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Article

Student-Teachers' Perceptions of the Educational Environment at Phnom Penh Teacher Education College (PTEC): A DREEM-Based Study

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ABSTRACT

Phnom Penh Teacher Education College (PTEC) is well-known as an institution in Cambodia and it is the first institute that establish to promote teachers' qualification and teaching quality. This study aimed to explore how the surrounding environment at Phnom Penh Teacher Education College (PTEC) affected student-teachers' perception of their learning and teaching. The instrument in this study was used questionnaire, which adapted from the previous relevant topic. Likert scale was utilized to evaluate 207 individuals who were student-teachers. Utilizing five DREEM domains of gender, accommodation, and qualification. The result revealed that there were no differences in the student's perspective. Students claimed that the surrounding environment was acceptable in total. Researcher strongly recommend DREEM instrument to assess the surrounding environment in the university or college because it may be helpful to address and deal with this particular problem. The further research should focus on lecturers who work there to illustrate their perspective on surrounding environment at PTEC.

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INTRODUCTION

The educational environment plays an essential in shaping student prediction and determination of instruction, education, and studying (Villarreal Arroyo et al., 2023). The academic universities are evaluated by the determine to bring a qualification and student-centered approach (Nghia et al., 2020). The educational environment is the most important of student impact on the academic achievement, inspiration, and learning outcome (Kassab et al., 2024). High-quality education may be established and can help students succeed in the future in positive circumstances (Engida et al., 2024). The study conducted in Vietnam illustrated that student perceived the significant of educational environment and accepted the improvement of this approach (Hue et al., 2024). The study conducted in Wuhan University demonstrated that undergraduate student provided positive respond rather than negative aspect of educational environment (Xu & Yang, 2022). The studies carried out all around the world demonstrate that educational environment aims in the development of a positive outlook and a desire for knowledge. Additionally, this has a favorable effect on how well students learn (Pamularsih, 2022). Based on this finding, the researchers in this study navigate a particular gap in Cambodia context.

A key component in promoting student learning and success is teaching behavior (Cents-Boonstra et al., 2021). Teachers play a crucial role in shaping students' motivation and interaction (Brandmiller et al., 2024). In order to extend individual student's achievement to avoid declining enrollment, failing grades, or dropping out of school, as a teacher should ensure their students interact during the learning process Sun et al. (2022) discovered that a teacher's level of experience positively impacted students' academic performance. Learning and knowledge acquisition are not limited to the style of instruction or the design of the classroom; they also involve the sort of connection that develops between the teachers and the students. It is essential to acknowledge that the quality of learning is influenced by the teacher's influence over the students. It is vital to comprehend the many educational patterns and the greatest resources that may be offered to the students studying in that specific educational setup in order to have a better perspective and concentrate on improving the educational institution. Global research indicates that a supportive educational environment fosters the growth of a positive outlook and a desire to learn. Additionally, this improves the caliber of learning (Kember et al., 2010).

Educational environment is very important to solve the significant issue, enhance student learning outcome in various institution. Recent study was utilized DREEM to diagnose students' perspective about their educational environment. In this study wants to illustrate the students' impressions of the educational environment and it will evaluate by the essential components of their learning, teachers, academic performance, and society.

The purpose of this study wanted to determine the students' perception of their educational environment by reflexing core four components such as their learning, their teachers, their academic performance, and their society at Phnom Penh Teacher Education College. One more, this study also wanted to portray the reliability and validity of the research instrument for assessing the educational environment in field of education.

METHOD

Research design

The study utilized a quantitative research design (Creswell, 2013). Research conducted to examine the investigation of the educational environment on students' perceptions of their learning, their teachers, their academic performance, and their society at Phnom Penh Teacher Education College.

Instrument

This research used the instrument, which was adapted for Singh et al. (2023). This questionnaire was used to evaluate the students' perception of the educational environment because this research tool constructed by the expert to assess students' perception the previous domains.

Participants

The study involved 207 participants from the student-teachers were undergraduate students at Phnom Penh Teacher Education College which selected by purposive sampling technique since it saves time and resourch. Moreover, it is not convenient to collect data at my institution. Otherwise, the researchers decide to choose this technique in this study.

The Procedure of Data Collection

The DREEM questionnaire was sent via telegram to the participants through a Google form (<https://forms.gle/ptLrJBEBcH181XWh8>) (Singh et al., 2023). Moreover, researchers have written to inform the student-teachers before the data collection. Researchers also illustrated the process to fill this questionnaire.

Structure of the questionnaire

There were three sections to the DREEM questionnaire, each including 50 items. There were 20 items in each of the first and second segments, however there were only 10 in the third. This questionnaire has designed into five domains such as the perception of their learning,

perception of their teacher, perception of their academic self-awareness, perception of the educational environment, and perception of social.

Relevant components of educational environment were covered by DREEM items. Included in the questionnaire were illustrated various information such as gender, qualification, and accommodation (on campus versus off campus).

There are five Likert-type replies for each topic, with 1 denoting "strongly disagree," 2 disagree, 3 neutral, 4 agree, and 5 representing "strongly agree." Nine negatively phrased items on the DREEM are scored in reverse order prior to analysis and interpretation.

Data Analysis

To determine the quality of research instrument, we utilized the Cronbach Alpha Analysis, which meant to show the validity of this research tool. In addition, the we also conducted Exploratory Factor Analysis and Confirmatory Factor Analysis (Hair et al., 2019). The particular reason to run EFA is different contextual environment may affect each domains.

The researchers analyzed the responses from the participants using a Likert scale to evaluate students' perceptions in three DREEM categories: accommodation, gender, and level of study. For every comparison, means produced with the SPSS were utilized. We converted the participants respond into the ordinal number and the result revealed by the descriptive statistic such mean score, overall score of all items. The researchers were also conducted the descriptive statistic was utilized to demonstrate the significance of each group.

RESULTS AND DISCUSSION

Result

The educational environment of Phnom Penh Teacher Education was assessed by 207 student-teachers utilizing the questionnaire. As what mention previously, this questionnaire was divided into five categories that had average scores and standard deviations that were determined using the scores student-teachers had provide via the online procedure on google form. From the tables 1, 2, and 3 give all demographic data, including gender, accommodation, and level of study, together with Averages Score, Standard Deviations, and P-values.

The differences between gender and place of accommodation

According to table 1, reveals that more than 31 questions have higher than 4 and only 2 questions have score lower than 3. The question which asked that "The teaching helps to develop my competence" received the highest rating. The DREEM perceptions of students were examined to look for variations in the opinions of male and female students and students at various accommodations. T-test for independent samples was utilized for each DREEM domain to compare students of various genders and surviving at different accommodations, illustrating the results shown in Table 2.

The comparison between male and female student-teachers

According to the table 2, revealed that there were no significant differences between male and female on student-teachers` perception on the educational environment categories: their learning, their teachers, their academic, the institution environment, and social perception (Table 2).

The comparison between student-teachers who stay at campus and off campus

According to table 2, the statistical analysis of p-value illustrated that there were nonsignificant differences between student-teachers who stay on campus and off campus for four categories of DREEM, but there was significance different for one category.

The comparison between the various of student-teachers` majors

According to table 3, showed about five categories of DREEM related to student-teachers` majors of study. There are two different type of study including primary and secondary student-teachers.

Based on the independent sample t-test were conducted from 207 sample size illustrated that there were insignificant differences, which meant ($p < 0.05$) cover four categories DREEM

regarding to the student-teachers' major while the perception of teachers was significant (Table 3).

Table 1. Mean and Standard Deviation for all of DREEM items

Item	Mean	Standard Deviation
Student-Teachers' perception of their learning		
Q7. The teaching is frequently engaging and hand-on	4.17	0.53
Q13. The teaching is interactive and modern	4.25	0.51
Q16. The teaching genuinely enhances my ability	4.26	0.49
Q18. The teachers close to students	4.11	0.52
Q20. The teaching extremely contributes to develop student	4.07	0.46
Q22. The teaching has built my confident skill	4.09	0.42
Q25. The teaching is correlated with daily life	4.15	0.50
Q26. The teachers are well-prepared during this academic year	3.99	0.52
Q29. The teachers always provide positive improvement	4.07	0.46
Q30. The teaching provides me an opportunity to gain my interactive skill	4.04	0.49
Q31. The teachers have taught me a lot regarding empathy	4.18	0.44
Q32. The teachers open minded for criticism	4.16	0.49
Q40. The teachers are always ready for their teaching	4.03	0.49
Q44. The teaching inspires me to be active during studying	4.07	0.45
Q45. I have learnt practical knowledge rather than content knowledge	4.13	0.46
Q49. I am strongly confident to ask whatever I want	4.15	0.54
Student-Teachers' perception of their educational environment		
Q11. The environment is pretty enjoyable and relaxed	3.84	0.59
Q12. The curriculum is well-organize	3.92	0.46
Q15. I have numerous close friends in this institution	4.00	0.64
Q23. The environment supports our learning	3.87	0.56
Q33. I am energetic while studying	3.86	0.57
Q34. The environment is acceptable for whole semester	3.86	0.55
Q36. I can stay focus on my lesson well	3.77	0.55
Q38. I have known about the program before I study	3.80	0.50
Q42. The program design to be more excited rather than stress out	3.72	0.57
Q46. My dorm is easily to survive	3.81	0.58
Student-Teachers' perception of their academic performance		
Q5. I have my own technique to study	3.92	0.51
Q10. I am strongly confident in my upcoming examination	4.21	0.54
Q19. I have a good communication with my classmate	3.96	0.51
Q21. I am strongly confident, I will become a good teacher	4.02	0.41
Q48. I am strong confident enough to do whatever I want	3.85	0.58
Student-Teachers' perception of their teachers		
Q2. The teachers are knowledgeable	4.13	0.46
Q4. I am boring in my teaching session	3.17	0.86
Q8. Teachers are careless about students	4.24	0.63
Q9. The teachers are strict during teaching session	3.88	0.69
Q17. Cheating always happens in the exam	2.84	0.96
Q35. I occasionally feel frustrated through their teaching	2.63	0.79
Q39. The teachers are easily sensitive during their session	3.48	1.02
Q50. The students do not appreciate their teachers	3.94	0.65
Student-Teachers' preception of their society		
Q1. I am motivated by the educational environment	4.04	0.49
Q14. I am barely dissapionted my educational environment	3.13	0.93
Q28. I rarely feel lonely and stresful	3.18	0.91

Table 2. The Comparison between of Gender and Accommodation through DREEM Categories

DREEM Categories	Difference of Gender	Difference of Accommodation
Student-Teachers' perception of their own learning	p=0.432>0.05	p=0.494>0.05
Student-Teachers' perception of their teachers	p=0.488>0.05	p=0.018<0.05
Student-Teachers' perception of their academic performance	p=0.527>0.05	p=0.930>0.05
Student-Teachers' perception of their educational environment	p=0.295>0.05	p=0.720>0.05
Student-Teachers' perception of their society	p=0.244>0.05	p=0.772>0.05

Table 3. The Comparison between Primary and Secondary through Mean and Standard Deviation

Qualification	Student-Teachers' perception of their learning	Student-Teachers' perception of their teachers	Student-Teachers' perception of their academic performance	Student-Teachers' perception of their educational environment	Student-Teachers' perception of their society
Primary	4.15 $\bar{\pm}$ 0.30	3.57 $\bar{\pm}$ 0.44	3.97 $\bar{\pm}$ 0.32	3.84 $\bar{\pm}$ 0.34	3.46 $\bar{\pm}$ 0.58
Secondary	4.05 $\bar{\pm}$ 0.32	3.48 $\bar{\pm}$ 0.38	4.03 $\bar{\pm}$ 0.35	3.84 $\bar{\pm}$ 0.37	3.43 $\bar{\pm}$ 0.60
Significant difference between level	p=0.027<0.05	P=0.188>0.05	P=0.269>0.05	P=0.978>0.05	P=0.802>0.05

The Cronbach Alpha was utilized to discover the reliability of the questionnaire and it was created by Cronbach (1970). Basically, the research instrument is considered reliable as long as the Alpha is over 0.5. In this study found that the Alpha value was higher than 0.9. KMO is used to evaluate the appropriate sample size in quantitative research Bartlett (1954). In our study examined the KMO value result was 0.87. According to Bartlett (1954) suggested that this sample was suitable to analyze.

Moreover, this study also revealed about the validity of the research tool by using CFA, which is known as construct validity. Based on Roff et al. (1997) observed that the structure of the DREEM had a low goodness-of-fit as indicated by the following measures: RMR=0.072, RMSEA =0.054, AIC=12592.793, BIC=13046.043, TLI=0.806, Chi-Square (p<0.001), CFI=0.818. It illustrated that this research tool was acceptable. The original of DREEM items were not belong to the same categories, as pointed out by the factor loading between 0.135-0.740. According to table 4 shows that every factor that came from confirmatory factor analysis had a strong association.

Based on CFA components reveal that the original DREEM factors have high correlation and strong factor loading. To validate and illustrate the reliable of the questionnaire EFA using to add more reliability. According to table 4 shows about the value of factor loading for DREEM original items from Q1 until Q5. First rotation of EFA emphasizes that there are fourteen factors with the reliability value 0.90. After statistical analysis, only five criteria were determined to be legitimate. Then, after second rotation of EFA, we received only categories or factors that appropriate factor loading.

Table 4 provides the factor loadings and commonality. Some items (Q3, Q6, Q24, Q27, Q37, Q41, Q43, and Q47) were eliminated from the original DREEM questionnaire due to extremely low factor loadings. The following is a list of the updated suggested DREEM factors (domains and items):

Factor 1: student-teachers' perception of their learning

- Q7. The teaching is frequently engaging and hand-on I
- Q13. The teaching is interactive and modern I
- Q16. The teaching genuinely enhances my ability I
- Q18. The teachers close to students II

- Q20. The teaching extremely contributes to develop student I
- Q22. The teaching has built my confident skill I
- Q25. The teaching is correlated with daily life I
- Q26. The teachers are well-prepared during this academic year III
- Q29. The teachers always provide positive improvement II
- Q30. The teaching provides me an opportunity to gain my interactive skill IV
- Q31. The teachers have taught me a lot regarding empathy III
- Q32. The teachers open minded for criticism II
- Q40. The teachers are always ready for their teaching II
- Q44. The teaching inspires me to be active during studying I
- Q45. I have learnt practical knowledge rather than content knowledge III
- Q49. I am strongly confident to ask whatever I want IV

Factor 2: student-teachers' perception of their academic performance

- Q5. I have my own technique to study III
- Q10. I am strongly confident in my upcoming examination III
- Q19. I have a good communication with my classmate V
- Q21. I am strongly confident, I will become a good teacher III
- Q48. I am strong confident enough to do whatever I want I

Factor 3: student-teachers' perception of their society

- Q1. I am motivated by the educational environment I
- Q14. I am barely disappointed my educational environment V
- Q28. I rarely feel lonely and stressful V

Factor 4: student-teachers' perception of their educational environment

- Q11. The educational environment is pretty enjoyable and relaxed IV
- Q12. The curriculum is well-organize IV
- Q15. I have numerous close friends in this institution V
- Q23. The environment supports our learning IV
- Q33. I am energetic while studying IV
- Q34. The environment is acceptable for whole semester IV
- Q36. I can stay focus on my lesson well IV
- Q38. I have known about the program before I study I
- Q42. The program design to be more excited rather than stress out IV
- Q46. My dorm is easily to survive V

Factor 5: student-teachers' perception of their teachers

- Q2. The teachers are knowledgeable II
- Q4. I am boring in my teaching session V
- Q8. Teachers are careless about students II
- Q9. The teachers are strict during teaching session II
- Q17. Cheating always happens in the exam I
- Q35. I occasionally feel frustrated through their teaching IV
- Q39. The teachers are easily sensitive during their session II
- Q50. The students do not appreciate their teachers II

Table 4. Factor Loadings Eigenvalues, Percentage of Variance, and Conbach's Alpha Values

Item	Factor loading					α
	Student-teachers' perception of their learning	Student-teachers' perception of their educational environment	Student-teachers' perception of their academic performance	Student-teachers' perception of their teacher	Student-teachers' perception of their society	
Student-teachers' perception of their learning						0.90
Q7	0.52					
Q13	0.44					
Q16	0.60					
Q18	0.56					
Q20	0.62					
Q22	0.53					
Q25	0.60					
Q26	0.41					
Q29	0.64					
Q30	0.56					
Q31	0.62					
Q32	0.63					
Q40	0.64					
Q44	0.46					
Q45	0.51					
Q49	0.47					
Student-teachers' perception of their educational environment						0.83
Q11		0.55				
Q12		0.44				
Q15		0.47				
Q23		0.50				
Q33		0.71				
Q34		0.73				
Q36		0.54				
Q38		0.44				
Q42		0.49				
Q46		0.45				
Student-teachers' perception of their academic performance						0.64
Q5			0.47			
Q10			0.44			
Q19			0.56			
Q21			0.60			
Q48			0.51			
Student-teachers' perception of their teachers						0.66
Q2				0.47		
Q4				0.51		
Q8				0.55		
Q9				0.51		
Q17				0.49		
Q35				0.45		
Q39				0.58		
Q50				0.49		
Student-teachers' perception of their society						0.56
Q1					0.49	
Q14					0.58	
Q28					0.65	
Eigenvalue	12.80	3.01	1.88	1.64	1.48	
%Variance	25.59	6.01	3.76	3.28	2.96	

In the first category of the DREEM domain has six teen items of the student-teachers' perception of their learning, with the variance value of 25.59% and the Cronbach Alpha of 0.90. Regarding this particular value, it illustrates that the highest of reliability of DREEM

component. Q40 is the highest factor loading in this category, with says that "The teachers are always ready for their teaching". The next high factor loading value after Q40 is Q32 and Q31, with the state that "The teachers open minded for criticism" and "The teachers have taught me a lot regarding empathy" respectively. The lowest item in this domain is Q26, "The teachers are well-prepared during this academic year" (Table 4).

The second category of DREEM domain is student-teachers` perception of their academic performance, there are five items and it reveals the variance value of 3.76% with the Cronbach Alpha value of 0.64. The highest item loading factor is the state that, "I am strongly confident, I will become a good teacher", with the value of factor loading 0.60 and the second highest is the item Q19. The lowest score is Q10, which mentions that "I am strongly confident in my upcoming examination"

Factor 3 is represented by student-teachers` perception of their society is the third domain of DREEM category, containing only three items, reveals 2.96% of variance and the Cronbach Alpha value of this domain is 0.56. The high rate of this domain is Q28, which says that "I rarely feel lonely and stressful", with the value of factor loading 0.65. The following factor loading states that "I am barely disappointed my educational environment", with the value 0.58.

There are ten items of the fourth DREEM domain, which represents student-teachers` perception of educational environment shows the variation of 6.01% with the value of Cronbach Alpha is 0.83 the second highest mark. While Q34 is the item that gets the highest rate among all the items. The question states that "The environment is acceptable for whole semester", receives the biggest rating, with the value of 0.73. While Q33 is the second greatest item, with the value of factor loading 0.71, which asks that "I am energetic while studying".

The last factor is represented by student-teachers` perception of their teachers. There are eight items containing in this domain, with the variation of 3.28%, and the value of Cronbach Alpha is 0.66. The item Q39 receives the greatest factor loading, which states that "The teachers are easily sensitive during their session" with the loading value of 0.58. The second highest score is Q8, with the value of the factor loading 0.55, which says that " Teachers are careless about students" and the lowest factor loading is Q35, with the value of 0.45, the statement states that " I occasionally feel frustrated through their teaching".

Discussion

We can interpret our results regarding student-teachers` perception of the educational environment according to the important parts of two research questions. Student-teacher`s perception of their school and the correlation between them and their tutors were considered to have an effect on the learning performance of our educational environment (Edgerton & McKechnie, 2023). Utilizing DREEM to validate the original form of questions containing five categories on all student-teachers including their previous study, personal background, and other points, the purpose of the study was conducted to defined how student-teachers realize and understand about their educational environment.

DREEM categories including perception of their learning, teacher, academic performance, educational environment, and society resembled male and female students. According to Gedamu et al. (2024) found that there were no significant differences between male and female in the DREEM categories. On the contrary, Xavier et al. (2016) revealed that in the total DREEM domain score was significant differences between sexes. Despite the particular fact that we observed elementary and secondary student-teachers in our study, it illustrated that there were no significant differences between male and female rating.

Although, there were significant differences of student-teachers` perception of their teachers, there were nonsignificant differences in their perceptions of the other DREEM categories such perception of their learning, academic performance, educational environment, and society between on campus and off campus. According to Żróbek-Róžańska (2022) showed that the educational environment and accommodation were affected students during the Covid 19 spread across the world.

While the Covid 19 pandemic, the study emphasized on the DREEM component (Agarwal et al., 2023). Without face-to-face studying, which was our daily habit, we transformed into visual learning system. This research defined the level of qualification of student-teachers from primary and secondary with the respondent regarding five DREEM categories. Based on the findings of our collection, student-teachers' perception remained the same when they were assessed by DREEM questionnaire. Abraham et al. (2008) assessed university students majoring in medical school at the difference year by utilizing DREEM instrument.

Second question of this study tested the factor and reliability to illustrate the quality of questionnaire. After experiment, it revealed that the reliability value of this study was 0.90, which acceptable and appropriate to use. In addition, the value of factor analysis was also consistency after evaluation. Regarding the particular respondent of student-teachers illustrated that there were no consistencies between the all of the items and the previous DREEM categories. According to EFA and factor analysis reveals that there are nine categories of DREEM original questionnaire, the value of reliability and factor analysis of 0.87. Even tough, there were nine domains required in the first rotation, subsequent analysis showed that there were only five domains acceptable to use, which was shown in table 4.

As part of the modification, DREEM records were rearranged in the five domains. Therefore, the research conducted at PTEC, there were only 42 items with the greatest value of variance of 44.195% were defined to be significant in the new version of DREEM questionnaire, which was contrast to the original one 50 items. A study was conducted by Mogre & Amalba (2016) which located the data from medical students in Ghana showed the high value of internal consistency of 0.92, with the almost the same number of DREEM domain. In their study, there were five DREEM factor analysis was also released. According to Hammond et al. (2012) stated that there were similar, regarding to an alignment of Cronbach Alpha value of 0.91 and ten subscales of DREEM categories, which inconsistent with Binazir et al. (2020).

CONCLUSION

By utilizing DREEM questionnaire, our purpose was to understand more about student-teachers' perception of their educational environment. Our study illustrated more positive respondents rather than negative comment of all the items of original questionnaire. Thus, a great percentage of good respondent among DREEM domain in the campus sample that represent the population might provide suggestion or contribute to improve the educational environment. The value of internal consistency of the DREEM was acceptable and suitable to analysis, but the factor analysis was slightly different the previous study. To evaluate the effects of PTEC's curriculum, this particular research utilizes a popular research tool to assess student-teachers' perception of their educational environment. From this research finding, directors, teacher educators, and stakeholders who contribute in this institution should utilize this tool to evaluate student-teachers' perception regularly. Even though there is concrete evidence that student-teachers' perceptions are affected by their educational environment, the future research should conduct to define the correlation between educational environment and academic performance.

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Ethical Considerations

We have been approved from our college, department of science and all the participants before we collected the data. The researchers made sure that the respond from the participants kept secrete without reveal their identification which meant we followed the ethical consideration.

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