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Graduate Roles in Medical Education

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ABSTRACT

Aim: The aim of this study is to score the level of competence expected from medical graduates based on their education.

Methods: We designed the study as a cross-sectional descriptor in a quantitative research design and preferred to reach out Süleyman Demirel University medical faculty students (n:471). As the dependent variable of the study, students were asked to rate the education they have received so far between 1 and 10 in general. Süleyman Demirel University medical faculty graduates were asked to rate the importance they attach to the expected roles and their performance in the role-related training program between 1 and 5 points.

Results: The satisfaction score of all students with education was calculated as 6.51±1.83 and it is observed that there is a statistically significant difference between 1st year and 4th-5th years, and the difference between 4th-5th and 6th years ($p<0.001$). In both importance and performance scoring of the students, score for the role of specialist in the field of medicine was the highest 4.34±0.97 and 3.85±1.10 respectively and on the other hand score for the manager/leader role was the lowest 3.96±1.09 and 3.42±1.31 respectively.

Conclusion: Making measurements in different areas with different approaches in the evaluations makes it easier to make a general decision about the education program. Based on the findings of our study, we can prioritize specific areas for development, such as curriculum design, instructional methods, student support services, or industry partnerships. Engaging in comprehensive studies allows us to explore innovative approaches, incorporate best practices from similar programs, and address the evolving needs of students and the programs.

Keywords:

graduate roles, evaluation, importance-performance analyses, medical education,

1. INTRODUCTION

It is recommended in the literature to examine the achievement of graduation goals in higher education at regular intervals (1–3). Evaluation of the achievement of graduation goals is generally carried out with program evaluation studies. (4). Student views on graduation goals are also included in this program evaluation studies (5). It is very valuable for the students, who are considered as the end users of the training program, to score the elements in the program.

Süleyman Demirel University Faculty of Medicine (SDUFM) was established on April 15, 1993 and started to accept students in the 1993-1994 academic year. It has served in some of the buildings taken over from Sümerbank and Isparta Provincial Health Directorate for a while during its establishment years, and since 2002 it has been serving in the buildings whose construction was completed on the East Campus. Our faculty started education with 37 students in 1993-1994 academic year. In the 2022-2023 Academic Year, our total number of students has reached 1588.

The education program of our faculty is system-

based, outcome-based and horizontal-vertical integrated education program model for the priority health problems of the society. Our faculty is fully accredited in 2019 (6–8).

The general aims and objectives of our faculty are defined separately under the name of education, research and service purpose, in a way that takes into account the social responsibilities of the faculty. In addition to these definitions, the mission and vision of the faculty were determined. In addition, the aim of the training program was defined and 7 basic roles expected from Süleyman Demirel University Faculty of Medicine graduates were determined. The first version of our faculty's basic roles has been registered as an "adaptive version" under the name of "rose of roles" in line with the CanMEDS framework (9). Afterwards, it went through a process of regular and continuous renewal. In line with the opinions of internal and external stakeholders, the final version is shared on the faculty website. (10). Among these basic roles, there are specialists in the field of medicine, health advocates, analytical and scientific thinkers, communicators, lifelong learners, managers/leaders, adopting professional ethics and professional principles, and establishing interprofessional cooperation.

The role of expert in medicine is central and defines the scope of clinical practice. With the role of an expert in the field of medicine, it is stated that physicians should prioritize patient safety and provide patient-centered health service delivery. Physicians with this role are expected to actively use medical knowledge, clinical skills and professional values in health care. Classroom courses in the preclinical period, integrated sessions and classroom courses in clinical internships, observations, bedside training and skills training in our training program aim to develop this role.

It defines contributing to the improvement and development of the health of individuals who make up the society with the role of health advocate (11). The role of health advocate refers to the efforts of physicians to identify the needs of the society with various stakeholders and to understand the priority health problems of the society in order to improve the health of the society. Physicians with this role are expected to be pioneers in the use of resources for social change and transformation (11). It is aimed to develop this role with the issues related to the priority health problems of the society, public health and family medicine internships in our training program.

It defines physicians' adoption of evidence-based medicine practices in health care delivery with the role of analytical and scientific thinker (12). For this purpose, processes such as evidence levels, access to high-evidence information, evidence-based decision making and wing production are discussed (12). It is aimed to develop this role with educational activities such as evidence-based medicine practices courses, integrated sessions, project assignments, case presentations and scientific research practice within the public health internship, which are included in our training program.

The communicator role refers to the communication skills that facilitate the physician's ability to receive and give effective information in health service delivery (13). Physicians with this role are expected to be able to communicate effectively with patients and their relatives (13). Communication skills training in our training program aims to develop this role.

The lifelong learner role is defined as all the educational activities that the physician participates in throughout his professional life in order to improve his knowledge, skills and attitudes (14,15). Physicians with this role are expected to participate in educational activities where current knowledge and practices in their professional practice are discussed (15,16). In our training program, it is aimed to develop lifelong learning behavior with the project work outputs in the preclinical period and the research practice in the public health intern.

The role of manager/leader is defined as having the qualifications/competences that the physician needs to acquire in order to maintain and develop the health system (17). Physicians with this role are expected to take responsibility for the management and vision of the health institution in which they work. In our training program, the role of manager/leader is

discussed theoretically in the preclinical period, but it is discussed through role modeling in clinical internships.

The role of the physician, which adopts professional ethics and professional principles and can establish interprofessional cooperation, is defined as performing his duty with an interprofessional perspective in the provision of health services. Physicians with this role are expected to take responsibility both as a team leader and as a team member in teamwork in the provision of health services. Special study modules in our training program have been developed as small group training activities for this purpose.

There are many educational elements associated with these roles in our training program. Monitoring how the roles change in various periods within the integrated education program is a very valuable data source for the evaluation of the program. In our faculty, the education program is evaluated at regular intervals and these evaluation data are shared with the faculty management. In addition, previous program evaluation studies are used in many national/international studies and presented as a scientific contribution to the field of medical education (18–22).

Aim: Aim: The aim of this study is to score the level of competence expected from medical graduates based on their education. By examining the education provided to medical students, we aim to determine how well they are prepared to meet the demands and responsibilities of their future roles. By scoring the level of roles expected from medical graduates, we aim to gain a comprehensive understanding of the strengths and weaknesses of the medical education program. This assessment will help identify areas of improvement in the curriculum, teaching methods, and student support systems. It will also provide valuable insights for faculty and administrators to enhance the educational experience and better align it with the expectations of healthcare institutions and society. Ultimately, this study aims to contribute to the continuous development of medical education, ensuring that graduates are well-prepared to provide high-quality healthcare services, meet professional standards, and adapt to the evolving needs of the healthcare field.

2.METHOD:

The study was designed as a cross-sectional descriptor in a quantitative research design. Süleyman Demirel University medical faculty students were preferred for the study (N:1588). As a subgroup, the period in which the students were actively educated was preferred. The study was approved by the Süleyman Demirel University clinical research ethics committee. All patients and participants of the research informed about the aims and procedures of the study, including the potential risks/benefits of the intervention and exclusion criteria. Written informed consent signed by the participants for our study. In addition, it was committed to the ethics committee that no intervention would be made regarding the educational activities of the students during the data collection process for the study. In the study, active education at Süleyman Demirel University and volunteering for the study were determined as inclusion criteria. Those who were not active semester students for any reason and those who did not volunteer to participate in the study were excluded from the study. For the study, age and gender information were requested from the students as descriptive data. As the dependent variable of the study, students were asked to rate the education they have received so far between 1 and 10 in general. Again, as the dependent variable, Süleyman Demirel University medical faculty graduates were asked to rate the importance they attach to the expected roles and their performance in the role-related training program between 1 and 5 points. A Google form was designed to collect data for demographic data and dependent variables for the study. No sample selection was made for the study. The aim of the study was to reach all students. The Google form was shared with all students online. Volunteer students' data were collected. Only the students who volunteered for the study expressed

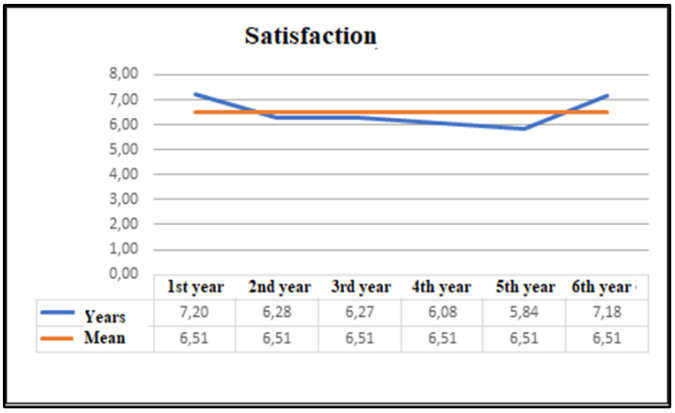

Chart 1: Satisfaction chart

their opinions as a limitation of the study. Jamovi and SPSS software were used in the statistical analysis of the study. Mean and frequency were calculated for descriptive data. Mean and standard deviations were calculated for satisfaction scoring and importance/ performance ratings. Radar charting and importance performance matrix were created for importance and performance scores.

3.RESULTS:

471 students participated in the study (n:471). The mean age of the students was calculated as 21.23±20.34 years old (Min: 16 year, Max: 26 year). Of the students, 233 (49%) were male and 238 (51%) were female. When students are asked to rate the education they have received in terms of satisfaction, 1st year students 7.20± 1.87, 2nd year students 6.28± 1.77, 3rd year students 6.27 ±1.69, 4th year students 6.08±1.96. It was calculated as, 5.84±1.65 for 5th year students, 7.18±1.40 for 6th year students. The satisfaction score of all students with education was calculated as 6.51±1.83 (Table 1).

The graph shows that there is a slight decrease in the scoring of students' satisfaction with the education program during the transition period to the clinic (Chart 1).

In the confirmatory tests of the change between the

Table 1: Student Satisfaction Scores

	Participants		Q: Rate the education you have received so far in terms of satisfaction;		
	n	**%**	**Mean**	**±**	**Standard Deviation**
1st year	105	22.3 %	7.20	±	1.87
2nd year	72	15.3 %	6.28	±	1.77
3rd year	63	13.4 %	6.27	±	1.69
4th year	95	20.2 %	6.08	±	1.96
5th year	69	14.6 %	5.84	±	1.65
6th year	67	14.2 %	7.18	±	1.40
Total	471	100%	6.51	±	1.83

Table 2: Analysis of Satisfaction Score Differences Between Years

	2nd year	**3rd year**	**4th year**	**5th year**	**6th year**
1st year	0.009*	0.012*	<0.001**	<0.001**	1.000
2nd year		1.000	0.981	0.680	0.032
3rd year			0.987	0.727	0.039
4th year				0.952	0.002*
5th year					<0.001**

*p<0.005
**p<0.001

Table 3: Importance performance averages of roles

	Importance			Performance		
	Mean	**±**	**Sd**	**Mean**	**±**	**Sd**
Specialist in Medicine	4.34	±	0.97	3.85	±	1.10
Health Advocate	4.03	±	1.09	3.79	±	1.15
Analytical And Scientific Thinker	4.21	±	0.96	3.58	±	1.21
Communicator	4.28	±	0.98	3.61	±	1.28
Lifelong Learner	4.23	±	1.00	3.74	±	1.15
Manager / Leader	3.96	±	1.09	3.42	±	1.31
Adopting Professional Ethics And Professional Principles, Able to Establish Interprofessional Cooperation	4.14	±	1.02	3.75	±	1.17

Table 4: Importance scores

	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
	Mean	**Sd**	**Mean**	**Sd**	**Mean**	**Sd**	**Mean**	**Sd**	**Mean**	**Sd**	**Mean**	**Sd**
Specialist in Medicine	4.17	0.77	3.50	1.18	3.94	0.91	3.65	0.93	3.51	0.81	4.29	1.14
Health Advocate	3.99	0.93	3.36	1.24	3.75	1.09	3.84	1.14	3.24	1.29	4.47	0.50
Analytical and Scientific Thinker	3.96	0.89	3.25	1.03	3.43	0.93	3.27	1.09	3.07	0.94	4.45	0.79
Communicator	3.94	0.94	3.17	1.19	3.60	0.92	3.53	1.12	2.83	0.76	4.46	0.39
Lifelong Learner	4.03	0.85	3.36	1.09	3.52	0.90	3.65	1.08	3.30	1.22	4.44	0.48
Manager / Leader	3.63	1.15	3.33	1.13	2.83	1.07	3.53	1.16	2.77	1.08	4.28	0.48
Adopting Professional Ethics And Professional Principles, Able To Establish Interprofessional Cooperation	4.03	0.89	3.47	1.19	3.46	1.13	3.72	1.12	3.41	0.93	4.29	0.48

students' satisfaction, it was observed that there was a statistically significant difference between the years ($p<0.001$). When testing the difference between years, it is observed that there is a statistically significant difference between 1st year and 4th-5th years, and the difference between 4th-5th and 6th years (Table 2).

In the importance scoring of the students, 4.34±0.97 for the role of specialist in the field of medicine, 4.03±1.09 for the role of health advocate, 4.21±0.96 for the role of analytical and scientific thinker, 4.28±0.98 for the communicator quotient, 4.23±1.00 for the lifelong learner role, 3.96±1.09 for the manager/ leader role, and 4.14±1.02 for the role that adopts professional ethics and professional principles and can establish interprofessional cooperation. calculated.

In performance scoring, 3.85±1.10 for the role of specialist in the field of medicine, 3.79±1.15 for the role of health advocate, 3.58±1.21 for the role of analytical and scientific thinker, and 3.61±1.00 for the communicator quotient. It was calculated as 3.74±1.15 for the lifelong learner roles, 3.42±1.31 for the manager/leader role, and 3.75±1.17 for the role that adopts professional ethics and professional principles and can establish interprofessional cooperation (Table 3).

It is seen that the students in the 1st students give the highest score to the role of specialist in the field of medicine, and the lowest score to the role of

Table 5: Performance Scores

	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd	Mean	Sd
Specialist in Medicine	4.17	1.06	3.50	1.05	3.94	1.13	3.65	1.15	3.51	0.80	4.28	1.14
Health Advocate	3.99	1.07	3.36	1.26	3.75	1.15	3.84	1.05	3.24	1.18	4.46	0.79
Analytical and Scientific Thinker	3.96	1.05	3.25	1.17	3.43	1.06	3.27	1.19	3.07	1.12	4.46	1.16
Communicator	3.94	1.06	3.17	1.35	3.60	1.07	3.53	1.31	2.83	1.14	4.46	1.16
Lifelong Learner	4.03	1.06	3.36	1.19	3.52	1.12	3.65	1.15	3.30	1.14	4.46	0.79
Manager/Leader	3.63	1.19	3.33	1.42	2.83	1.33	3.53	1.16	2.77	1.14	4.28	1.14
Adopting Professional Ethics And Professional Principles, Able To Establish Interprofessional Cooperation	4.03	1.06	3.47	1.22	3.46	1.16	3.72	1.19	3.41	1.02	4.28	1.14

manager-leader in the importance scoring of the alumni roles. It is seen that 2nd year students gave the highest score to the specialist in the field of medicine role and the lowest score to the professional principles, able to establish ınterprofessional cooperation role. It is seen that the 3rd year students gave the highest score to the expert role in the field of medicine and the lowest score to the manager leader role. It is seen that 4th year students gave the highest score to the role of health advocate and the lowest score to the role of analytical and scientific thinker. It is seen that 5th year students gave the highest score to the expert role in the field of medicine and the lowest score to the manager-leader role. It is seen that 6th year students gave the highest score to the health advocate lake and the lowest score to the "manager/leader" role. Years and roles importance scores are given in detail in the table (Table 4).

In the radar graph of the importance scoring of the

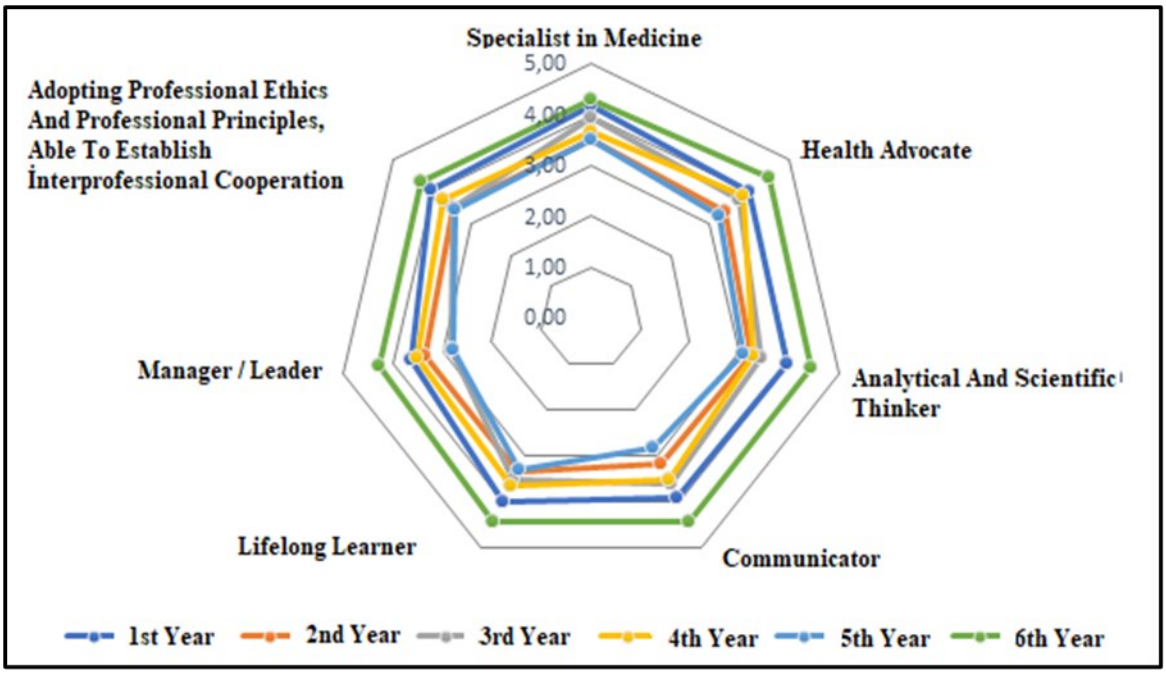

Chart 2: Importance Scoring Radar Chart

students, it is seen that the students in all periods attach importance to the roles in a similar distribution (Chart 2).

In the performance scoring of the students for the period they were educated, it is seen that the students in the semester 1 gave the least points to the manager-leader role and the most points to the role of specialist in the field of medicine. It is seen that Term 2 students give the lowest point to the role of communicator and the highest point to the role of specialist in the field of medicine. It is seen that the 3rd term students gave the least points to the manager-leader role and the most points to the expert role in the field of medicine. It is seen that Term 4 students give the least points to the analytical and scientific thinker role and the highest score to the health advocate role. Semesters and alumni roles performance scores are given in detail in the table (Table 5).

In the radar chart of the performance scoring of the students, it is seen in a distribution similar to the performance of the roles of the students in all periods (Chart 3).

In the importance performance matrix of the students, "expert in the field of medicine" and "lifelong learner" were evaluated in the areas that need to be protected. “Communicator” and “analytical and scientific thinker” were evaluated in the areas that needed to be focused. It was evaluated in the fields of "adopting professional ethics and professional principles, establishing interprofessional cooperation" and "health advocate". “Manager/ Leader” was evaluated in the low priority area (Chart 4).

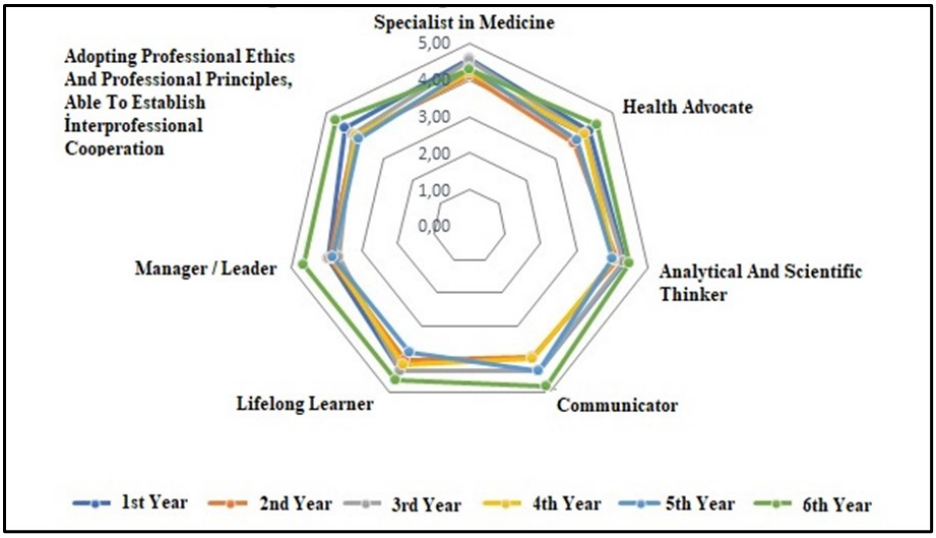

Chart 3: Performance Scoring Radar Chart

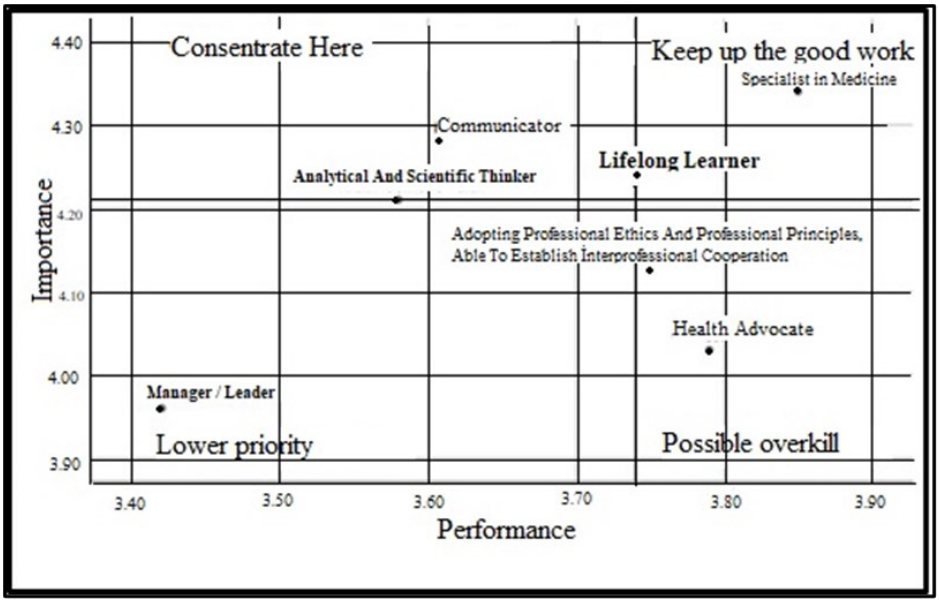

Chart 4: Importance performance matrix

4. DISCUSSION:

Educational programs of medical faculties are dynamic processes. In many accreditation and quality processes, it is recommended to evaluate the training program continuously and at regular intervals (23). Making measurements in different areas with different approaches in these evaluations makes it easier to make a general decision about the education program (24).

A significant number of students provided feedback for our study. The satisfaction score of the active students was calculated as 6.51±1.83. This result was consistent with the results of a satisfaction study conducted with graduates in our faculty in 2018 (25).

Each phase of medical education programs has its own characteristics. These differences affect the satisfaction of students. In our study, it was observed that there were changes in the scoring of students' satisfaction with the training program in various periods. The difference between the first year, which is characterized as the adaptation period, and the other periods can be evaluated as the effect of adaptation to a new environment and orientation trainings. Although there is a slight decrease in overall satisfaction during clinical internships, it increases significantly again during the family medicine period when students have the opportunity to practice medicine under supervision.

In the education program of our faculty, the role of being an expert in the field of medicine is an area that needs to be preserved and maintained. Similarly, the role of "lifelong learner" is also among the roles that need to be preserved with the increase and impact of student-centered educational activities that have been further developed with the accreditation process.

As a result of this study, it is necessary to focus on the role of communicator and the role of analytical and scientific thinker. In our faculty, the infrastructure of the simulated patient laboratory has been created to develop the role of communicator and the process is ongoing for the realization of communication skills trainings with simulated patients. For the role of analytical and scientific thinker, the pilot application for the "project development" course for semester 3 students is ongoing. It is planned to evaluate the impact of these training activities on graduate roles in the following periods.

In our study, the role of adopting professional ethics and professional values and the role of health advocate were evaluated among the possible extremes, and although performance in these areas was evaluated as high, it was thought that the importance of the issue for students should be discussed.

In our study, the role of manager/leader has been rated as a low priority. However, you plan to address this by developing educational activities that emphasize the importance of this subject, with the aim of contributing to the performance evaluation of these activities. It is noteworthy that you recognize the significance of the manager/leader role and seek to incorporate it into our study.

By designing educational activities that highlight the importance of the manager/leader role, you can provide participants with a platform to comprehend and appreciate the impact that effective management and leadership can have on overall performance. These activities can offer insights into various aspects of leadership, such as decision-making, communication, team building, and strategic planning.

To develop educational activities that emphasize the importance of the manager/leader role, you can consider the following strategies: Case studies: Present real-life scenarios or case studies that exemplify the critical role of managers/leaders in diverse organizational settings. Encourage participants to analyze and discuss the influence of effective leadership on the outcomes of these scenarios. Role-playing exercises: Divide participants into groups and assign them different managerial roles. Provide them with specific situations or challenges to address through role-playing. This approach enables participants to experience firsthand the responsibilities and decisions that managers/leaders encounter and understand the significance of their role. Guest speakers: Invite

experienced managers/leaders to share their insights, experiences, and best practices with the participants. This provides an opportunity for participants to learn from real-world examples and comprehend the significance of effective leadership in various contexts. Group discussions and debates: Organize facilitated group discussions or debates on topics related to management and leadership. Encourage participants to express their perspectives and engage in constructive dialogue, fostering a deeper understanding of the subject and its importance. Reflective exercises: Assign reflective tasks or journaling exercises to participants, where they can reflect on their own experiences with managers/leaders and identify the impact that these individuals had on their own performance and development.

It is important to assess the effectiveness of these educational activities through appropriate evaluation methods. This will enable you to gauge participants' understanding, engagement, and perception of the importance of the manager/leader role. By incorporating these activities into our study, you can elevate the priority of the manager/leader role and create a valuable learning experience for the participants.

5. CONCLUSION

In conclusion we assessed the correlation between our training program and the performance of our graduates based on student scores. Through this evaluation, we identified the areas in our training program that require priority development. It is evident that there is area for improvement, and we believe that conducting more comprehensive studies in the future can enrich our program.

The evaluation of the relationship between our training program and the performance of our graduates provides valuable insights into the effectiveness and impact of our educational efforts. By examining student scores, we can gauge the extent to which our program prepares students for their roles after graduation. Identifying the priority development areas highlights specific aspects of the program that require attention and enhancement.

Moving forward, it is essential to consider conducting more comprehensive studies to further enrich our training program. These studies can encompass a range of methodologies, such as qualitative interviews, surveys, or longitudinal assessments, to provide a deeper understanding of the program's strengths and weaknesses. By gathering additional data and feedback from various stakeholders, including students, educators, and employers, we can gain valuable insights that can inform future improvements.

Enriching our training program involves a commitment to continuous improvement and adaptability. Based on the findings of our study, we can prioritize specific areas for development, such as curriculum design, instructional methods, student support services, or industry partnerships. Engaging in comprehensive studies allows us to explore innovative approaches, incorporate best practices from similar programs, and address the evolving needs of students and the program.

By striving for ongoing enhancement and investing in comprehensive studies, we aim to create a more robust and effective training program. This will ultimately contribute to better preparing our students for their future roles and ensuring their success in their careers.

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Conflicts of Interest: The authors declared that there is no conflict of interest.

Ethical Statement: If this study was approved by the Süleyman Demirel University Faculty of Medicine Clinical Research Ethics Committee (Date:16.02.2023 No:72867572-050.01.04).

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