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# Comparison of educational environment from the view point of undergraduate students of different fields in Ahvaz Faculty of Rehabilitation Sciences, second semester 2019

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## Abstract

**Background & Objective:** The educational environment is everything happening within the university including classrooms and departments. Getting feedback on students' attitudes to the educational environment is one of the most important components of evaluating this environment. The purpose of this study was to compare the attitudes of undergraduate students of Ahvaz Faculty of Rehabilitation Sciences about the educational environment using the Dundee Ready Education Environment Measure (DREEM) questionnaire.

**Materials and Methods:** In this descriptive cross-sectional study, 137 third- and fourth-year undergraduate students in the fields of physiotherapy, speech therapy, audiology, and occupational therapy who completed the second semester of the academic year 2018-2019 completed the DREEM questionnaire. This questionnaire has 5 domains and its maximum score is 200. In this tool, the score indicates more favorable evaluation result. Data analysis was performed using SPSS 18 and One-way analysis of variance test.

**Results:** The overall score of the questionnaire for all fields was above 130. A comparison of the mean scores of the domains with the one-way analysis of variance did not show a statistically significant difference between the different fields. Tukey's test showed a significant difference between the overall score in the field of audiology and speech therapy (P =0.028). The average score of less than 2 was not observed for any question.

**Conclusion:** According to the overall score of more than 120 for all fields, the educational environment of this faculty is in good condition and the attitude of students is positive. Lack of proper support system, self-centeredness of teachers, fatigue and disappointing experiences of students need more attention.

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## Introduction

Educational environment means anything that occurs in the classroom, institution, school, or university and includes learning opportunities, understanding the infrastructures, interaction of students with one another, attitude and skills of professors, and other related factors (1, 2). All of these components play a role in the success, active participation, progress, motivation, and happiness of undergraduate students of paramedic science (1, 2). In fact, the educational environment is one of the key factors for learning (3), which affects the behavior of students and their sense of being good (4). Ideally, an educational environment should nurture scientific activities, academic advancement, healthy competition, and critical thinking while simultaneously encouraging a sense of friendship, cooperation, and support (5). Therefore, the educational environment is one of the main components for the assessment of learning experience during education (6).

However, evaluation of such an environment is complicated (5) since, from one hand, it includes various dimensions, and on the other hand, it seems that the educational environment cannot be directly evaluated due to its theoretical structure. Meanwhile, the educational environment can be manifested in the experiences and perceptions of students (5). In addition to measurability, other features of the educational environment are its changeability and the ability to improve the quality of the educational environment and process (7). This is

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also important since finding the strengths and weaknesses is the first step in designing strategies the main goal of which is developing the educational environment and reaching favorable standards (8). According to the World Federation of Medical Education, evaluation of the educational environment is one of the most important areas of assessment of medical and paramedical education plan. The constant assessment of the educational environment of institutions and schools improves areas that need attention and strengthens the infrastructures in the field (9).

Students are the main beneficiaries of the learning process and receiving feedback from these individuals plays a key role in the confirmation of any claim of success in the training program (10). As a resident in the classroom, students experience the environment and their perception of the environment shapes their behavior (11). Therefore, students' perception of the educational environment is used to predict the results and effects of education and the level of learning (10). Different cultural backgrounds, access to facilities, educational programs, students' expectations, and quality of education provided in the school affect students' perception of the educational environment (12). Medical and paramedical instructors use various methods to evaluate the perception and attitude of students toward the educational environment. In this regard, the Dundee Ready Education Environment Measure (DREEM) has had extensive use in the measurement of the educational environment as a suitable and specified tool (8). According to a recent review, this questionnaire is the most comprehensive tool with appropriate validity and reliability for assessing the educational environment in medical universities (13). To date, the instrument has been translated into eight different languages and has been used in at least 20 countries (13). The tool is applied to diagnose the curriculum problems and the effectiveness of changes in education and to recognize the difference between the actual environment and a desirable environment. Therefore, the tool can provide valuable information for related authorities (11). Moreover, the DREEM has been used in various institutions with different objectives such as comparing schools, comparing successful and less successful students (14), comparing different educational courses (15), assessing students' perception of an ideal educational environment (16), and comparing the expected and favorable educational environment to the actual educational environment (17). Therefore, the instrument has been recognized as a beneficial tool to identify problems and take interventional measures in the educational environment promptly (18).

Previous studies have shown that DREEM has been mostly used to evaluate the educational environment in the field of medicine, dentistry, pharmacy, midwifery, and nursing (3, 19, 20). In addition, only a small number of studies have focused on the attitude of students in the rehabilitation science fields toward this issue (2, 8, 21, 22). On the other hand, these rare cases have only compared the educational environment of rehabilitation science fields to other fields such as pharmacy, medicine, dentistry, and nursing (2, 8, 23) or the clinical education environment of one of the rehabilitation science fields using the mentioned instrument (21, 22). It seems that the comparison of the educational environment of different fields of rehabilitation sciences of a faculty, which are probably the same in terms of infrastructure and some governing laws, can show the attitude of students well and provide the conditions for review and development. With this background in mind, this study aimed to compare the perception and attitude of undergraduate students in the fields of physical therapy, occupational therapy, audiology, and speech therapy at the rehabilitation school of Ahvaz, Iran applying the standard DREEM tool.

## Materials and Methods

This descriptive, cross-sectional study was performed in the rehabilitation school of Ahvaz confirmed with the code of ethics of IR.AJUMS.REC.1398.520. The research population included third and fourth-year

students in the field of physical therapy (n=41, 25 women and 16 men), occupational therapy (n=33, 23 women and 11 men), audiology (n=31, 21 women and 10 men), and speech therapy (n=32, 22 women and 10 men). The subjects were studying in the second semester of the academic year 2018-2019 and were selected by the census method. In this study, we collected information by distributing DREEM (18) among the students. Notably, the Farsi version of the instrument was validated and its reliability was confirmed by Falah Kheiri Langroodi in 2012 (24). The questionnaire has two sections: the first section includes questions about the individual characteristics of students, whereas the second section includes 50 questions about the students' perception of the educational environment. The latter encompasses five dimensions, including: 1) students' perceptions of learning (12 items, max score: 48), 2) students' perceptions of teaching (11 items, max score: 44), 3) students' self-perception of scientific abilities (eight items, max score: 32), 4) students' perception of the educational atmosphere (12 items, max score: 48), and 5) students' social self-perception of social conditions (seven items, max score: 28).

The questionnaire was scored based on a five-point Likert scale, from completely agree (four scores) to completely disagree (zero scores). It is noteworthy that nine out of 50 items were scored reversely (39, 35, 25, 17, 8, 4, 50, 48, 9). In this tool, a higher score was indicative of a more favorable assessment result. In addition, the maximum score obtained was 200, which showed the ideal condition of an educational environment. Moreover, the score range of 0-50 was indicative of poor educational environment, whereas the score ranges of 51-100, 101-150, and 151-200 showed unfavorable, favorable, and excellent educational environments, respectively. In each area of the questionnaire, the maximum score for that area is calculated according to the number of questions, and each area is divided into four domains according to the maximum scores. For instance, the maximum score after perceptions of learning is 48, where a score range of 0-12 is interpreted as very weak, the score range of 13-24 shows negative perceptions of learning, and the score ranges of 25-36 and 37-48 mean more positive perceptions and a good image of learning, respectively (25). In addition, due to the difference in the maximum score in the domains and the overall score, the mean score of each domain was calculated as a percentage of its maximum score in order to provide the possibility of comparison. In this way, the score ranges of 0-25%, 25-50%, 50-75%, and 75-100% are indicative of very weak, unfavorable, favorable, and excellent domains, respectively.

Evaluation and comparison of the scores of the questionnaire are extremely important for more accurate recognition of the weaknesses and strengths of the educational environment. The items with a mean score of ≥3 was recognized as positive points, whereas the items with a mean score of≤2 showed unfavorable status in this regard. Moreover, the mean score of 2-3 demonstrated aspects of the educational environment that required improvement (25). Therefore, the results of the questionnaire can be examined in three ways, which include comparing the overall score of the questionnaire, comparing the score of domains, and comparing the score of each item (2, 8). In the current study, comparisons were made in all three sections of the overall score, scope, and questions in order to achieve more accurate results.

In order to confirm the validity of the questionnaire, the tool was provided to 10 experienced professors at the rehabilitation science school, and adjustments were made in the instrument before the confirmation of its validity. On the other hand, the tool's reliability was approved using Cronbach's alpha method. In this regard, the questionnaire was distributed among 32 individuals with a 10-day interval and the Cronbach's alpha coefficients were calculated after collecting and assessing the questionnaires. According to the results, a Cronbach's alpha of 0.93 was obtained for DREEM, and Cronbach's alphas of 0.88, 0.85, 0.88, 0.84, and 0.80 were obtained for its domains, including perceptions of learning, perceptions of teaching, self-perception of scientific ability, perception of atmosphere and

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social self-perception, respectively. Data analysis was performed in SPSS version 18 using the Shapiro-Wilk Test, which showed the normal distribution of the data, one-way analysis of variance (to compare the perceptions of students in various fields about their educational environment), and post hoc Tukey test (in case of obtaining significant results). Moreover, a P-value of 0.05 was considered statistically significant.

## Results

From 145 questionnaires distributed, 137 (95%) were filled by third and fourth-year undergraduate students in the fields of physical therapy, occupational therapy, audiology, and speech therapy at the rehabilitation science school of Ahvaz with a mean age of 18-24 years. It is worth noting that 96% of the participants were single and only 4% were married. The total score of the questionnaire and the score of its domains for all fields are presented in Table 1. The comparison of the mean score of the questionnaire's domains showed no significant difference between the fields. However, the post hoc Tukey test demonstrated a significant difference between the total score of the questionnaire filled by students in the fields of audiology and speech therapy (Table:1).

**Table 1: Comparison of mean ± standard deviation of domain scores and total score of the questionnaire for physiotherapy, audiology, occupational therapy and speech therapy students of Ahvaz University of Rehabilitation Sciences using one-way analysis of variance test**

| section | physiotherapy | audiology | occupational therapy | speech therapy | p.value |
|---|---|---|---|---|---|
| **Students' perception of learning** | 36±5.4 | 38.6±6.6 | 36.15±4.67 | 33.94±9.18 | 0.14 |
| **Students' perception of teachers** | 30.14±3.93 | 31.04±3.28 | 28.4±4.6 | 27.65±6.1 | 0.063 |
| **Students' academic self-perceptions** | 21.41±4.1 | 21.68±20.19 | 20.19±3.54 | 19.87±4.1 | 0.33 |
| **Students' perception of atmosphere** | 39.38±4.8 | 40.88±6.59 | 38.76±3.54 | 36.05±8.9 | 0.86 |
| **Students' social self-perceptions** | 19.64±3.1 | 19.52±2.79 | 20.53±2.6 | 18.3±5.2 | 0.173 |
| **Total score** | 143.28±14.81 | 152±20.73 | 144±13.03 | 130±34.58 | 0.042* |

*** significant difference between speech therapy and audiology, p=0.028**

The mean score of each domain in terms of a percentage of its maximum score showed that the lowest and highest percentages in all fields were related to the third (self-perception of scientific abilities) and fourth (perceptions of the atmosphere) domains, respectively (Table 2).

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**Table 2: Average scores in terms of a percentage of its maximum score in the fields of physiotherapy, audiology, occupational therapy and speech therapy**

| section | physiotherapy | audiology | occupational therapy | speech therapy |
|---|---|---|---|---|
| **Students' perception of learning** | 75% | 80.14% | 75.31% | 70.70% |
| **Students' perception of teachers** | 68.5% | 70.54% | 64.54% | 62.84% |
| **Students' academic self-perceptions** | 66.90% | 67.75% | 63.09% | 62.09% |
| **Students' perception of atmosphere** | 82.04% | 85.16% | 80.75% | 75.10% |
| **Students' social self-perceptions** | 70.14% | 69.71% | 73/32% | 65.35% |
| **Total score** | 71.64% | 76% | 70% | 65% |

Examination of the questionnaire's items also showed that a mean of <2 was obtained for none of the items. However, a mean of two-three was obtained for several items, and other items received a mean score of <3. Moreover, a comparison of the mean score of questions between different fields of study using one-way analysis of variance test showed a significant difference for some questions (Table 3).

**Table 3: Evaluation of the mean and standard deviation of the score of the questionnaire questions in the fields of physiotherapy, speech therapy, audiology and occupational therapy with the results of one-way analysis of variance**

| | Item | Physiotherapy mean± SD | speech therapy mean± SD | Audiology mean±SD | Occupational therapy mean±SD | p.value |
|---|---|---|---|---|---|---|
| 1 | I am encouraged to participate in class | 3.31±1.09 | 2.98±0.15 | 3.34±0.97 | 3.64±0.83 | 0.046*1 |
| 2 | The course organisers are knowledgeable | 3.68±0.89 | 3.51±1.12 | 4.15±0.73 | 3.83±0.74 | 0.065 |
| 3 | There is a good support system for students who get stressed | 2.25±0.55 | 2.55±0.11 | 2.69±0.36 | 2.63±0.74 | 0.43 |
| 4 | I am too tired to enjoy this course | 2.54±0.32 | 2.64±0.75 | 3.46±0.79 | 2.73±0.99 | 0.11 |
| 5 | Learning strategies which worked for me before continue to work for me now | 3.43±0.84 | 3.50±1.15 | 3.46±0.85 | 3.83±0.79 | 0.29 |
| 6 | The teachers are patient with us | 3.03±0.84 | 2.91±0.43 | 3.18±0.91 | 3.13±1.21 | 0.20 |
| 7 | The teaching is often stimulating | 3.83±0.96 | 3.21±1.22 | 4.16±0.80 | 3.65±1.04 | 0.01*2 |
| 8 | The teachers ridicule the students | 3.78±0.11 | 3.53±0.16 | 3.57±0.54 | 3.22±0.48 | 0.29 |
| 9 | The teachers are authoritarian | 2.81±0.73 | 2.12±1.09 | 2.16±0.74 | 2.86±0.68 | 0.24 |
| 10 | I am confident about passing this year | 3.65±1.20 | 3.65±1.11 | 3.24±1.11 | 3.13±0.98 | 0.27 |
| 11 | The atmosphere is relaxed during teaching | 2.96±0.22 | 2.62±0.66 | 3.03±1.12 | 2.66±0.98 | 0.004*3 |
| 12 | This course is well timetabled | 2.65±0.17 | 2.62±0.22 | 3.19±0.93 | 2.83±0.88 | 0.06 |

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|---|---|---|---|---|---|---|
| 13 | The teaching is student-centred | 3.96±0.32 | 3.46±1.37 | 3.80±0.86 | 3.66±0.45 | 0.48 |
| 14 | I am rarely bored during this course | 3.67±0.79 | 2.96±0.64 | 3.5±0.71 | 2.83±0.11 | 0.17 |
| 15 | I have good friends in this course | 3.74±0.85 | 3.39±1.13 | 4.00±0.84 | 3.24±1.11 | 0.11 |
| 16 | The teaching helps to develop my confidence | 3.87±0.87 | 3.37±1.11 | 4.00±0.50 | 3.86±0.89 | 0.055 |
| 17 | Cheating is a problem in this course | 3.37±0.75 | 3.07±1.12 | 3.60±0.86 | 3.33±0.85 | 0.23 |
| 18 | The teachers have good communication skills with students | 3.59±0.97 | 3.22±1.18 | 3.34±0.94 | 3.43±0.77 | 0.52 |
| 19 | My social life is good | 3.64±0.76 | 3.76±1.06 | 3.15±1.12 | 3.03±0.80 | 0.12 |
| 20 | The teaching is well-focused | 3.28±1.11 | 3.00±1.24 | 3.50±0.98 | 3.22±0.66 | 0.33 |
| 21 | I feel I am being well prepared for my profession | 3.06±0.95 | 3.01±0.21 | 3.23±1.09 | 3.12±1.06 | 0.11 |
| 22 | The teaching helps to develop my confidence | 3.43±0.95 | 2.76±0.17 | 3.34±0.93 | 3.04±0.45 | 0.013*4 |
| 23 | The atmosphere is relaxed during lectures | 3.75±0.81 | 3.38±1.04 | 4.08±0.75 | 3.55±0.44 | 0.44 |
| 24 | The teaching time is put to good use | 3.25±1.07 | 2.96±0.22 | 3.07±0.89 | 3.28±0.96 | 0.51 |
| 25 | The teaching over-emphasises factual learning | 3.28±0.99 | 2.42±0.72 | 3.96±0.83 | 2.63±0.77 | 0.011*5 |
| 26 | Last year work has been good preparation for this year work | 3.59±0.91 | 3.07±1.14 | 3.96±0.92 | 3.88±0.87 | 0.14 |
| 27 | I am able to memorise all I need | 3.45±0.88 | 2.96±1.07 | 3.07±0.89 | 3.89±0.73 | 0.56 |
| 28 | I seldom feel lonely | 3.50±0.82 | 3.15±1.00 | 3.53±1.02 | 3.40±1.03 | 0.13 |
| 29 | The teachers are good at providing feedback to students | 3.71±0.88 | 3.37±1.11 | 3.65±1.05 | 3.77±0.99 | 0.61 |
| 30 | There are opportunities for me to develop interpersonal skills | 3.46±0.94 | 3.08±1.07 | 3.50±0.64 | 3.17±1.00 | 0.32 |
| 31 | I have learned a lot about empathy in my profession | 2.75±1.04 | 2.36±0.009 | 2.50±1.02 | 3.27±0.92 | 0.003*6 |
| 32 | The teachers provide constructive criticism here | 3.56±1.07 | 3.95±0.43 | 3.76±0.76 | 3.46±1.04 | 0.12 |
| 33 | I feel comfortable in class socially | 3.78±0.70 | 3.30±1.04 | 3.84±0.67 | 3.44±0.90 | 0.77 |
| 34 | The atmosphere is relaxed during tutorials and practical session | 3.64±1.01 | 3.22±1.01 | 3.36±0.86 | 3.25±1.21 | 0.76 |
| 35 | I find the experience disappointing | 3.85±0.61 | 3.35±1.06 | 3.80±0.80 | 3.36±0.66 | 0.15 |
| 36 | I am able to concentrate well | 3.12±1.03 | 2.92±0.52 | 3.63±0.93 | 3.53±0.89 | 0.005*7 |
| 37 | The teachers give clear examples | 3.15±0.95 | 3.29±0.95 | 3.46±0.98 | 3.06±0.98 | 0.48 |
| 38 | I am clear about the learning objectives of the program | 3.15±0.98 | 3.19±1.09 | 3.50±0.94 | 3.19±1.13 | 0.43 |
| 39 | The teachers get angry in class | 3.09±0.89 | 3.30±1.15 | 3.50±1.10 | 3.68±0.89 | 0.59 |
| 40 | The teachers are well prepared for their classes | 3.34±1.40 | 3.32±1.09 | 3.00±1.12 | 3.56±1.16 | 0.14 |
| 41 | My problem solving skills are being well developed here | 3.40±0.94 | 3.42±0.94 | 3.40±1.08 | 3.19±1.19 | 0.22 |
| 42 | The enjoyment outweighs the stress of the program | 3.40±0.91 | 3.03±1.28 | 3.01±0.91 | 3.06±1.06 | 0.73 |
| 43 | The atmosphere motivates me as a learner | 3.21±0.06 | 3.25±1.17 | 3.80±0.89 | 3.51±1.02 | 0.67 |

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|---|---|---|---|---|---|---|
| 44 | The teaching encourages me to be an active learner | 2.28±1.02 | 2.78±1.39 | 2.01±0.39 | 2.26±0.25 | 0.42 |
| 45 | Much of what I have to learn seems relevant to a career in healthcare | 3.12±0.20 | 3.00±0.12 | 3.45±0.76 | 3.22±0.45 | 0.11 |
| 46 | My accommodation is pleasant | 3.15±0.98 | 3.32±1.09 | 2.88±1.09 | 3.56±1.16 | 0.13 |
| 47 | Long term learning is emphasized over short term learning | 3.46±0.94 | 3.25±1.21 | 3.24±1.11 | 3.22±1.18 | 0.24 |
| 48 | The teaching is too teacher centered | 3.64±1.02 | 3.13±0.84 | 3.73±0.55 | 3.07±0.89 | 0.002*8 |
| 49 | I feel able to ask the questions I want | 3.76±0.76 | 3.24±1.11 | 2.92±0.43 | 3.07±0.89 | 0.12 |
| 50 | The students irritate the course organizers | 2.28±0.19 | 2.78±0.65 | 2.81±0.73 | 2.26±0.73 | 0.14 |

*1 Occupational therapy> speech therapy, *2 Audiology> speech therapy, *3 Audiology> speech therapy and Audiology> Occupational therapy, *4 Physiotherapy> speech therapy, *5 Audiology> speech therapy,*6 Occupational therapy> speech therapy,*7 Audiology> speech therapy, *8 Physiotherapy> Audiology

## Discussion

In the present study, the mean total score of DREEM was above 130 for all fields, which demonstrated the positive perceptions of undergraduate students in various fields of the rehabilitation school of Ahvaz about their educational environment. According to former studies, a total score above 100 for the questionnaire showed a favorable educational environment (2, 8). In most studies conducted in different countries of the world, the overall score of the DREEM questionnaire has been reported between 101 and 139 (1). In addition, international studies have demonstrated a higher DREEM score in universities with a higher development rate and a student-centered educational environment (1). There is also evidence that the overall score of this questionnaire is lower in traditional master-centered education systems, compared to advanced student-centered education systems (26). Memon et al. conducted a research to assess the educational environment of Riphah International University in Pakistan, reporting a mean total score of 124.9 for DREEM in the phisiotherapy field, which was lower than the mean obtained in pharmacy field (131.4) (2). In a comparison made by Brown et al. in Australia between nine different fields of study at Monash University, the mean total score of the DREEM questionnaire was 140 for physiotherapy and 140.6 for occupational therapy (23).

Moreover, Mohseni et al. reported the perception of speech therapy students of the educational environment provided at Rasoul Akram Hospital to be favorable (71.44% of the total DREEM score) (22). In Karolinska Institute, students in the field of physiotherapy had a positive perception of their educational environment due to obtaining a total score of 150 in the DREEM questionnaire (5). In line with the mentioned studies, students' perception of the educational environment in the rehabilitation science school of Ahvaz was reported to be positive, demonstrating a favorable educational environment at the school. In the present study, the overall score of the DREEM questionnaire for the field of audiology was more than 75% of the maximum score, which means an excellent educational environment, and in the fields of physiotherapy, speech therapy and occupational therapy was more than 65% of the maximum total score. Therefore, according to the favorable situation of the educational environment in this college, it is necessary to identify areas that can be strengthened and developed in order to achieve a higher education environment. A comparison of the mean score of the questionnaire domains also confirmed the undergraduate students' positive perception about the educational environment of

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Ahvaz Rehabilitation School. According to the results, the students' perception of the educational environment was excellent by obtaining a score above 75%. It seems that the existence of a comfortable and calm atmosphere along with a good class schedule and the educational program plays a role in creating this success. While students had a positive perception of their scientific abilities, the mean score of the domain was the lowest among all domains of the questionnaire. It is possible that paying attention to areas such as developing learning skills and problem-solving can be effective in improving the students' perception of their scientific ability.

According to the results of the present study, more attention must be paid to areas such as the appropriate support system, self-centeredness of professors, and fatigue and disappointing experiences of undergraduate students in the school (2, 5). In the field of speech therapy, it seems that a change in instructors' teaching methods in a way that is based on deeper learning combined with motivating and encouraging active student participation requires more attention. According to previous studies, in order to create more effective learning, the learning process should place more emphasis on learning methods and not just present content (27). Therefore, the role of professors is crucial for the professional development of students and their adequacy. In a research by Gaberson et al., it was concluded that the information would be turned into memory if extensive data was presented to students. Therefore, students temporarily learn the content for a short time and fail to use them in future complicated situations (28). Another issue that seems to need attention is teaching students how to gain focus by holding workshops or providing training packages that can help them deal with this issue in the field of speech therapy and other disciplines.

One of the major drawbacks of the present study was its assessment tool, which had pre-determined dimensions and might have failed to evaluate specific aspects affecting the quality of the educational environment of the school. Therefore, it is suggested interviews be conducted in future studies in line with filling the questionnaires to provide more accurate information.

## Conclusion

According to DREEM, the participants had a positive perception of the educational environment of the rehabilitation school of Ahvaz, which demonstrated the favorable state of the educational environment. However, it is recommended that more attention be paid to the appropriate support system, self-centeredness of professors, and fatigue and disappointing experiences of undergraduate students in this school. In the field of speech therapy, it seems that changes in the teaching methods of instructors in a way that is based on deeper learning combined with motivating and encouraging active student participation should be considered by officials of the school.

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**Conflicts of Interest:** The authors declare that there are no conflicts of interest.

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