP7) or intense nervousness (OP8). These factors may represent a more productive representation of nerves in student experience that, similar to the RE, stimulate heightened engagement and personal investment. In relation to boredom, the crosstabular results demonstrated some degree of correlation between lower scoring participants, with a lack of boredom reflected by disagreement contributing to a lower score. However, because there was not strong agreement with any of these four statements, the direct effect of boredom on the performance outcomes cannot be accurately represented by these responses.

TABLE 3
Regression Analysis OP

Regression Analysis OP				
Factor	***F***	***P***	***R Square***	***Std Error***
Enjoyment	3.82	0.01	0.06	5.25
Anxiety	6.79	0.00	0.09	5.13
Boredom	5.79	0.00	0.06	5.22

Self-Directed Learning

The fifth and final course assessed in these results was the self-directed learning exercise that encouraged autonomous and active student responsibility for goal achievement. The result of this exercise involved a much higher performance threshold than other courses with a mean score of 89.97 (*SD* = 11.592).

The results of the linear regression analysis revealed in table 4 confirmed a statistically significant relationship with each of these three emotional dimensions, with enjoyment (10%) reflecting the highest level of impact and boredom (9%) following in a secondary position. Distinct from the previous courses, anxiety played the least significant influence in student performance outcomes, suggesting a higher level of confidence or self-efficacy with such exercises.

TABLE 4
Regression Analysis LP

Regression Analysis LP				
Factor	***F***	***P***	***R Square***	***Std Error***
Enjoyment	8.29	0.00	0.10	8.71
Anxiety	2.75	0.03	0.02	9.02
Boredom	7.93	0.00	0.09	8.73

Grouped Comparison of Means

As presented in the preceding sections, the mean results for each of these various courses varied significantly, with emotional dimensions contributing differently to student performance outcomes in each of the specific exercises. Importantly, the evidence indicates that the students achieved better in self-directed courses than in those that required rote memorisation or test-taking, suggesting that when confronted with outside uncertainties, performance anxiety and a lack of perceived self-efficacy were likely to inhibit higher performance achievement.

TABLE 9
Grouped Comparison of Means for Each Course Across Three Dimensions

Comparison of Mean Scores for Each Course Across 3 Dimensions												
Group	**AI**				**MT**				**RE**			
	Mean	SD	Score Mean	SD	Mean	SD	Score Mean	SD	Mean	SD	Score Mean	SD
Enjoyment	3.46	0.97	P/F	N.A.	2.78	1.10	65.03	6.42	3.41	0.96	65.03	6.42
Student Boredom	2.73	0.93			2.51	0.91			2.55	0.70		
Nervousness and Anxiety	2.62	0.95			3.45	1.02			2.82	0.90		
Group	**OP**				**LP**				**Total Course**			
	Mean	SD	Score Mean	SD	Mean	SD	Score Mean	SD	Overall Subject Mark: Mean = 63.09, SD = 8.155			
Enjoyment	3.38	0.85	72.14	5.47	3.48	0.71	89.97	11.59				
Student Boredom	2.33	0.73			2.66	0.72						
Nervousness and Anxiety	2.70	0.91			2.36	0.85						

Discussion

These findings mirror the evidence presented by Goetz et al. (2012) who confirmed the mediative effect of student self-concept on emotional experiences in higher education classrooms. Whereas such prior research attempted to draw comparisons between homework and classroom experiences, the current study has focused on the specific relationship between classroom emotions of enjoyment, anxiety, and boredom on student academic performance over the given term period. In fact, Goetz et al. (2012) proposed that such research could be used to illuminate the mediative relationship between emotions and student performance if researchers restricted their investigation to either classroom or homework-based settings. These findings have confirmed a strong, statistical relationship between student emotions and positive academic outcomes. Specifically, the evidence demonstrates variations between the targeted emotional indicators (enjoyment, anxiety, boredom) suggesting that the negative effects of boredom and anxiety are more pronounced in relation to performance than the positive effects of enjoyment. This finding may be a reflection of expectancy effects, whereby students expected to enjoy their courses, expected specific motivating experiences, and expected positive academic outcomes, but instead were presented with a negative or sub-optimal academic outcome.

When re-classified as constructive or potentially destructive, the five courses that were assessed over this study revealed further performance-affecting insights that allow for deeper interpretations to be drawn. Goetz et al. (2008) proposed that the effects of key emotional traits such as anxiety (stress) and boredom on student performance were likely to have negative effects that required active mediation at the pedagogical or systemic levels. This phenomenon was observed in the current study, as negative emotional responses to courses with lower levels of autonomy and self-direction were found to exacerbate student anxiety and boredom. Further, when students with higher self-efficacy and self-conceptualisation as measured by performance and affirmative responses completed self-directed courses, they were more likely to achieve higher performance.

Conclusion

This study has introduced a novel and potentially controversial proposition: there is a moderate degree of anxiety that is needed to affect student engagement in higher education coursework. The dilutive effects of negative emotional triggers such as boredom, frustration, and anxiety have been confirmed by prior research such as Pekun et al. (2011) who highlighted the critical role played by positive emotional

moderators in student performance outcomes. Further, Lee and List (2021) have demonstrated how positive self-efficacy can be linked to subjective expectations and task performance satisfaction as students develop the confidence and motivation to achieve desirable outcomes. The evidence presented by Schillinger et al. (2021) confirmed that student anxiety results in an interference effect that, when coupled with a deficient self-concept or lack of confidence, has been found to have negative impacts on performative outcomes. The concept of 'test' or 'examination', by default, is shown to inspire anxiety, and for students who are confronted with the need or expectation to perform (e.g., to achieve the desired grade, to meet self or peer expectations), then the consequences of a negative emotional response to test-taking are likely to negatively impact their performance (Schillinger et al., 2021; Wu & Lee, 2017). Therefore, by instilling a heightened sense of self-efficacy, control, and self-conceptualisation in students, other positive outcomes associated with resilience, engagement, and motivation are likely to positively effect performative outcomes.

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