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Assessment of the 'students' perceptions of education using Dundee Ready Environment Educational Measure (DREEM) inventory at Princess Nora bint Abdulrahman University, Saudi Arabia

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Abstract

Background Educational settings in professional health education establishments significantly shape students' academic, social, and emotional experiences. These environments encompass physical, psychological, and social infrastructures of programs or institutions, which jointly influence learning and development. This study analyzed the educational environment at Prince Nora University in Saudi Arabia, a renowned institution in health education.

Aim The primary aim of this study was to evaluate the perceptions of the educational environment among students at Prince Nora University using the Dundee Ready Education Environment Measure (DREEM) inventory. The DREEM inventory is a renowned and validated tool designed to gauge students' perceptions across various dimensions of their educational experience.

Methods Employing a cross-sectional survey design, the research gathered data from a sample of 321 students enrolled in the College of Health and Rehabilitation Sciences at Prince Nord University. The DREEM inventory, which measures the academic, social, and emotional aspects of the learning environment from the student's perspective, was utilized to collect the information.

Results The findings from the study indicated a positive perception of the educational environment among the students, with an overall mean score of 113.84 out of 200 on the DREEM inventory. Analysis of the subscales revealed that the Student Perceptions of Atmosphere (SPoA) received the highest scores, indicating a favourable environment, while Student Social Self-Perceptions (SSSP) scored the lowest, suggesting areas that may require attention and improvement.

Conclusion The study successfully showed the utility of the DREEM inventory in assessing the educational environment at Prince Nora University, highlighting its effectiveness as a tool for understanding student perceptions. The positive overall score suggests a conducive learning atmosphere, though the disparity in subscale scores points to potential areas for enhancement. Recommendation: The research suggests that Saudi Arabian universities should

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implement the DREEM inventory to assess and enhance their educational settings, ultimately delivering a comprehensive and nurturing learning experience for students.

Keywords DREEM inventory, Student perceptions, Educational environment, Learner attitudes, Saudi Arabian education

Introduction

Professional health education classrooms are a hotbed of academic curiosity worldwide [1]. The programs' or institutions physical, social, psychological, and other infrastructures make up what they collectively refer to as the educational environment [2]. It also includes the mindset and actions of the teachers and strategies they employ to convey the course content to the students. It also includes the style of the curriculum employed and the instructional methods employed. The educational environment comprises everything that impacts instruction and study [3].

Many criteria recognize the traits and characteristics of a learning environment; program rules, governance structures, and other features may also be called educational environment elements [4]. It is agreed that the school climate significantly affects student achievement [5]. Thus, it has become clear that reviewing school settings is vital to ensuring that all students receive well-rounded education [6]. The National Commission for Accreditation and Assessment (NCAAA) in Saudi Arabia prioritizes the quality of the learning environment when conducting program evaluations. Thus, the NCAAA ensures the quality and standardization of higher education institutions and programs [7]. The establishment of the National Commission for Academic Accreditation and Assessment (NCAAA) in Saudi Arabia is aimed at setting standards, accrediting institutions, and improving the quality of higher education programs [8]. It strives to guarantee the effectiveness and comprehensiveness of educational and training programs while also assessing their impact on the national economy and development [8]. The NCAAA strives to establish trust in local and global communities regarding the outcomes of these institutions and programs [8]. While the NCAAA has only recently incorporated postgraduate programs into its plans, it now allows universities to apply for accreditation of these programs [9]. The NCAAA's efforts to accredit undergraduate programs have shown noteworthy progress, but its role in accrediting postgraduate programs is still in progress and may not yet provide the same level of assurance as it does for undergraduate programs.

Recent changes to health professional education (HPE) curricula, such as incorporating new teaching and learning practices and evaluation methods and the growing

diversity of today's student body, have increased the urgency of reviewing the current state of health-related education [10]. There is a strong correlation between how students feel about their classrooms and their academic performance. Student data should inform decisions regarding the curriculum, instructional methods, and school infrastructure [11]. Educators believe that students' exposure to both classroom and clinical settings significantly impacts their development of attitudes, knowledge, abilities, and behaviors as they move through the medical school curriculum [12].

The quality of educational settings has been evaluated using several tools developed and deployed in recent years [13–18]. In 1997, a team of medical educators from Dundee University created a reliable instrument for assessing the setting and culture of HPE. Its official title is the Dundee Ready Environment Educational Measure (DREEM). It is widely accepted as a culturally neutral, credible, and accurate assessment tool for gauging the climate of undergraduate HPE programs. The quantitative and qualitative methodologies used to design this instrument are the basis for its widespread acceptance [1]. The current sample size employed in the assessment of students' perceptions of education using the DREEM inventory at the College of Education, Princess Nora University, Saudi Arabia, was deemed adequate and representative, ensuring the generalizability of the findings to the broader student population. This study's robust sampling methodology and consideration of diverse academic levels contribute to its representativeness and reliability.

Despite the potential value of applying DREEM to the analysis of HPE problems, this tool is not commonly used in health-related programs in Saudi Arabia. DREEM's application of DREEM to the investigation of HPE problems could be very beneficial, but it is not widely used in SA health-related activities. Thus, this study investigated how students in the health professions at Princess Noura University (PNU), an all-female institution in SA, felt about their classroom environment.

Method

This cross-sectional study began on September 28, 2022, for 2 months at the PNU, SA. Faculty of Health and Rehabilitation Sciences. When it opened in 2008, they knew it

as the "College of Physiotherapy." It offers only one major: physiotherapy. After then, in 2012, a reorganization led to the college's name changing from "College of Physiotherapy" to "College of Health and Rehabilitation Sciences." Department of Health Sciences, Department of Communication Sciences, Department of Rehabilitation Sciences, Department of Radiology. Thirteen different programs are available and spread across four different departments. These are only available for women.

Sample size

Following Cochran [19], the optimal sample size was calculated using the following formula (1):

$$n = \frac{Z^2 \pi (1 - \pi)}{d^2} \quad (1)$$

where n is the number of observations, π is the fraction of expected levels (in this case, the DREEM response), Z is the standard deviation for a 95% confidence interval, and d is the intended margin of error. Given that the author could not know how numerous students would respond in each category on the DREEM, we had to use a cutoff of 50% of the possible total scores. $\pi=0.5$, $d=0.05$, and $z=1.96$. With a 10% non-response rate and finite sample correction factor in mind, the minimum number of participants was 400. It then split the computed sample size across schools based on the relative student population.

Data collection

In September 2021, the College of Education at Princess Nora University in Saudi Arabia was considered to be one of the world's largest educational institutions for women. This university is located in Riyadh, the bustling Saudi capital, and houses thousands of female students. It provides ample opportunities for practical learning experiences in real-world classroom settings in a rich academic and cultural environment. Through research and innovation, the institution aimed to prepare its students to make positive contributions to Saudi Arabia's educational system. Verifying the latest statistics and developments is advisable before relying on the provided information. The participants' responses were gathered using the standard, industry-wide-applied questionnaire, the DREEM. The DREEM inventory consists of 50 items divided into the following five scales:

- *Twelve components (1, 7, 13, 16, 20, 22, 24, 25, 38, 44, 47, and 48) with a maximum score of 48 make up students' perceptions of learning (SPoL), with scores being interpreted as follows: The results ranged from 0 to 48, with 0 being the worst, 13 to 24 being poor, 25 to 36 being negative, and 37 to 48 being very thought-out in the classroom.*
 - *There are 11 items on the Students' Perceptions of Teachers (SPoT) survey (No. 2, 6, 8, 9, 18, 29, 32, 37, 39, 40, and 50) and a maximum score of 44, with the results interpreted as follows: From lowest to highest, the lowest was teachers with a score of 0–11, the lowest was those with a score of 12–22, the middle was those with a score of 23–33, and the highest was those with a score of 34–44, who were deemed excellent educators.*
 - *There is a maximum score of 32 on students' academic self-perceptions (SASP), which consists of 8 items (Item No. Items: 2, 10, 22, 26, 27, 31, 41, and 45). Scores of 0–8 were regarded as a sense of absolute failure, 9–16 as a sense of many negative characteristics, 17–24 as a sense of learning more toward the positive, and 25–32 as a sense of confidence.*
 - *12 elements (items No. Items 11, 12, 17, 23, 30, 33, 34, 35, 36, 42, 43, and 50) make up the SPoA scale, which can be scored from 0 to 48. From 0 to 12, 13 to 24, 25 to 36, 37 to 48, and 48 and above, the environment was rated as poor, with many problems that needed to be fixed, a more positive atmosphere, and a nice feeling overall.*
 - *The Student Social Self-Perceptions (SSSP) contains 7 questions with a maximum score of 28 (questions 3, 4, 14, 15, 19, 28, and 46) and can be interpreted as follows: from 0 to 7, it was awful; from 8 to 14, it was not lovely; from 15 to 21, it was not too bad; and from 22 to 28, it was socially perfect.*
- After reading each item, students were to rate it on a five-point Likert scale from "strongly agree" to "strongly disagree." The items were rated as follows: a score of 4 indicated complete agreement, 3 indicated moderate agreement, 2 indicated uncertainty, 1 indicated disagreement, and 0 indicated significant disagreement. Altogether, the scale adds up to a total score of 200. In this study, the authors assessed 9 items initially rated negatively (4, 8, 9, 17, 25, 35, 39, 48, and 50). A perfect educational environment received a score of 200 on the original DREEM. A higher number reflects a more favorable rating. Authors have rated each item on a five-point Likert scale from "strongly agree" to "strongly disagree" and interpreted a score of 4 as a total score in the following format: A score between 0 and 50 suggests an impoverished educational environment, a score between 51 and 100 shows many problems, a score between 101 and 150 indicates more positive than negative, and a score between 151–200 indicates an excellent educational environment [1]. In this study, it was determined that areas with individual items with a mean score of 3.5 or higher are vital, areas with individual items with a mean score of 2.0 or lower

require attention, and areas with individual items with mean scores between 2 and 3 are areas of the educational environment that have room for improvement [20]. Google Survey was used to conduct electronic surveys with students through a web-based program. The students received a link to the questionnaire via an airdrop.

Data analysis

We used the Statistical Package for the Social Sciences (SPSS) for data entry, verification, and analysis (SPSS) (version 25; SPSS Inc. Chicago, IL, USA). Descriptive statistics and inferential methods were used to analyze the data. Comparisons of group means were made using frequency analyses and basic tabulation. It also compares the meaning of the ‘subgroup. The scores were compared on a college-specific basis by using an independent Student’s t-test. To determine whether there was a statistically significant difference between the various cohorts

of students defined by academic year and academic program, Kruskal–Wallis analysis was performed. Statistically, a significant result was defined as one with a probability level of less than 0.05.

Result

In this study, approximately 321 students successfully completed the online survey, or 80.3% of the estimated sample size. The average age of these respondents was 22.2 ± 2.001 . The majority were located in the Health Sciences Division ($n = 133/321$) and Radiology Sciences Division ($n = 108/321$) (41.4% and 33.6%, respectively). Table 1 shows the distribution of students by year in school. Participation rates were relatively consistent across all years except for the first, in which only 3.4% ($n = 11/321$) of the children were present.

The overall DREEM score for this investigation was 113.84 35.187, which suggests that the educational environment is more favorable than unfavorable.

Table 1 Background Characteristics of the study population

Background Characteristics		Frequency	%
Department	Communication Sciences	13	4.0%
	Health Sciences	133	41.4%
	Radiology Sciences	108	33.6%
	Rehabilitation Sciences	67	20.9%
Academic Level	Year 1	11	3.4%
	Year 2	82	25.5%
	Year 3	83	25.9%
	Year 4	66	20.6%
	Year 5	79	24.6%
Age	18	5	1.60%
	19	29	9.00%
	20	39	12.10%
	21	44	13.70%
	22	67	20.90%
	23	59	18.40%
	24	36	11.20%
	25	26	8.10%
	26	10	3.10%
	27	5	1.60%
28	1	0.30%	
Department	Communication Sciences	13	4.00%
	Health Sciences	133	41.40%
	Radiology Sciences	108	33.60%
	Rehabilitation Sciences	67	20.90%
Academic Level	Year 1	11	3.40%
	Year 2	82	25.50%
	Year 3	83	25.90%
	Year 4	66	20.60%
	Year 5	79	24.60%

Similarly, the SPoL, SPoT, SASP, SPoA, and SSSP are listed in Table 2. This explains the items in each category in Table 3.

Kruskal–Wallis was run with background characteristics as independent variables and DREAM domains as dependent variables to determine whether there was a correlation between the two data sets. Table 4 indicate no statistically significant differences between the five DREAM domains and the demographic information of the students who took the survey.

Discussion

The quality of an educational institution is crucial for achieving its HPE program goals [21]. Therefore, this research aimed to assess the school climate perceived by PNU and SA women majoring in health sciences. The survey also sought to identify opinion discrepancies between departments and students of varying ages. The researchers employed the DREEM inventory, which is widely considered the best tool for measuring the educational environment of undergraduate HPE institutions [22].

Table 2 DREEM overall score and subclass score among the students (n = 321)

DREAM domains	Number of questions	Maximum DREEM score	Mean	SD	Interpretation
'Students' Perceptions of Learning (SPoL)	12	48	27.2	9.444	more positive approach
'Students' Perceptions of Teachers (SPoT)	11	44	23.01	7.904	moving in the right direction
'Students' academic-self-perception	8	32	18.29	6.560	feeling more on the positive side
'Students' Perceptions of Atmosphere (SPoA)	12	48	27.33	9.342	a more positive atmosphere
'Students' Social Self-Perceptions (SSSP)	7	28	15.66	5.813	very good socially
Total DREEM score	50	200	113.84	35.187	more positive

Table 3 Total Score Interpretation

DREAM domains	Items grade	Frequency	%
'Students' Perceptions of Learning (SPoL)	Very Poor: 0–12	19	5.9%
	We view teaching negatively: 13–24	132	41.1%
	More Positive Approach: 25–36	125	38.9%
	Teaching is highly conceived: 37–48	45	14.0%
'Students' Perceptions of Teachers (SPoT)	Abysmal: 0–11 is	22	6.9%
	In need of some retraining: 12–22	137	42.7%
	Moving in the right direction: 23 – 33	128	39.9%
	Model teachers: 34 – 44	34	10.6%
'Students' academic-self-perception	Feeling like a total failure: 0–8	23	7.2%
	Many negative aspects: 9 – 16	123	38.3%
	Feeling more on the positive side: 17 – 24	129	40.2%
	Confident: 25 – 32	44	13.7%
'Students' Perceptions of Atmosphere (SPoA)	A terrible environment: 0 – 12	19	5.9%
	Many issues need changing: 13–24	128	39.9%
	A more positive atmosphere 25 – 36	127	39.6%
	A good feeling overall: 37 – 48	47	14.6%
'Students' Social Self-Perceptions (SSSP)	Miserable: 0 – 7	31	9.7%
	Not a nice place: 8 – 14	130	40.5%
	not too bad: 15 – 21	119	37.1%
	very good socially: 22 – 28	41	12.8%
Total DREEM score	Very poor: 0–50	13	4.1%
	Plenty of problems: 51–100	109	34.0%
	More positive than negative: 101–150	151	47.0%
	Excellent: 151–200	48	15.0%

Table 4 Kruskal–Wallis test to identify the correlation between DREAM domains and student background characteristics ($n = 321$)

	Kruskall-Wallis H	P Value
According to the Academic Level	df=4	
'Students' Perceptions of Learning (SPoL)	0.811	0.937
'Students' Perceptions of Teachers (SPoT)	2.085	0.720
'Students' Academic-self-perception	2.946	0.567
'Students' Perceptions of Atmosphere (SPoA)	3.208	0.524
'Students' Social Self-Perceptions (SSSP)	3.286	0.511
Total DREEM Score	1.652	0.799
According to the Department	df=3	
'Students' Perceptions of Learning (SPoL)	6.594	0.086
'Students' Perceptions of Teachers (SPoT)	2.476	0.480
'Students' Academic-self-perception	7.108	0.069
'Students' Perceptions of Atmosphere (SPoA)	2.289	0.515
'Students' Social Self-Perceptions (SSSP)	1.717	0.633
Total DREEM Score	4.015	0.260

According to Gruppen et al. [23], the quality of an educational institution is intimately tied to the success of any HPE programme. Consequently, this study aimed to investigate the perspectives of female students majoring in health Sciences at PNU in South Africa regarding the university environment [24]. This study aimed to determine several factors, including whether there were substantial disparities in opinions between various departments or among students of varying ages. The researchers used the DREEM inventory, which is generally regarded as the best approach for measuring the educational environment of undergraduate HPE institutions [22].

Overall scores

The mean DREEM score in this analysis was 113.84 ± 35.187 , suggesting that participants were more likely to have a favorable impression of their school's environment than a negative one [10]. The results of several other Saudi academic institutions corroborate our findings. Global DREEM test results from King Khalid University [25], Qassim University [26], King Fahad Medical City [27], Tabuk University [28], Jazan University [29], and King Abdul Aziz University [30] were (102, 112.9, 112, 111.5, 105, 104.9, 102) respectively.

Comparing these scores, it can be observed that some institutions, including those in the present study (113.84), had DREEM scores higher than 100, indicating a generally positive perception of the educational environment. King Khalid University, King Fahad

Medical City, Tabuk University, and Jazan University also had scores above 100, reflecting favorable perceptions among their students. On the other hand, Qassim University and King Abdul Aziz University had scores below 100, suggesting some areas for improvement in their educational environments as perceived by their students.

It is important to note that the DREEM inventory is a valuable tool for assessing various facets of the educational environment, and its application in multiple institutions helps to identify patterns and trends in students' perceptions. These scores can guide administrators and policymakers to understand the strengths and weaknesses of their educational settings and enable them to make informed decisions to enhance their overall learning experience. By benchmarking their scores against other institutions, universities can gain valuable insights and potentially implement best practices from those with higher DREEM scores to improve their educational landscape.

This was almost consistent with the results of a study conducted at a different university in the U.K.. (139) [31], Sudan (130) [32], Nepal (130) [20], Malaysia (125.3) [33], Nigeria (118) [20], Turkey (117.6) [34], India (117) [34], and Sri Lanka (108) [35]. The DREEM inventory subscale analysis is a valuable application. This reveals the benefits and drawbacks of the current school system. With scores of 27.2 on the SPoL scale, 23.1 on the SPoT scale, 18.3 on the SASP scale, 27.3 on the SPoA scale, and 15.7 on the SSSP scale, it is clear found that there were more positives than negatives on the educational environment. These results are consistent with those found in research performed at other SA universities such as Jazan University [29], Qassim University [26], and King Khalid University [25].

Among the DREEM scores, those from various universities in different countries, including the current study, had a DREEM score of 139. Moreover, the study provides DREEM scores from other countries ranging from 130 to 108, as well as the value of the subscale analysis of the DREEM inventory. In the U.K. study, students scored 139, indicating a very positive perception of the educational environment. In addition to Sudan and Nepal, both scored 130, indicating favorable impressions of their respective educational settings. There were also positive perceptions among students in Malaysia, Nigeria, Turkey, India, and Sri Lanka, with scores ranging from 108 to 125.3.

The DREEM score for the current study is "almost at the same level" as that in the U.K. study, even though this is not explicitly stated. The exact DREEM score for this study is not provided, but we can assume that it reflects a positive perception of the educational environment,

similar to that in the U.K. Further discussion on the DREEM inventory subscale analysis is provided in this study.

The DREEM score is broken down into five specific subscales: SPoL (Perceptions of Learning), SPoT (Perceptions of Teaching), SASP (Academic Self-Perceptions), SpoA (Perceptions of Atmosphere), and SSSP (socials Selp-Perceptions). Based on the subscale scores discussed in this study, most participants positively perceived their educational environment. According to the SPoL, SPoT, SASP, SpoA, and SSSP scores, educational environment was more positive than negative (27.2, 23.1, 18.3, and 15.7, respectively). Clearly, students were optimistic about their learning experiences, teaching quality, academic self-confidence, and atmosphere within the institution. A brief comparison of the study's results with those of other Saudi Arabian universities, including Jazan University, Qassim University, and King Khalid University, is provided. This study does not provide specific DREEM scores for these universities, but suggests that the findings are consistent with those from other Saudi Arabian institutions. Based on this consistency, students generally perceive these universities as positive for their educational environment.

Focusing on the current study's comparison provides valuable insights into the DREEM scores from various universities worldwide. Students in the current study viewed their educational environment positively, highlighting the value of DREEM's subscale analysis in understanding specific aspects of the educational environment. More detailed information is required for comprehensive conclusions and understanding of the full implications of these findings, including the exact DREEM score from the current study.

'Students' Perceptions of Learning (SPoL) & 'Students' Perceptions of Teachers (SPoT)

Only 53% ($n=170$), with an average mean of 27.2 ± 9.444 , showed a positive perception of learning, and 50% of them ($n=160$), with a mean of 23.01 ± 7.904 , described that teachers were moving in the right direction, as shown in Tables 2 and 3. This is mainly due to the continuous professional development program implemented by the college and university, which aimed to enhance the faculty's capacities in teaching and learning to include preparation and delivery of the teaching materials, development of a blueprint, and student assessment. The college also has a stringent recruitment process for selecting only the most qualified candidates with excellent teaching backgrounds and high GPAs. Peer assessment was used to evaluate the colleges' teaching and learning methods to ensure that they performed as expected. The strengths and areas for improvement highlighted in the

peer evaluation report were used to inform the continuing professional development goals for the following year. Annual faculty evaluation is also a tool to improve a college's educational atmosphere and pedagogy.

In this study, the authors examined how college and university students perceive their learning and teachers. It was found that 53% of the participants reported that education was positive, while 50% indicated that teachers were making progress. The average means of these scores were 27.2 ± 9.444 for SPoL and 23.01 ± 7.904 for SPoT. Indicators of students' experiences with the learning process and their perceptions of teachers' effectiveness were the DREEM scores for SPoL and SPoT. A SPoL score of 27.2 suggests that slightly more than half of the participants were satisfied with their learning experiences. However, a score of 23.01 for SPoT indicates that about half of the students are satisfied with the teaching methods and approaches, which suggests that they feel their teachers are moving in the right direction.

Positive perceptions of learning and teachers can be attributed to the continuous professional development programs in universities and colleges. The faculty's capacity for teaching and learning is enhanced by continuing professional development. To create a more dynamic and effective learning environment for students, institutions should provide faculty members with opportunities to improve their teaching skills and stay current with the latest teaching methodologies.

Through its stringent recruitment process, the college selects only qualified candidates with excellent teaching backgrounds and high GPAs, resulting in a higher quality faculty and a better educational experience for students. Selecting competent teachers is a critical component of ensuring high-quality instruction for students.

A positive aspect of the college approach is the use of peer assessment to evaluate teaching and learning methods. Experienced colleagues provide unbiased feedback in peer evaluations, highlighting strengths and improvement areas. Using the findings from the peer evaluation report, faculty members can set goals for professional development, ensuring that they address areas that need improvement. Annual faculty evaluation is a valuable tool for assessing and improving a college's educational environment and pedagogy. Using faculty evaluations can provide insights into how well instructors interact with their students, create a supportive learning environment, and adapt teaching methods to meet students' needs. As a result, the college can identify areas for improvement and make data-driven decisions that will enhance the educational experience of all students.

Due to the lack of explicit comparisons with results from other colleges, we cannot directly assess how the college's DREEM scores for SPoL and SPoT compare

with those of other colleges. However, continuous professional development programs, peer evaluations, and annual faculty evaluations indicate that the college is taking proactive measures to ensure a positive educational environment for students. Such practices reflect this commitment to academic excellence and student success. The study concludes by emphasizing the importance of SPoLs and teachers. The college and university's continuous professional development programs, stringent recruitment processes, peer evaluations, and annual faculty evaluations were responsible for the positive perceptions of SPoL and SPoT. Emphasis on improving the quality of education and creating a conducive learning environment is evident in these practices. The study does not directly compare college's results with those of other institutions, but the practices mentioned suggest a proactive approach to fostering a positive educational environment.

'Students' Academic-self-perception

Approximately 54% of participants ($n=173$) felt positive with the mean result of 18.29 ± 6.560 as shown in Table a mean result of 18.29 ± 6.560 , as shown in Tables 2 and 3. The mean result of 18.29 ± 6.560 , as shown in Tables 2 and 3 closely relates to the ability of the 'students' to cope with the academic workload [26]. A well-designed and developed course timetable with more self-directed learning sessions allocated is a leading cause of this positive perception, as seen in the Australian DREEM study [36]. Many extracurricular activities aligned with program learning outcomes implemented within the course schedule gave the students free time to learn some non-technical skills in pressure-free time, supporting positive perception. The study examined students' perceptions of their ability to cope with the academic workload, with approximately 54% of participants reporting feeling positive. The mean result for this aspect was 18.29 ± 6.560 . A significant finding was students' positive perception of their ability to cope with academic workloads, with a mean score of 18.29, above the midpoint of the DREEM scale, indicating that many participants felt confident in managing their academic responsibilities. This positive perception can positively impact student well-being and academic performance. When students feel capable of handling their workload, they are likely to experience less stress and anxiety, which can lead to improved learning outcomes.

According to this study, students' perceptions of their ability to cope with academic workloads are influenced by several factors. Course timetables are essential to students' perceptions of their academic workload. Having self-directed learning sessions in the timetable allows students to manage their time effectively and to control

their learning pace. Students are empowered to take control of their learning journey using this approach, which is aligned with active learning and student-centered education principles. A positive perception of coping with academic workload is also supported by the implementation of extracurricular activities that align with program-learning outcomes. A well-rounded educational experience can be achieved by participating in extracurricular activities beyond the core academic curriculum. Students benefit from these activities regarding personal growth, skill development, and social interaction, all of which can reduce stress and improve their overall wellbeing.

Consequently, based on the study's lack of explicit comparisons, we cannot directly compare the current colleges' scores for dealing with academic workload with those of other colleges or institutions. While a mean score of 18.29 is above the midpoint of the DREEM scale, it indicates a positive perception among participants. Students can manage their academic demands effectively, which is an encouraging sign of their commitment to creating a conducive learning environment. As a result, students' perceptions of their ability to cope with academic workloads were positive. This positive perception is partly attributed to well-designed course schedules with self-directed learning sessions and the implementation of extracurricular activities aligned with the learning outcomes. Students' well-being and academic performance can be enhanced if they positively perceive academic workload management. Further research and comparison could provide a better understanding of students' overall academic experiences compared with other colleges.

'Students' Perceptions of Atmosphere (SPoA)

By "learning resources", authors mean things like the physical layout of classrooms and clinics and the attitude and demeanor of instructors during class and patient care. It comprises academic regulations and planning of the academic curriculum. Tables 2 and 3 show that 54% of the students ($n=174$) felt that the environment had improved. The mean score in this group was 27.339.342. The results are encouraging based on the study's findings at Taibah University's College of Medicine [37]. The positivity of student perception is based on well-designed timetables, a motivating environment, a wide range of extracurricular activities offered to students to enhance and encourage their interpersonal skills, and academic advisory services, such as academic, psychological, behavioral, and career counseling.

The study discusses the results of SPoL resources, which encompass various aspects, such as the physical layout of classrooms and clinics, instructor attitudes and demeanor during class and patient care, academic

regulations, and curriculum planning. Based on a study conducted at Taibah University College of Medicine, 54% of students ($n = 174$) felt that the learning environment had improved, with a mean score of 27.339.342. These results were encouraging. It is noteworthy that 54% of the students positively perceived improved learning resources. A mean score of 27.339.342 indicated that most students perceived positive changes. Positive perceptions suggest that students are satisfied with various aspects of their academic experience such as physical facilities, instructor attitudes, and academic structure.

A well-designed timetable plays an essential role in shaping students' academic experiences. This study identified several factors that influenced students' positive perceptions of learning resources. Optimizing class sessions, clinical rotations, and study time can help students to achieve a balanced and effective learning schedule. Students can better manage their academic workload when their timetables are organized, allowing for a smoother flow of learning activities.

Supportive and encouraging environments can inspire students to strive for academic excellence and to actively participate in their educational journey. Motivating environments foster enthusiasm and engagement among students, which can positively affect learning outcomes. It is beneficial for students' interpersonal skills to participate in various extracurricular activities. Essential life skills, such as teamwork, leadership, and communication, can be developed through such activities beyond the traditional academic setting. Student support can be provided in various ways, including academic, psychological, behavioral, and career counseling. AsAsThrough such advisory services, students can navigate academic challenges and make informed career decisions.

The results of a study conducted by Taibah University College of Medicine are described as encouraging. However, the Taibah University study did not provide specific details regarding the DREEM scores or the learning resources evaluated. As a result, direct comparison is difficult. Ultimately, students' positive perceptions of improved learning resources were encouraging.. Students expressed satisfaction with various aspects of their learning environments. In addition to well-designed timetables, a motivating environment, extracurricular activities, and academic advisory services, the college strives to enhance students' overall learning experiences. Despite the comparison with the Taibah University study being mentioned as encouraging, more comprehensive details and further research are needed to draw meaningful conclusions and understand the SPoL resources across colleges and institutions in a broader context.

'Students' Social Self-Perceptions (SSSP)

In the current study, 50% of students with a mean of 15.66 ± 5.813 perceived social life as more positive, as shown in Tables 2 and 3, as such various institutes in SA as Jazan University [29] Qassim University [26], and King Khalid University [25]. This is similar to studies conducted in Sudan 17/28 [38], Pakistan 15.4/28 [39], and Malaysia 16.7/28 [33]. It partially attributed the finding of a good social life in this study to the extracurricular activities offered by the college and the Deanship of Student Affairs at the university level. The curriculum is type-centered, with many active learning activities that increase student socialization with colleagues and tutors. In addition, academic advisory services play a significant role in determining social life, providing an excellent psychological support and feedback system for relevant students. In conclusion, this study showed that monitoring the educational environment could provide important information that medical educators should use to address the challenges that need attention and implement improvement changes.

According to the study, half of the students perceived social life more positively, as indicated by a mean score of 15.66 ± 5.813 . In addition to comparing these findings with those of other Saudi Arabian universities, this study also compares them with those of Sudan, Pakistan, and Malaysia. According to the current study, extracurricular activities, type-centered curricula with active learning activities, and academic advisory services providing psychological support and feedback to students contributed to the positive perception of social life. Students perceived social life positively in 50% of cases, with a mean score of 15.66. The DREEM scale for social life ranges from 0 to 28, with higher scores indicating a more positive view. A mean score of 15.66 indicates that social life within the educational environment has room for improvement. Social life is viewed positively by several factors identified in this study.

Students' socialization is likely to be promoted by extracurricular activities offered by the college and by the university's Deanship of Student Affairs. Such activities allow students to interact with their peers outside the classroom, thereby fostering social connections and a sense of belonging. Student engagement and tutor–student interaction can be increased through a type-centered curriculum with active learning activities. Students collaborate and build relationships with their instructors and each other through active learning approaches such as group discussions, team-based projects, and hands-on learning experiences.

Students can benefit from the psychological support and feedback offered by academic advisory services, which can enhance their social life. This can

contribute to a more positive social experience for students who receive guidance and mentorship from advisors. The study results were compared with those from other institutes in Saudi Arabia, Sudan, Pakistan, and Malaysia regarding social life perception. Although these studies provide specific DREEM scores, it is evident that perceptions of social life across institutions are similar. Based on the comparable scores, social life deserves attention and improvement in various educational environments.

The study concluded that the educational environment and students' perceptions of social life should be monitored. According to 50% of the participants, extra-curricular activities, a type-centered curriculum with active learning, and academic advisory services contribute to a positive social experience. This emphasizes the need for medical educators to address challenges and implement changes to enhance students' social experiences, even though there is still room for improvement. Educators can create a more supportive and enriched social environment for students by understanding their perceptions.

Conclusion

According to the DREEM inventory evaluations, the educational environment at Prince Nora University in Saudi Arabia has generally been positively perceived. The students' recognition of academic ambience appears exceptionally high, although there is scope for bolstering SocialSelfP-perceptions. Notably, the DREEM inventory has emerged as a powerful and all-encompassing tool to gauge different facets of the educational environment, proving its irreplaceable value in this scenario. Consequently, it is suggested that other Saudi Arabian universities might find it beneficial to adopt this tool to pinpoint possible difficulties and opportunities for the enhancement of their educational landscapes. Other Saudi Arabian universities should consider adopting the DREEM inventory to identify areas for improvement and opportunities to enhance their own educational settings based on the positive perception of the educational environment at Prince Nora University and the effectiveness of the DREEM inventory. Declaration.

Abbreviations

DREEM	Dundee Ready Environment Educational Measure
HPE	Health professional education
NCAAA	National Commission for Accreditation and Assessment
PNU	Princess Noura University
SASP	Students' Academic Self-Perceptions
SPoA	Student Perceptions of Atmosphere
SPoL	Students' perceptions of learning
SPoT	Students' Perceptions of Teachers
SSSP	Student Social Self-Perceptions

Supplementary Information

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Supplementary Material 1
Supplementary Material 2

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Authors' contributions

Ibrahim Bani designed the research, conceived the idea, developed the theory, verified the analytical methods, supervised the findings of this work, and prepared and edited the manuscript. On the other hand, Latefa Hamad Al Fryan and Mahasin Ibrahim Shomo were responsible for data collection and analysis, which are commonly used to present complex information in a concise and understandable format.

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Availability of data and materials

All authors have shared their raw data and attached them to the supplementary files.

Declarations

Ethics approval and consent to participate

The authors confirm that all methods were carried out following the relevant guidelines and regulations. Moreover, the Authors confirm that the committee Chairman approved all protocols, Institutional Review Board Registration Number with KACST, KSA (HAP-01-R-059), at Princess Nourah Bint Abdulrahman University, Riyadh, KSA. Informed consent was obtained from all subjects and/or their legal guardians (s).

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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