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INVESTIGATING STUDENTS' PERCEPTIONS OF THEIR FIRST YEAR OF COLLEGE

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Abstract: The educational environment plays a crucial role in shaping students' learning experiences and outcomes. It encompasses physical settings, social interactions, and the overall culture of an educational institution. This article explores the multifaceted nature of the educational environment and its impact on student learning and development. Drawing on Vygotsky's theory of cognitive social development, we examine how the educational environment functions as a "culture" that guides students in acquiring knowledge, skills, and attitudes. Furthermore, we discuss the importance of effective interactions with teachers and peers, as well as exposure to diverse learning situations within this environment. Understanding the significance of the educational environment can help educators create more conducive and enriching learning settings for students.
Keywords: educational environment, student learning, cognitive development, culture, social interactions

INTRODUCTION

Educational environment entails a wide range of components and activities where learning takes place. According to the Edglossary (2013), educational environment refers to a variety of physical locations, contexts, and cultures in which students learn. Additionally, it encompasses the culture and characteristics of an educational institution, including social interactions and learning facilities in that environment. According to Dashputra et al. (2014), educational environment has been recognized as a vital factor for effective student's learning and performance. Vygotsky (1978), in his theory of cognitive social development, takes educational environment as the *'culture'* that determines student learning development. This development takes place while interacting with teachers and peers, and coming across new learning situations. Thus, educational environment is the 'culture' that teaches students how to think and acquire knowledge, skills and attitudes through the classroom environment.

LITERATURE REVIEW

Research on students' perceptions about educational environment has made substantial progress over the past four decades. Fraser (2012) advocated that students are in a better position to judge their environment, because they have experienced myriad of learning environments and have spent enough time there to 'form accurate impressions' (p. 78). Therefore, many classroom environment instruments have been developed, validated and used in a range of educational settings at all levels of the education system, from primary through secondary and to university education, as listed in Appendix 1. Extensive research exists on student satisfaction and student

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evaluation of teaching in the university environment (Barth, 2008; Merritt, 2012). Studies have shown significant relationships between student evaluation of teaching and factors such as instruction quality, course difficulty, teacher personality and grades (Erdle et al,1985; Zabaleta, 2007). Additionally, student satisfaction has been significantly linked with the relations between instructor and student to the extent to which the overall course structure aligns with student expectations and preferences (Westerman et al 2002).

One of the key instruments in this domain is the Dundee Ready Educational Environment Measure (DREEM) that has been developed by Sue Roff (1997) and used in different contexts. A study performed in Sharjah Medical College (Nosair et al, 2015) to measure student perceptions about the PBL (problem-based learning) using DREEM instrument showed that students had positive attitude towards the new approach but they had reservations about the workload and inadequate student support. Another research using the same instrument, DREEM, was done in a medical college in Maharashtra, India which showed that overall students were satisfied with their environment (Bhosale, 2015). Twenty years after publishing the DREEM of the UK, Shochet and colleagues (2015) from Johns Hopkins University constructed a new measure to assess students' perceptions of the medical school learning environment, namely: Johns Hopkins Learning Environment Scale (JHLES), with only 28 items, instead of 50-item DREEM. A positive correlation between DREEM and JHLES has been reported in the literature (Sengupta et al, 2017).

Another significant tool that is generic enough to be used beyond health professions education is College and University Classroom Environment Inventory (CUCEI). Dorman (2014) argued that the aims of education cannot be optimized without taking into consideration the 'psycho-social' factor, which entails both the social factors and individual behavior. The reliability and validity of the CUCEI have been documented to be robust (Fraser & Treagust, 1986; Fraser et al., 1990; Logan, Crump, & Rennie, 2006; Nair & Fisher, 2000a, 2000b, 2001). The CUCEI was used to assess classroom climate in numerous tertiary education research (Coll, Taylor, & Fisher, 2002; Dorman, 2014; Joiner, Malone, & Haimes, 2002; Logan, 2007; Strayer, 2012). Dorman (2014) reported that several CUCEI scales were significant predictors of positive course experiences in an Australian university, which further shed more light in measuring classroom environment in colleges and universities. In Saudi Arabia, almost all universities have a dedicated Preparatory Year Program (PYP) to introduce students to college life. PYP students go through a transition phase between high school and university, which is challenging to them both personally and academically (Kantanis, 2000). Usually students struggle to cope with a new system where they are expected to be active learners and adopt strategies for self-directed learning. The curricula are getting innovative with a major shift towards student-centred learning approaches. In the Saudi context, these experiences are complex and unique in that most of the students who enter higher education come from a traditional school system where teacher is the sole authority in the classroom. With changing environments, students' perceptions change and it is important to measure them to bring positive changes in the educational environment. Students' experiences at PYP seem to be crucial to their social adjustments and academic performance (D'Souza & Wood, 2003). Students' ability to adjust to the stress related to academic issues and difficulties posed by the demands of unfamiliar social environment determines their future success (Dalzeil & Peat, 1998; Jones & Frydenberg, 1998).

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Many authors have reported students' perception on educational environment both at school and at university levels, particularly in health professions education. The measurement scales in the existing literature have been developed for teaching and learning, student-teacher interactions and students' academic performance (Roff, 2005; Vaughan et al, 2014). The existing instruments may not be able to capture the nuances of the educational environment in the PYP of Saudi universities. For example, along with the psychosocial factors, physical environment greatly affects students' attitude and performance. The literature related to physical classroom environment has primarily focused on the impact of environment on students' attitudes and students' achievement at school level (Fisher 2001). At higher education level, studies on educational environment are related to the social context of educational institutes (Lizzio et al, 2002; OECD, 2013;). However, studies on impact of the physical aspect of classroom environment are rare. Therefore, it is necessary to analyze the impact of physical environmental features along with other factors to ensure that students receive the greatest benefit from their educational environments.

Young et al (2003) stressed the importance of physical environment and noted that students' achievement is impacted by such factors as lightening, noise, and climate control. Similarly, Hill and Epps (2010) reported the impact of seating, desk space, and technology on individual students' satisfaction measures at university level. Also, classroom size, lightening and ventilation play a significant role in keeping students satisfied and motivated (Earthman, 2002; Perks, 2016; Yang et al, 2013). Tanner's (2009) large scale study on physical environment of educational institutions found natural light, views from the windows and classroom space as the major factors that impact the affective, behavioural and cognitive aspects of students' personality. Two other main factors that have been reported to influence students' perceptions about their educational environment are student-teacher relationship and most importantly, student-student interaction. Students learn more when they have good relations with their teachers and when they feel that their teachers take them seriously (Crosnoe, Johnson and Elder, 2004; Gamoran, 1993). Additionally, student-student interaction and friendship networks promote their transition from school to university, as they foster conceptual understanding through discussion, explanation and application to real life contemporary issues (Senior & Howard, 2014). On the other hand, feeling lonely, isolated, unwelcome and failing to cope as an independent adult are some of the significant issues faced by students in the absence of such social networks (Parker et al, 2004; Peel, 2000). To the best of our knowledge, no studies were reported to tackle educational environment at the critical transitional stage of the preparatory year including the domains mentioned above. It is surprising that almost no reported instrument was specifically designed to seek students' perceptions on their first encounter with college life. There is dire need to develop an indigenous measurement tool to measure student perceptions about the educational environment at preparatory year which is the key transition stage from school to university. Therefore, an indigenous scale, **P**reparatory year **E**ducational **E**nvironment **M**easure (PEEM), was developed to serve this purpose.

The current study aims to: (1) validate the PEEM and (2) report students' perceptions about the preparatory year educational environment with respect to four potential moderating variables: *gender*, *study track*, *English profession level* and *prior schooling systems*.

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METHODOLOGY

The current study was conducted at the Preparatory Year Program (PYP) at Imam Abdulrahman Bin Faisal University, Dammam in Saudi Arabia. The program is taught in English and students are enrolled in one of the three tracks as per their choice and achievement in high school and other tests related to students' abilities. Students' grades in the PYP decide their admission to respective colleges in one of the three tracks: Health, Engineering and Science. Health track supports students to be admitted to one of six colleges, namely: Medicine, Dentistry, Pharmacy, Applied Medical Science, Nursing and Public Health. Engineering track leads students to any of three colleges, namely: Engineering, Design and Planning and architecture. While Science track enables students to be admitted to either Science, Computer or Business Administration Colleges. There are 16 courses taught at the PYP related to English language, basic sciences, self-development, computer sciences and physical education. The PYP has an independent administration and Deanship, yet it is considered as the first year of all the colleges mentioned above.

Population

The study population includes all male and female students at the preparatory year program of Imam Abdulrahman Bin Faisal University. Students of the preparatory year program are distributed in three tracks, as follows: Health (1,227), Engineering (697) and Science (1,806), with a total number of 3,730 students enrolled in the program for the academic year 2016/2017. All PYP students are native Arabic speakers with very few non-Arabic speakers.

Procedure

As indicated in the literature review, there is no reported instrument that was designed to measure students' perception of educational environment at the PYP. A new instrument, **P**reparatory **E**ducational **E**nvironment **M**easure, (PEEM) was developed for this purpose. The development of PEEM passed through three steps: (1) defining the constructs/domains of the PEEM, (2) generation of items for each domain, (3) pilot testing of the PEEM.

Step (1): Defining the domains of PEEM:

Seven domains were shortlisted from the literature, namely: (1) Physical classroom environment,
(2) Teaching & Learning, (3) Exam awareness, (4) Academic Services, (5) Catering & Activities, (6) E-learning and (7) Friendship.

Step (2): Item generation:

Authors contributed to item generation in the above seven domains. All items were positivelyworded. A section for demography was added to indicate four key independent variables including: (1) gender, (2) study track, (3) English language proficiency (as categorized by PYP into: Beginner, Intermediate and Advanced), and (4) prior schooling system. The above variables were expected to influence students' perception of their educational environment.

Step (3): Pilot testing of PEEM:

The PEEM was piloted for both male and female students to ensure clarity of items and to measure reliability of all items of PEEM together along with reliability within each domain of PEEM, using Cronbach's alpha. During

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the pilot testing, PEEM has been translated to Arabic to avoid misinterpretation of items and reviewed by two authors independently. The final version of the PEEM is generated based on data collected in the pilot testing. The PEEM survey was printed on paper and handed over to male and female students by their instructors in different campuses. A cover letter was attached to standardize instructions to all participants. The cover letter explained study's objectives and instructed students to consider how they perceive the educational environment at PYP. There was no incentive or penalty of any kind offered to responders, as students contributed to the study on voluntary basis.

Data Analysis

The Statistical Package for Social Sciences (SPSS) version 20.0 (SPSS Inc., Chicago, IL, USA) software was used for statistical data analysis. The significance level was set at 5%. All data were collected and tabulated using Microsoft Excel. New continuous variables were created for different constructs within the questionnaire. Reliability of the whole questionnaire and different constructs were reported using Cronbach's alpha. Study outcomes were shown to be normally distributed (Skewness was within the range ± 2). Parametric analysis (One-way ANOVA) was applied to find out the influence of four proposed independent variables related to students, namely: gender, study track, English language proficiency, and prior schooling system on overall PEEM scores and on its seven domains.

RESULTS

A total of 855 students filled PEEM survey forms (448 females and 407 males) were collected out of 920 forms, with an overall response rate of 93%. Respondents represented the three study tracks of the PYP, including 347 from science (40%), 323 from health (38%) and 183 from Engineering (22%). The the sample size is representative of the populations of the three tracks, because the majority of students are in the science, followed by health and engineering tracks.

The final version of the PEEM included a total of 32 items, distributed in seven domains, as reported in Table 1.

Table 1. The Preparatory Educational Environment Measure (PEEM) descriptive statistics, reporting the mean, standard deviation per item, along with the mean and reliability per domain (n=855)

Domain	Item	Mean /Item	SD /Item	Mean /Domain	*Reliability**/Domain
Physical classroom Environment	My classroom is large enough.	3.79	1.07	3.13	***.63***
	Chairs are comfortable.	2.68	1.19		
	Temperature is moderate.	2.94	1.11		
	The atmosphere motivates me to learn.	3.10	1.01		
Teaching & Learning	I have good relations with my teachers.	3.97	0.83	3.77	***.84***
	Teachers are knowledgeable in their fields.	3.67	0.95		
	Teachers are eager to help us to learn.	3.79	0.94		
	Instruction speed is good enough to follow.	3.49	1.00		

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	Teachers use examples to illustrate new concepts.	3.93	0.84		
	Teachers respond appropriately to my questions.	4.04	0.84		
	Teachers offers breaks between classes.	3.52	1.14		
Exams	I know what is expected from me in the exams.	3.74	1.03	3.33	***.80***
	I know the distribution of marks in each exam.	3.75	1.07		
	I was trained on questions types used in exam papers.	2.86	1.22		
	I was informed about the checklist of assignments.	3.62	1.08		
	Exams actually tests what I have learned in the course.	3.05	1.19		
	Exam time is enough to answer and review.	2.93	1.31		
Academic Services	The academic advisor always supports me.	3.48	1.07	3.43	***.77***
	Academic counselling are helpful.	3.18	1.17		
	All services are available at University Library.	3.40	1.14		
	University Library staff are cooperative with me.	3.66	1.02		
Catering & Activities	The quality of food services are good.	2.50	1.26	2.58	***.62***
	Prices of meals are reasonable.	2.43	1.32		
	I enjoy student activities.	2.80	1.14		
Blackboard	Log in to Blackboard is easy.	4.48	0.76	4.12	***.85***
	Browsing and download of lecture is fast.	4.09	0.96		
	Upload of homework and assignment is easy.	3.89	1.07		
	Blackboard assist my learning.	4.01	1.11		
Friendship	My class fellows are all friends to me.	3.36	1.07	3.80	***.66***
	There is a spirit of harmony in the classroom.	3.81	0.93		
	I have friends in other classes.	4.19	1.02		
	I have friends even in other colleges.	3.84	1.29		
Overall PEEM		***3.50***	***0.56***	***3.5***	***0.91****

*Reliability was measured for items of each domains using Cronbach's alpha.

The number of items per domain ranged from three (as in Catering & Activities) to seven items (as in Teaching & Learning) to address interaction between teachers and students and the complexity of teaching and learning in classrooms. The overall reliability of the PEEM was 0.91 as calculated by Cronbach's alpha, while the reliability of domains ranged from 0.62 (Catering & Activities) to 0.85 (E-learning). The means of individual items are

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reported in Table 1. The mean of PEEM scores was 3.50, while the mean of domains was highest in E-learning (4.12) and lowest in Catering & Activities (2.58).

Table 2 shows the gender-based differences of perceptions of educational environment among students. Apart from E-learning, males were consistently and significantly more satisfied in the overall score in the other six domains of PEEM, in comparison with perceptions of their female counterparts.

Table 2. The effect of *gender* of PYP students on mean of different subscales of PEEM using ttest. (Male n. = 407, Female n. = 448)

Domain	Gender	Mean	SD	*p* value
Physical Environment	**classroom *Male***	**3.30**	.79	**.000***
	Female	2.97	.70	
Teaching & Learning	***Male***	**3.90**	.67	**.000***
	Female	3.65	.65	
Exams	***Male***	**3.43**	.83	**.000***
	Female	3.23	.79	
Academic Services	***Male***	**3.51**	.87	**.006***
	Female	3.35	.83	
Catering & Activities	***Male***	**2.92**	.93	**.000***
	Female	2.27	.84	
Blackboard	*Male*	4.10	.84	.424
	Female	4.14	.80	
Friendship	***Male***	**3.91**	.76	**.000***
	Female	3.70	.76	
Overall PEEM score	***Male***	**3.58**	0.60	**.000***
	Female	3.37	0.53	

Students of the engineering track were more satisfied about the overall educational environment, as compared to other tracks in the overall PEEM score and in five out of its seven domains, as indicated in Table 3.

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Table 3. The effect of *study track* of PYP students on mean of different subscales of PEEM using ANOVA. (Health n. = 323, Engineering n.= 183, Science n. = 347)

Domain	Study Track	Mean	SD	*p* value
Physical classroom Environment	*Health*	3.09	0.80	.391
	Engineering	**3.19**	0.74	
	Science	3.14	0.73	
Teaching & Learning	*Health*	3.64	0.72	**.000***
	Engineering	3.85	0.61	
	Science	**3.88**	0.63	
Exams	*Health*	3.00	0.82	**.000***
	Engineering	3.45	0.76	
	Science	**3.57**	0.75	
Academic Services	*Health*	3.21	0.86	**.000***
	Engineering	**3.62**	0.77	
	Science	3.54	0.84	
Catering & Activities	*Health*	2.38	0.93	**.000***
	Engineering	**2.87**	0.91	
	Science	2.62	0.92	
Blackboard	*Health*	4.06	0.84	**.026***
	Engineering	**4.27**	0.74	
	Science	4.11	0.82	
Friendship	*Health*	3.74	0.82	**.001***
	Engineering	**3.99**	0.67	
	Science	3.77	0.75	
Overall PEEM score	*Health*	3.36	0.60	**.000***
	Engineering	**3.64**	0.50	
	Science	3.59	0.53	

Table 4 reported the differences of perceptions with respect to English proficiency level of students. Surprisingly, students of the intermediate level (not the advanced or the beginners) were significantly more pleased in four out of the seven domains and in the overall PEEM scores. There were no significant differences in physical environment and friendship domains.

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Table 4. The effect of *English proficiency level* of PYP students on mean of PEEM subscales using ANOVA. (Beginners n. = 320, Intermediate n. = 29 5, Advanced n. = 235)

Domain	English Proficiency Level	Mean	SD	p value
classroom Physical Environment	*Beginners*	3.15	0.74	.067
	Intermediate	3.18	0.78	
	Advanced	3.03	0.76	
Teaching & Learning	*Beginners*	3.70	0.67	**.009***
	Intermediate	**3.86**	0.66	
	Advanced	3.77	0.67	
Exams	*Beginners*	3.24	0.82	**.018***
	Intermediate	**3.43**	0.79	
	Advanced	3.33	0.84	
Academic Services	*Beginners*	3.39	0.88	**.042***
	Intermediate	**3.53**	0.81	
	Advanced	3.35	0.86	
Catering & Activities	*Beginners*	2.52	0.92	**.010***
	Intermediate	**2.71**	0.95	
	Advanced	2.49	0.94	
Blackboard	*Beginners*	3.97	0.90	**.000***
	Intermediate	4.17	0.78	
	Advanced	**4.27**	0.70	
Friendship	*Beginners*	3.80	0.78	.715
	Intermediate	3.82	0.74	
	Advanced	3.77	0.77	
Overall PEEM score	*Beginners*	3.44	0.58	**.008***
	Intermediate	**3.58**	0.54	
	Advanced	3.49	0.56	

Finally, students from private high schools reported significantly higher scores in five out of seven domains and in the overall PEEM scores, as listed in Table 5. These findings may need careful interpretation in view of the infra-structure and the availability of recourses of private vs. government high schools in Saudi Arabia.

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Table 5. The effect of *prior schooling system* of PYP students on mean of PEEM subscales using t-test. (Governmental n. = 703, Private n. =142)

Domain	Prior Schooling	Mean		SD	*p* value
Physical Environment	**classroom**	*Governmental*	3.09	0.74	**.002***
		Private	**3.34**	0.82	
Teaching & Learning		*Governmental*	3.73	0.67	**.000***
		Private	**4.01**	0.62	
Exams		*Governmental*	3.29	0.81	**.015***
		Private	**3.54**	0.83	
Academic Services		*Governmental*	3.37	0.85	**.000***
		Private	**3.75**	0.79	
Catering & Activities		*Governmental*	2.49	0.91	**.000***
		Private	**2.99**	0.98	
Blackboard		*Governmental*	4.10	0.82	.106
		Private	**4.26**	0.78	
Friendship		*Governmental*	3.78	0.76	.058
		Private	**3.95**	0.75	
Governmental	*3.46*	*0.55*			
Overall PEEM score	**.000***				
Private	***3.73***	*0.53*			

DISCUSSION

The current study reported the development and validation of a new instrument namely: Preparatory year Educational Environment Measure (PEEM). To the best of our knowledge, this is the first instrument to be reported for educational environment at the transitional stage of preparatory year. The PEEM development was based on literature review, which recommended specific domains when measuring educational environment, such as physical environment, teaching context, psychological factors, academic services, technical infrastructure, teachers students relationship along with friendship networks among students themselves. The first aim of the study was achieved by a high reliability instrument of 0.91, as measured by Cronbach's alpha.

The second aim of the study was to report the PEEM mean scores (total and domain-wise), as moderated by four potential independent variables related to students' demographics, namely: *gender*, *study track*, *English profession level* and *prior schooling systems*. A separate section of the discussion is allocated to decipher the above findings for each variable, as follows.

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Gender-Based Differences

Why male students were more satisfied with their educational environment in almost all domains, as reported in Table 2? In Saudi Arabia, male and female students are taught separately throughout their study in schools and university levels. Students of PYP are distributed in seven buildings across three campuses, where the infra-structure of the female building may be less than male ones, which explain the dissatisfaction of female students, particularly related to physical classroom environment. This is consistent with gender-based differences in the literature, as females reported less satisfaction with their educational environment (GarcíaAracil, 2009). The higher satisfaction of male students in other domains (e.g. teaching/learning and academic services) may be attributed to the relatively smaller number of students in their classes compared to the female students. For instance, class size ranges in males ranges from 30 to 35, while 40 or more female students in each class.

Finally, it was interesting to find a significant difference in making friends with the advantage to the male students. As grades show, females score higher than males in exams and they seem to care more about their grades, which fosters an environment of competitiveness with a negative impact on social interaction among female students.

Study Track-Based Differences

As reported in Table 3, engineering track students enjoy their time more than their peers in other tracks. This can be deciphered in view of different factors. First, students at the engineering track are relatively smaller in number, as compared to other tracks. Second, the nature of their study is practical hands-on as in the courses of Basic Design Studios, where they interact with each other as teams to design their projects. Science track scored higher in two (out of five) domains, namely: teaching & learning and exams, while health track students were consistently less satisfied across all domains. One of the hypotheses to interpret that is the high stress among health track students that they were the top students in high schools and anxiously looking to stay at the top in the university, which makes health track highly competitive.

English Proficiency-Based Differences

It's not easy to justify that students of intermediate (not beginner or advanced) level were satisfied about teaching and learning, exams and academic services along with the overall PEEM score of educational environment (Table 4). However, *beginner* level students struggle with studying all courses in English, while *advanced* level students are overwhelmed with more content overload, which make both (extreme) groups dissatisfied. The PYP students are mostly Saudis (97% of participants) who are native Arabic speakers and don't need English proficiency to communicate and network. That's why there was no relationship between English language proficiency and friendship networks within their classes or even from other tracks.

Prior Schooling-Based Differences

As reported in Table 5, students from private schools (142) were more pleased in almost all domains, compared to their peers from government schools. To decipher these findings, we need to explore both schooling systems in Saudi Arabia. Generally speaking, government schools have much better facilities and infrastructure with respect to space, classroom furniture, playgrounds, laboratories which makes their expectations higher for the college, compared to students of private schools. This can partly explain why they were disappointed with two

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domains which are physical classroom environment and catering and activities. On the other hand, studying English language is not widespread in governmental schools, compared to private ones, which contributes to their frustration in the three other domains of teaching and learning, exams and academic services.

The current study acknowledges students' perception on their educational environment while they are making transition from school to university life. The PEEM is a tool to enable teachers and educational leaders to perceive the gaps in different aspects, related to academic and nonacademic services provided to students. It can be used as a diagnostic tool to compare educational environment across different institutions with similar context. A useful inference is the one that helps making informed decisions. The PEEM scores can be analysed and interpreted at both domain-level and item-level to suggest remedial actions in particular areas. For instance, if students scored low in the domain of *exams*, teachers should offer more orientation about assessment tools, mark distribution and checklists (in performance-based assessment) to avoid unfavourable exam results later. Some items may indicate issues with educational alignment, such as: '*Exam accurately tests what I have learned in the course*'. Disagreement on that item signals an alert for teachers to review their blueprints and whether learning outcomes have been taught and assessed properly.

The PEEM was designed to include a mix of items that measure simple technical issues, (e.g. *Log in to Blackboard is easy*) or psychological ones (e.g. *There is a spirit of harmony in the classroom*). We acknowledge that not all issues related to educational environment can be easily fixed. When students pointed out that their *Chairs are not comfortable*, chairs can be replaced. While it's challenging to handle situations when students feel that their *teachers are not eager to help them to learn* or when there is *no evidence of good relationship between teachers and students*. This needs much more than workshops in faculty development programs, perhaps close mentoring and peer-review sessions with constructive feedback.

The PEEM is the first instrument in the context of preparatory year, yet we cannot advocate that it's comprehensive enough to address all aspects of educational environment in other contexts. For feasibility, we had to limit the number of items to 32 only, yet the high reliability of PEEM (0.91) indicates its dependability to be used by other colleagues.

CONCLUSION

As in all quantitative studies, we offer our personal assumptions for interpreting quantitative data. It would be much better to explore the reasons behind the findings from students themselves. We encourage to complement the PEEM scores with qualitative data to seek better understanding of a sophisticated construct, namely educational environment.

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