

⇒ Research Article



A Model of Satisfaction Promotion for Students of Hormozgan University of Medical Sciences in Iran

Nahid Soltani¹, Parivash Jafari², Mehdi Bagheri³, Nader Gholi Ghorchian²¹Educational Management, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran²Department of Educational Management, Faculty Member, Tehran University, Research Sciences Branch, Tehran, Iran³Faculty Member, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran***Correspondence to**Parivash Jafari,
Email: pjaafari@yahoo.com**Abstract**

Background: Universities of medical sciences, as organizations that ensure the progress of society in the fields of health, treatment, and medical education, have been considered in many ways. The first important goal in these universities is student satisfaction and promotion strategies. Therefore, in this study we presented a model of satisfaction promotion among the students of Hormozgan University of Medical Sciences, Iran.

Methods: The population of this applied quantitative research included students of Hormozgan University of Medical Sciences. A total of 380 people were selected by multi-stage cluster sampling. The data collection tool included a researcher-made questionnaire whose validity and reliability were confirmed. Decision making trial and evaluation laboratory (DEMATEL) method, importance-performance analysis (IPA), as well as MATLAB and Excel software were used for quantitative data analysis.

Results: The results of IPA showed that the research dimension was of great importance for students and the performance of the university was appropriate in this dimension. Welfare and management dimensions were of little importance, but the performance of the university was high in these dimensions. The administrative component of this dimension was not very important and the university's performance was not good in it. The support services dimension was very important for students' satisfaction but the performance of the university was at a low level. As a result, support services had the highest priority for improvement and the welfare, managerial, educational, research and administrative dimensions were in the next ranks for improvement, respectively. The results of causal relationships between dimensions showed that the managerial dimension had the most interaction (impact and effectiveness), followed by research, welfare, education, supportive, and administrative dimensions. The management dimension was the most effective one. According to R-J values, educational and research dimensions were the most effective dimensions, respectively.

Conclusion: The results of the present study showed that university policy-makers and administrators need to recognize the basic needs of students in various fields such as education, research, welfare, etc. before taking policy actions, decision-making, and future orientations.

Keywords: Model, Promotion, Students, Satisfaction



Received March 2, 2021, Accepted: December 7, 2021, Published Online: March 29, 2022

Background

Today, one of the basic competition pillars in organizations is customer orientation and customer satisfaction, because customers are the main driver in organizations that are looking for major improvements in their development path, which is especially important in the higher education system. (1)

The higher education system, as the most organized part of the education and research institution, has always a special place in society because of its basic mission, which mainly includes education, research, training of efficient, specialized, and committed manpower. To meet the needs of society, professional growth and university officials play a fundamental and strategic role in fulfilling these missions. (2) Therefore, one of the difficult aspects of education, especially in the higher education system,

which is a hotbed of major issues and different opinions, is quality in all aspects of services and certainly student satisfaction, which should be considered from different angles. (3, 4)

Most definitions of the term quality when used for services are customer-focused; in other words, service quality is measured based on customer perceptions of services. (5) Quality of service means acting beyond customer expectations, which is determined by specifying the customer perceptions of service (1). Perceived quality can play a vital role in effective decision-making, performance control, and resource allocation.

Iran's higher education system has gone through various ups and downs in its history and has undergone great changes during the last decade. A large number of new educational institutions have been established and the

enrollment rate has increased, moving towards excessive centralism with the intensification of a small growth in the student population (6, 7). However, increasing the enrollment rate does not indicate the quality of higher education services, since service satisfaction is the distinguishing factor in a competitive market. Therefore, student satisfaction is a determinant in evaluating higher education institutions (8). In this regard, the quantitative and qualitative improvement of different levels of services of the medical sciences universities, which deal with the treatment of patients in educational and medical centers, is one of the important concerns of education officials (9, 10). Fujii and Lee stated that surveying students about their level of satisfaction with the quality of services is the most obvious way to measure the success of universities (11).

Numerous factors affect student satisfaction. The importance of student satisfaction has been studied from different perspectives in domestic and foreign studies (4, 12-17). Therefore, considering the role and importance of the position of the medical sciences universities in manpower training and the role played by students in promoting community health, as well as the absence of a model of satisfaction promotion in these universities, this study was designed to present a model to improve the satisfaction of students of Hormozgan University of Medical Sciences in Iran.

Materials and Methods

This is an applied quantitative research. The statistical population of the present study consisted of students of Hormozgan University of Medical Sciences. The sample size was selected as a multi-stage cluster in order to collect quantitative data. Out of 1591 students, 380 were selected as the sample size using Cochran's formula. Data collection was performed using a researcher-made questionnaire scored based on a 5-point Likert scale (ranging from 5 = strongly agree to 1 = strongly disagree). To prepare the assessment tool, the researcher studied the issues and views on the basics and theoretical framework and used views of education management experts. To ensure the content validity, the questionnaire was sent to ten education management experts before being distributed, and its validity was calculated using the content validity ratio (CVR) method (0.81). The reliability of the questionnaire was calculated as 0.94 using Cronbach's alpha method.

For quantitative data analysis, the decision-making trial and evaluation laboratory (DEMATEL) method, importance-performance analysis (IPA), as well as MATLAB and Excel software were used.

Results

Table 1 shows the degree of importance and performance of each dimension of student satisfaction in Hormozgan University of Medical Sciences.

The value of the performance threshold for the satisfaction

Table 1. Degree of Importance and Performance of Student Satisfaction Dimensions in Hormozgan University of Medical Sciences

Component	Component Code	Degree of Importance	Degree of Performance
Educational	EDU	4.76	2.36
Research	RES	4.50	2.08
Managerial	MAN	4.15	1.36
Official	OFF	4.00	1.52
Welfare	WEL	4.38	1.57
Supportive	SUP	4.41	1.31

of students was equal to 1.70 and the value of significance threshold was equal to 4.37.

Importance-Performance Analysis (IPA)

The IPA is as follows:

The research dimension was in the acceptable quarter, which is very important for students' satisfaction. Although the university's performance in this dimension was weak, it was better than other dimensions of satisfaction. So, the university must continue the current strategy.

Figure 1 show the educational dimension was in the acceptable quadrant. From the students' point of view, this dimension was very important for their satisfaction. Although the performance of the university in this dimension was weak, it was better than other dimensions of satisfaction. So, the university must continue the current strategy.

The welfare and support dimensions were in the quarter of weakness. These components were very important for the students, but the performance of the university in these dimensions was poor. So, the university must invest in these dimensions.

The administrative and managerial dimensions were in the quarter of indifference, indicating that although these dimensions were very important for the students, they were less important than other dimensions, and the university did not perform well in this regard.

The administrative and managerial dimensions were in the quarter of indifference, indicating that although these dimensions were very important for the students, they were less important than other dimensions, and the university did not perform well in this regard.

To determine the priority for improvement, the weight of qualitative characteristics was calculated. According to Wu et al (18), the gap between the value of significance and the performance of the j-factor multiplied by the value of its significance can indicate the weight of the qualitative characteristic of the jth. Table 2 shows the weight and normalized weight of the students' satisfaction dimensions.

Now, the characteristics that have more normalized weight should be given higher priority for improvement. The weight calculated for the characteristics indicated that according to the amount of normal weight for each of the

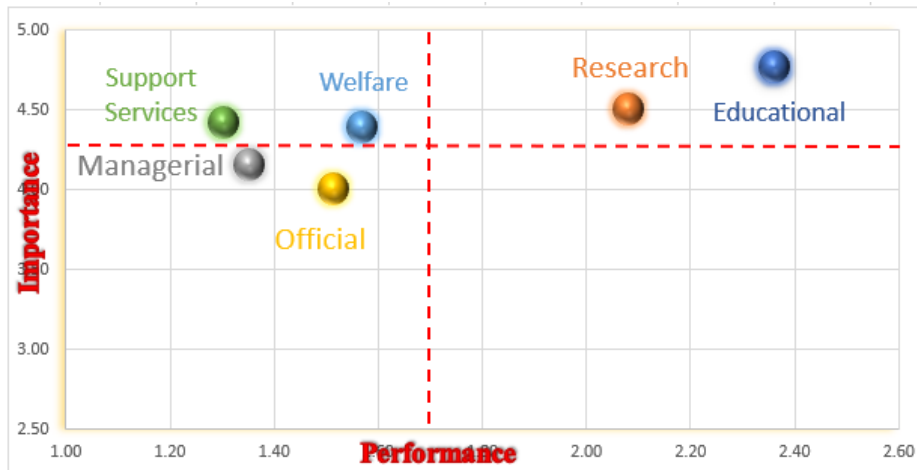


Figure 1. Performance Matrix Diagram for the Importance of the Dimensions of Student Satisfaction.

student satisfaction indicators, the normal weight after support services was equal to 0.196. So, support services should be a priority for the improvement of Hormozgan University of Medical Sciences.

Determining the Effectiveness of Student Satisfaction Components Using DEMATEL Method

The S matrix is formed, which represents the intensity of the relative effect of direct and indirect relationships (Table 3).

$$S = M (1 - M)^{-1}$$

Calculating the Threshold and Determining the Relationships Between Impact and Effectiveness

The threshold is equal to the first quarter of the total elements of the matrix S. The value of the first quarter for the matrix element S was equal to 0.227. Therefore, values less than 0.227 were assumed to be ineffective. So, the training dimension had little effects on the management, administrative, or supportive dimensions.

Based on the calculations by Matlab 2020 software, the values of (R), (J), (R + J), and (RJ) were obtained (Table 4). Accordingly, the effect of the educational dimension (EDU) was equal to 1.405 and its effective value was equal to 2.032. Therefore, the amount of interaction (total effect and effectiveness) of this dimension was equal to 3.437.

Table 3. S Matrix for the Main Criteria

S Matrix		Educational	Research	Managerial	Official	Welfare	Supportive
		EDU	RES	MAN	OFF	WEL	SUP
Educational	EDU	0.187	0.343	0.223	0.203	0.234	0.214
Research	RES	0.387	0.224	0.278	0.228	0.251	0.223
Managerial	MAN	0.500	0.534	0.261	0.440	0.489	0.395
Official	OFF	0.287	0.351	0.237	0.153	0.289	0.269
Welfare	WEL	0.368	0.409	0.309	0.256	0.214	0.296
Supportive	SUP	0.304	0.309	0.245	0.256	0.343	0.162
		The First Quarter			Threshold		0.227

Given that the value of the difference in effectiveness and its effectiveness was equal to -0.627, this dimension had a pure effectiveness. In other words, it affected the rest of them more than it affected the other dimensions. Information of other components is provided in Table 5.

Figures 2, 3, 4, and 5 show the effect of the components relative to each other, the order of the effect of the dimensions relative to each other, the weight priority based on the interaction, and the priority based on the intensity of the net effect/effectiveness, respectively.

The weight and normal weight of each component of student satisfaction are shown in Table 6.

Finally, according to the data analysis and component weighting, the effectiveness of the final research model was presented (Figure 6).

Discussion

This study aimed to present a model to improve the

Table 2. Weight and Normalized Weight of Students' Satisfaction Dimensions

Component	Component Code	Weight	Normal Weight
Educational	EDU	11.41	0.163
Research	RES	10.86	0.155
Managerial	MAN	11.62	0.166
Official	OFF	9.95	0.142
Welfare	WEL	12.33	0.176
Supportive	SUP	13.72	0.196

Table 4. Values of (J), (R), (R+J) and (R-J)

		Impact	Effectiveness	Interaction	Effect / Cause
Dimension	Abb.	R	J	R+J	R-J
Educational	EDU	1.405	2.032	3.437	-0.627
Research	RES	1.591	2.170	3.761	-0.579
Managerial	MAN	2.618	1.554	4.172	1.064
Official	OFF	1.585	1.536	3.120	0.049
Welfare	WEL	1.852	1.820	3.672	0.031
Support Services	SUP	1.620	1.559	3.179	0.062

satisfaction of students of Hormozgan University of Medical Sciences in Iran. The results showed that the research dimension was very important for students for their satisfaction and the performance of the university was appropriate in this dimension. Therefore, universities must maintain this dimension as it is.

The welfare and management dimensions were at the expense of resources. These components were of little importance to students, but the performance of the university was high in these dimensions. This shows that the university had spent a lot of resources on these dimensions, which is not very important. Therefore, it is necessary to allocate a part of the costs and resources spent on these dimensions to improve the dimensions

that provide satisfaction.

The administrative and educational components were in the quarter of indifference, indicating that these dimensions were not very important for students' satisfaction, and the university had not performed well in this regard. In other words, the university had a low performance in dimensions that were of low importance to students, which does not pose much of a problem.

The support services component was in the quarter of improvement and investment priorities. So, universities need to focus on this dimension for satisfaction. In other words, this dimension was very important for students' satisfaction but the performance of the university was low. Therefore, universities should focus on this dimension and improve their performance. As a result, support services have the highest priority for improvement and the welfare, managerial, educational, research, and administrative dimensions were in the next ranks for improvement, respectively. These results were in line with other studies that showed a clear relationship between the quality of the university environment and student satisfaction. Senobar et al, Bernasconi and Celis, and Lovenheim and Reynolds concluded that the existence of support facilities has a positive and significant effect on university choice (19-21).

Also, the findings of the analysis of causal relationships between dimensions showed that the managerial

Table 5. Values of (J), and (R), (R+J) , (R-J)

Below Dimension	Abb.	Impact	Effectiveness	Interaction	Net Effectiveness
		R	J	R+J	R-J
Theoretical topics teaching style	EDU01	0.034	0.041	0.075	-0.007
Clinical education style	EDU02	0.044	0.045	0.090	-0.001
Educational facilities	EDU03	0.050	0.057	0.107	-0.007
Mastery and competence of professors	EDU04	0.046	0.058	0.104	-0.011
Facilitating the process of presenting and implementing research projects	RES01	0.050	0.054	0.104	-0.005
Research facilities	RES02	0.042	0.044	0.086	-0.002
Workshops and conferences tailored to the needs of students	RES03	0.045	0.056	0.101	-0.010
Human resource management with a competency approach	MAN01	0.042	0.041	0.083	0.001
Electronic training system management	MAN02	0.045	0.044	0.090	0.001
Group Manager Performance	MAN03	0.049	0.045	0.094	0.003
Staff communication skills with students	OFF01	0.047	0.044	0.091	0.002
The agility of administrative structure	OFF02	0.052	0.050	0.102	0.002
Responsibility and accountability of administrative staff	OFF03	0.057	0.052	0.109	0.005
Quantity and quality of dormitory affairs	WEL01	0.049	0.048	0.096	0.001
Providing appropriate health services	WEL02	0.044	0.037	0.082	0.007
University Nutrition Affairs	WEL03	0.042	0.039	0.081	0.003
Quality of physical education affairs	WEL04	0.054	0.053	0.108	0.001
Transportation	WEL05	0.052	0.051	0.103	0.001
Student Welfare Fund	SUP01	0.050	0.047	0.096	0.003
Facilities	SUP02	0.052	0.051	0.103	0.001
Scientific-recreational camps	SUP03	0.050	0.044	0.094	0.006
Consulting services	SUP04	0.051	0.047	0.098	0.004

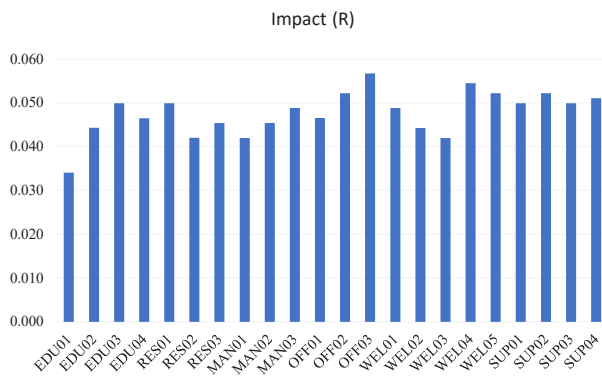


Figure 2. Impact of Components on Each Other.

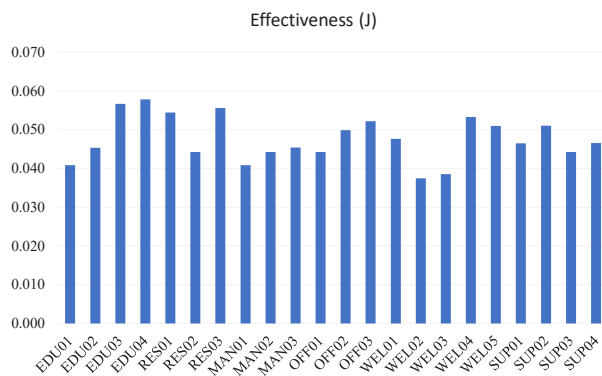


Figure 3. Effectiveness of Components on Each Other.

dimension had the most interaction (impact and effectiveness), followed by the research, welfare, education, support, and administrative dimensions. The management dimension was the most effective dimension. According to R-J values, educational and research dimensions were the most effective dimensions, respectively. These results are in line with the study by Tabibi and Keyhan that identified and prioritized the components affecting academic satisfaction and learning of nursing students of Urmia Nursing School. The qualitative findings of researchers showed that six factors (personal characteristics, professional competence of professors, educational and research factors, management and administration, welfare and service facilities, and job and professional factors) affected academic satisfaction (16). Therefore, the findings of the present study can be considered in line with part of Tabibi and Keyhan's research.

The findings of Alexander et al regarding the effect of using educational technologies on student satisfaction indicated that access to educational technologies and the quality of educational content affected student satisfaction. In the present study, education was recognized as an important dimension affecting student satisfaction (12). Therefore, the results of the present study are in line with the research by Alexandra et al. In a study, Chu et al assessed the satisfaction of management students at a university in southern Taiwan. The results showed that the quality of education, professors' mastery

of the curriculum, students' evaluation methods, and students' evaluation are sub-components of the dimension of education in the present study, the results showed that these dimensions affect students' satisfaction, so the findings of the present study are consistent with the research of Chu et al (22). The research by Napitupulu et al (23) studying the factors affecting student satisfaction indicated that the quality of services had a positive and significant effect on student satisfaction.

In the present study, an attempt was made to examine the impact of university services such as education, research, welfare, support, etc. on student satisfaction, and the results showed that the quality of these services was effective on student satisfaction (23). Therefore, the general results of the present study are in line with the results of the research by Napitupulu et al (23). In a field study, Zhai et al examined the factors affecting the satisfaction of Chinese university students. The results showed that the performance and behavior of faculty members, the performance of the faculty management, and the existence of the necessary facilities in the university were the most important predictors of student satisfaction (24). Therefore, the results of the present study are consistent with the research by Zhai et al.

In general, it should be said that Hormozgan University of Medical Sciences needs to satisfy students to reach the level of a desirable university, provide the services more desirably. Also, the staff and officials of the university

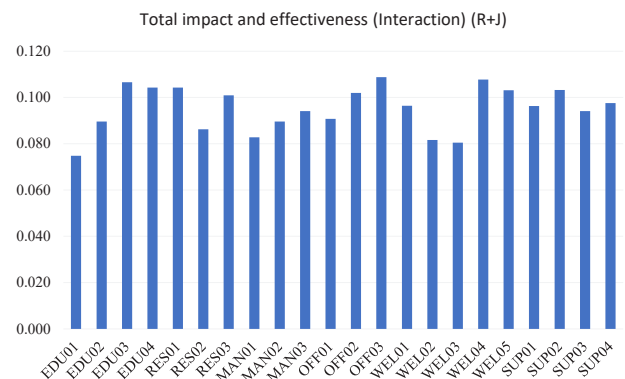


Figure 4. Total effectiveness and impact (interaction) of components with each other

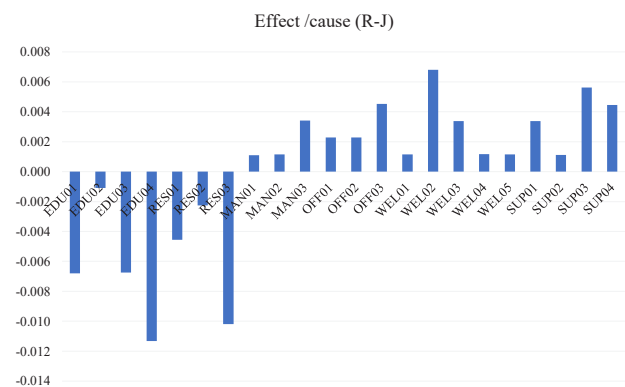


Figure 5. Effect/Cause of Components Relative to Each Other.

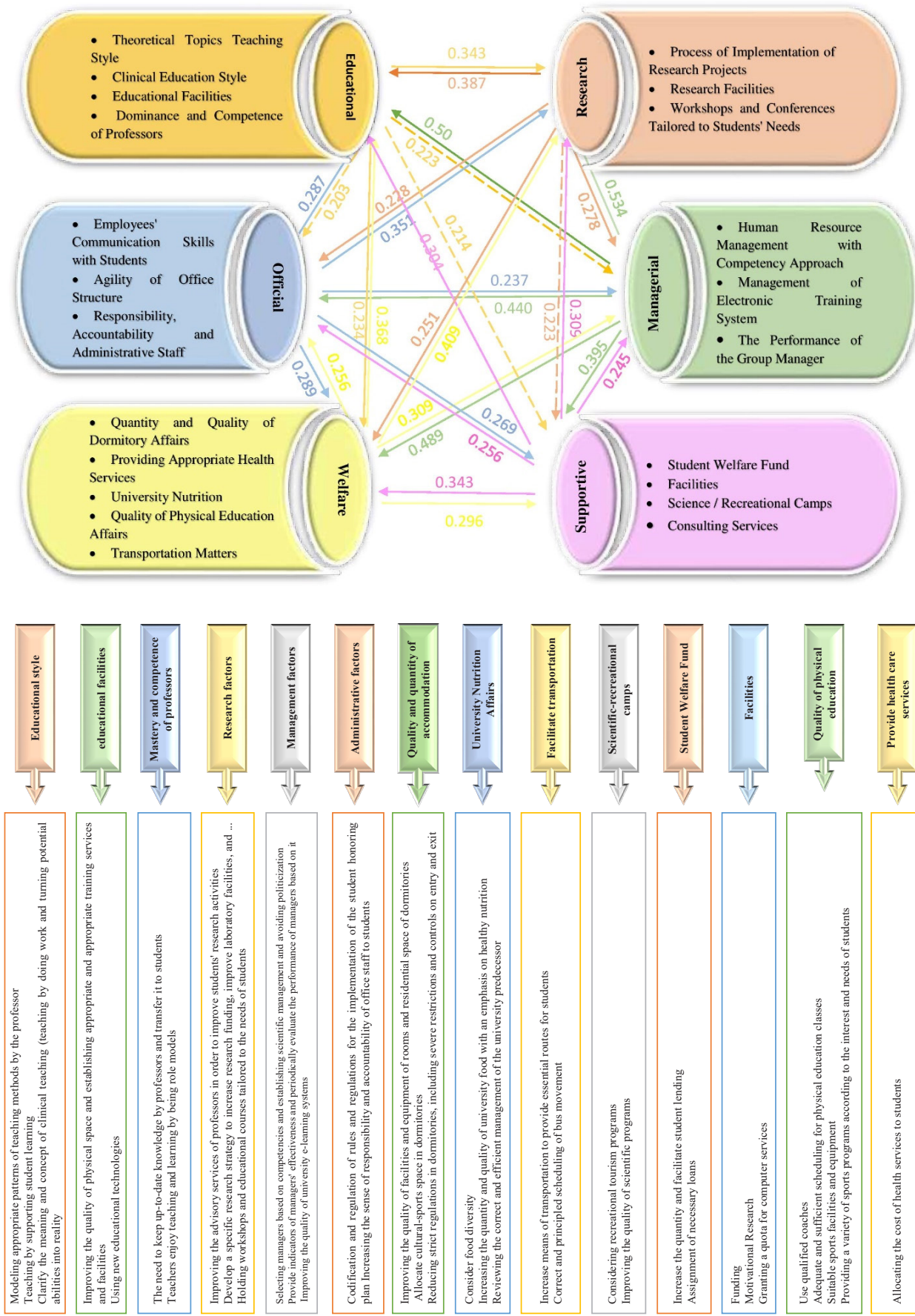


Figure 6. The Main Research Model.

Table 6. Weight and Normal Weight of Components

Components	Abb.	Weight	Normal Weight
Theoretical topics teaching style	EDU01	0.08	0.0358
Clinical education style	EDU02	0.09	0.0427
Educational facilities	EDU03	0.11	0.0509
Mastery and competence of professors	EDU04	0.10	0.0500
Facilitating the process of presenting and implementing research projects	RES01	0.10	0.0497
Research facilities	RES02	0.09	0.0411
Workshops and conferences tailored to the needs of students	RES03	0.10	0.0484
Human resource management with a competency approach	MAN01	0.08	0.0395
Electronic training system management	MAN02	0.09	0.0427
Group Manager Performance	MAN03	0.09	0.0449
Staff communication skills with students	OFF01	0.09	0.0432
The agility of administrative structure	OFF02	0.10	0.0486
Responsibility and accountability of administrative staff	OFF03	0.11	0.0519
Quantity and quality of dormitory affairs	WEL01	0.10	0.0459
Providing appropriate health services	WEL02	0.08	0.0391
University Nutrition Affairs	WEL03	0.08	0.0384
Quality of physical education affairs	WEL04	0.11	0.0513
Transportation	WEL05	0.10	0.0492
Student Welfare Fund	SUP01	0.10	0.0460
Facilities	SUP02	0.10	0.0492
Scientific-recreational camps	SUP03	0.09	0.0450
Consulting services	SUP04	0.10	0.0465

should pay more attention to this matter because the consequences of not having a program and negligence of officials and staff in providing services to learners will be felt by the whole community.

Acknowledgments

Herby, the authors would like to express their thanks to the students of Hormozgan University of Medical Sciences for their assistance and providing valuable information and opinions during this research.

Authors' Contribution

NS (first author), author of the introduction section, the main researcher, statistical analyst (45%). PJ (supervisor and main author) (35%). NGG (third author) article reviewer (10%). MB (fourth author), article reviewer (10%).

Conflict of interests

There is no conflict of interest in this article.

Ethical Approval

This research is the result of a doctoral dissertation entitled "Presenting a model of satisfaction promotion for students of Hormozgan University of Medical Sciences" approved by the Islamic Azad University of Bandar Abbas (code: 1144819916004881397162284978).

Funding/Support

This research has been funded by Islamic Azad University, Bandar Abbas Branch.

References

1. Wilkins S, Stephens Balakrishnan M. Assessing student

satisfaction in transnational higher education. *Int J Educ Manag.* 2013;27(2):143-56. doi: [10.1108/09513541311297568](https://doi.org/10.1108/09513541311297568).

2. Campaña JC, Gimenez-Nadal JJ, Molina JA. The satisfaction of university students in Spain: differences by field of study. *Appl Econ Lett.* 2016;23(7):506-9. doi: [10.1080/13504851.2015.1083079](https://doi.org/10.1080/13504851.2015.1083079).
3. Alnaser AS. Service Quality Higher Education and Customer Satisfaction Among Undergraduate Students of the University of Jordan [dissertation]. Universiti Utara Malaysia; 2010.
4. Chandra T, Hafni L, Chandra S, Purwati AA, Chandra J. The influence of service quality, university image on student satisfaction and student loyalty. *Benchmarking.* 2019;26(5):1533-49. doi: [10.1108/bij-07-2018-0212](https://doi.org/10.1108/bij-07-2018-0212).
5. Sumaedi S, Bakti IG, Metasari N. The effect of students' perceived service quality and perceived price on student satisfaction. *Manage Sci Eng.* 2011;5(1):88-97. doi: [10.3968/j.mse.1913035X20110501.010](https://doi.org/10.3968/j.mse.1913035X20110501.010).
6. Karami M, Olfati O. Measuring service quality and satisfaction of students: a case study of students' perception of service quality in high-ranking business schools in Iran. *Afr J Bus Manag.* 2012;6(2):658-69. doi: [10.5897/ajbm11.2311](https://doi.org/10.5897/ajbm11.2311).
7. Sadeghi Z. Relationship between offered education services and students' satisfaction from higher education. *Iran J Eng Educ.* 2013;15(59):1-14. [Persian].
8. Abili K, Narenji Thani F, Afarinandehbin M. Measuring university service quality by means of SERVQUAL method. *Asian J Qual.* 2012;13(3):204-11. doi: [10.1108/15982681211287766](https://doi.org/10.1108/15982681211287766).
9. Fattahi Z, Javadi Y, Nakhai N. A survey on dentistry student's satisfaction with their discipline and some of the related factors. *Strid Dev Med Educ.* 2004;1(1):32-40. [Persian].
10. Lotfi M, Sagheb MM, Amini M, Lotfi F, Saber M, Bastani P. 360 degree assessment of clinical education satisfaction

- in Shiraz University of Medical Sciences. *Razi J Med Sci.* 2013;20(114):59-68. [Persian].
11. Fujii S, Lee G. Integration-oriented product development management in Japan-an application of product-customer matrix to KAO. *Ritsumeikan Journal of Asia Pacific Studies* 2016; (34): 154-169.
 12. Alexander J, McLachlan S, Barcellona M, Sackley C. Technology-enhanced learning in physiotherapy education: student satisfaction and knowledge acquisition of entry-level students in the United Kingdom. *Res Learn Technol.* 2019;27:2073. doi: [10.25304/rlt.v27.2073](https://doi.org/10.25304/rlt.v27.2073).
 13. Maxwell-Stuart R, Taheri B, Paterson AS, O’Gorman K, Jackson W. Working together to increase student satisfaction: exploring the effects of mode of study and fee status. *Stud High Educ.* 2018;43(8):1392-404. doi: [10.1080/03075079.2016.1257601](https://doi.org/10.1080/03075079.2016.1257601).
 14. Piri M, Haratian A, Kianpur S. Students' satisfaction with the quality of educational, research, student and administrative services of the university. *Sociology of Education.* 2019; 2(7):214-30.
 15. Suyanto MA, Usu I, Moodoeto MJ. The role of service quality on building student satisfaction. *Am J Econ.* 2019;9(1):17-20.
 16. Tabibi Z, Keyhan J. Identifying and prioritizing effective components in academic satisfaction, learning and quality of education in nursing students Urmia nursing faculty. *Nurs Midwifery J.* 2019;16(11):809-21. [Persian].
 17. Turkyilmaz A, Temizer L, Oztekin A. A causal analytic approach to student satisfaction index modeling. *Ann Oper Res.* 2018;263(1):565-85. doi: [10.1007/s10479-016-2245-x](https://doi.org/10.1007/s10479-016-2245-x).
 18. Wu WW. Choosing knowledge management strategies by using a combined ANP and DEMATEL approach. *Expert systems with applications* 2008; 35(3): 828-835.
 19. Bernasconi A, Celis S. Higher education reforms: Latin America in comparative perspective. *Educ Policy Anal Arch.* 2017;25(67):n67. doi: [10.14507/epaa.25.3240](https://doi.org/10.14507/epaa.25.3240).
 20. Lovenheim MF, Reynolds CL. The effect of housing wealth on college choice: evidence from the housing boom. *J Hum Resour.* 2013;48(1):1-35. doi: [10.3368/jhr.48.1.1](https://doi.org/10.3368/jhr.48.1.1).
 21. Senobar A, Kasir S, Taghavi Nasab A, Raeisi E. The role of cognitive and metacognitive learning strategies, academic optimism and academic engagement in predicting academic vitality of nursing students. *Education Strategies in Medical Sciences.* 2018;11(2):149-55. doi: [10.29252/edcbmj.11.02.19](https://doi.org/10.29252/edcbmj.11.02.19). [Persian].
 22. Chu HN, Lee WS, OBrien PW. Student satisfaction in an undergraduate international business EMI program: a case in southern Taiwan. *J Stud Int Educ.* 2018;22(3):198-209. doi: [10.1177/1028315317748525](https://doi.org/10.1177/1028315317748525).
 23. Napitupulu D, Rahim R, Abdullah D, Setiawan MI, Abdillah LA, Ahmar AS, et al. Analysis of student satisfaction toward quality of service facility. *J Phys Conf Ser.* 2018;954(1):012019. doi: [10.1088/1742-6596/954/1/012019](https://doi.org/10.1088/1742-6596/954/1/012019).
 24. Zhai X, Gu J, Liu H, Liang JC, Tsai CC. An experiential learning perspective on students' satisfaction model in a flipped classroom context. *J Educ Techno Soc.* 2017;20(1):198-210.