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A Comparative Study of Students and Faculty Members Views on the Importance of Educational Objectives to Join Electrical Engineering

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Abstract. Educational institutions play an important role in preparing students to serve their society. In order to prepare them properly, it is necessary to identify the desired goals to facilitate the graduates to be constructive elements in their society. The aim of this study is to compare the opinions of second-year electrical engineering students, and the views of the faculty members regarding the importance of the various educational objectives of the electrical engineering department at the Islamic University. The samples were 41 students from second year students from the electrical engineering department at the Islamic University in Gaza (42) and faculty members (17). All members of the community were contacted for a small number, but the questionnaire was retrieved from 17 male students, 10 female students, and 5 teaching staff members. The following statistical methods were used: frequency and percentage, arithmetic mean, standard deviation, relative weight, correlation coefficient, and Alpha Cronbach test. Studies indicate that there are no significant differences between the views of different groups in the educational objectives of the Department of Electrical Engineering at the Islamic University of Gaza.

1. Introduction

The goals of the academic program are the general terms that describe the objectives of the long-term academic program that the programmers seek to achieve: developing students' knowledge, skills, attitudes, attitudes, etc., after meeting the requirements for degree [1].

Therefore, the objectives of the academic program are a long-term strategy and a specific purpose that provide people something they wish to work for and are proud of when those are accomplished. This is characterized by the generality of its formulation and the general framework or reference is determined in defining the academic program's specifications: General trends of the content of the academic program, and general trends in teaching and evaluation strategies. Although the objectives of the academic program are formulated in general, they are necessary to consolidate the views of the academic program development and evaluation team and serve as a reference for differences in any component. Therefore, the objectives of the academic program provide the basis for decision making on the nature and scope of the academic program, the priority of the various activities to be implemented and the planning process of its various components, thereby helping to achieve its mission [1].

The specialization of electrical engineering (one of the branches of the Faculty of Engineering) is the specialization that gives mankind the benefit by studying communication and radar systems,



control systems, measurements, electronic circuits, electromagnetic and their applications, energy transfer technologies, networks, lighting, computers etc. Because they overlap in many sectors of industry and various civil and military activities, they are almost the core of civil civilization in our time.

The research dealt with the students of the second year who have decided to choose the specialty recently before the start of teaching materials and, thus, it can be informed that the educational goals of the Department of Electrical Engineering are not being affected by the specialized materials. In order to complete the picture in many aspects, the comparison between the views of the faculty and students is performed to determine the importance of the educational objectives of the Department of Electrical Engineering. Each has a vision from its own angle.

The aim of this research is to recognize the importance of the educational objectives of the engineering department to select students' specialization in electricity from the point of view of both second year electrical engineering students and the faculty members. This study is a natural response to the university's renaissance in all aspects of education, especially the desire to achieve the conditions of the ABET³. It is noteworthy that of all students who enroll in the Islamic University, there are 5811 students (1759 students and 3052 students), 473 students (326 students and 148 female students) attend the Faculty of Engineering, 41 students (31 students and 10 female students) are in electrical engineering.

2. Problem of the current study

The present study attempts to answer the following main question: "Do students and faculty members agree in their views on the importance of educational goals to help students choosing the specialization of electrical engineering?" The answer to this question requires answering the following sub-questions:

- a. What are the educational objectives of the highest importance for each group?
- b. Do students and faculty members have the same order and priority for the educational objectives of electrical engineering specialization?

3. Objectives of the study

The objectives of this study are as follows:

- a. Recognizing the importance of educational objectives for the specialization of electrical engineering from the perspective of students, faculty and parents.
- b. Comparing the views of the students of the second year electrical engineering with the views of the parents and the views of the faculty regarding the importance of the educational objectives of the department.
- c. Raising university education by making recommendations to develop the educational objectives of the department.

4. The Significances

The significances of this study are as follows:

- a. This study concerned the study of the educational objectives of the electrical engineering department from the point of view of each of the students and teaching staff.
- b. The results of this study help to enlighten the Palestinian universities, faculty members, students and those interested in the educational process with the educational goals of utmost importance from the point of view of students and teaching staff and activate them to improve the educational reality in the Palestinian universities.
- c. The results of the study are expected to identify the effect of variables (student, faculty).
- d. The results of this study help researchers to conduct further studies on this subject using other variables and other study sections.

5. The limitation of the study:

- a. The objective limit: The study was limited to study the educational objectives of the electrical engineering department and recommendations and proposals to activate them.
- b. Institutional Limit: Islamic University.
- c. Human Limit: Second year students from the Department of Electrical Engineering.

6. Terminology of study :

- a. The educational goal is the desired change that the educational process seeks to achieve in the behaviour of the student, a description of the educational output in the behaviour of the learner (a description of what the learner will be after passing through educational experience), and a description of the pattern of behaviour expected to occur in the personality of the learner as a result of his experience Educational or educational position.
- b. The educational objective is a clear description of the behaviour to be issued by the learner at the end of the educational stage. The outcome of the learning and learning process translates into observable behaviour and measurement (Buhamama, 2008, p. 77).

7. Previous studies

The study [2] aimed to find out the extent to which the teachers of the basic stage of the skills of formulating the behavioral goals through surveying the views of educational supervisors and managers considering sex and the function of the evaluator. The study sample reached (250) supervisors and managers. The results of the study showed that the scope of the conditions for the formulation of the behavioral goals ranked first by the average of the estimates of the educational supervisors, while the field of general bases of the behavioral goals ranked first according to the averages of the managers' estimations, as such The results showed that there were no statistically significant differences between the averages of the educational supervisors' sexes and the sexes of the managers in each of the six study fields and the fields combined, except in the field of formulating the behavioral goals.

The study [3] was conducted to determine the level of satisfaction of the first batch of students who joined the Hashemite University in the first year of its foundation on the experiences gained and the services provided by the university in general fields (general experience, expertise in the field of specialization, university experience outside the classroom) Related to their future and university studies. The sample included 477 students from the first batch who spent six or more semesters. The number of respondents was 244 students from 17 departments. The arithmetical averages, standard deviations, percentages and repetitions necessary for the statement The results showed the degree of satisfaction of the students with the specific experiences in the scale. The results showed statistically significant differences at the level of significance (0.05) due to gender or college variables and interaction between them. Comparison of the level of satisfaction of the students of the Hashemite University with the degree of satisfaction of American university students with the practices that represent the experiences they have acquired outside the class work, which is the lowest level in most of its items.

The study [4] aimed to identify the views of the science teachers in the state of Bahrain on the importance of the objectives of scientific education related to the concept of scientific culture, in addition to determining the relationship between the degree of importance of the objectives and the contribution of the content of science books in their achievement from the point of view of teachers, Demographics such as: school stage - experience - gender. The study is based on a basic assumption that the teacher's awareness of the importance of the objectives of the scientific education and its priorities in his view can affect his teaching practices in the science classes. The questionnaire was applied to a sample of 306 teachers from the preparatory and secondary schools in the State of Bahrain. The objectives of the scientific education associated with the scientific culture and the importance of the contribution of the content of science books in the achievement of the average of the

importance of those goals from the point of view of teachers 89.6, but on the other hand, teachers stressed the lack of current science books and the weakness of content to the objectives suggested, where The average translation of these goals and their presence in the science books from the point of view of teachers was 69.8, and the results confirm that there are no statistically significant differences in opinions related to experience. The study recommended the need to reflect the objectives of scientific education associated with the scientific culture within the content of science books.

The study et. Al Wilson [5] found that students enroll in educational institutions based on different goals, as well as colleges in various educational institutions in higher education designed their educational goals for their students in various forms so as to ensure that students are attracted to them, The first to enroll in the college is self-knowledge and personal identification, and more general goals are classified as the optimal goal at the state level and generally more general levels at the university level.

From the above we see that the previous studies confirmed: The importance of the role of the teacher in determining educational goals. However, none of the previous studies have indicated a comparison of students' views with regard to educational goals.

8. Study population and study sample

The study population consists of 41 second year electrical engineering students at the Islamic University in Gaza and 17 faculty members. The members of the study society were contacted and therefore the sample is equal to the study population. However, 17 students and 10 female students And 5 faculty members give back the questionnaires.

9. Study tool

The researchers used the questionnaire compose of 32 item in main aims related: Science and technology (6 items), social (3 items), mental abilities and communication skills (4 items), personal development (4 items), and professional development (5 items).

10. Results

Analysis of the first question: The first question states: "What are the educational objectives of the specialization of electrical engineering of the utmost importance to each group?"

To answer this question, the two researchers used the relative weight and order of this question. Table 1 illustrates this:

Table 1.Analysis of the first question

Female students		Male students		faculty		Item	number
order	Relative weight	order	Relative weight	order	Relative weight		
4	76.67	4	55.38	4	80	Understanding the nature of science and scientific methods	1
2	80.00	6	46.15	1	88	Get enough knowledge to use your computer	2
6	68.33	5	47.69	2	84	Get basic theoretical knowledge of electrical engineering	3
2	80.00	2	60.00	4	80	Ability to understand electrical networks	4
4	76.67	1	69.23	2	84	The ability to build electrical circuits	5
1	91.67	2	60.00	6	76	Obtaining accurate scientific information to keep abreast of scientific development	6
78.89		56.41		82		average	

1	85.00	2	50.77	1	76	Understanding Islamic principles and values	7
2	81.67	3	44.62	3	60	Understanding the student's rights and duties towards the homeland	8
3	75.00	1	55.38	2	64	Ability to serve the community, especially the industrial sector	9
	80.56		50.26		66.67	average	
4	65.00	1	75.38	1	68	Learn to write reports efficiently and clearly	10
3	78.33	2	66.15	3	60	Learn logical and analytical thinking	11
1	86.67	3	60.00	3	60	To transform scientific ideas into practical projects	12
2	85.00	4	53.85	1	68	Learn the ability to innovate and create	13
	78.75		63.85		64	average	
3	83.33	2	58.46	3	68	Gain self-confidence	14
1	85.00	1	60.00	3	68	Gain the ability to independently and handle things	15
1	85.00	4	52.31	1	72	Gain the ability to develop and keep pace with scientific progress	16
4	73.33	2	58.46	2	64	Gain the ability to deal with all sectors of society	17
	81.67		57.31		68	average	
3	73.33	2	70.77	4	60	Acquire information and skills that prepare students for the job market	18
1	83.33	4	56.92	2	76	Acquiring sufficient information to enable students to enrol in higher education	19
5	68.33	5	55.38	1	80	Acquire sufficient information and skills for application in any profession	20
2	76.67	3	64.62	3	64	Acquire accurate information related to a specific occupation	21
3	73.33	1	95.38	5	56	Get a good job after graduation	22
	75.00		68.62		67.2	average	
1	78.97	5	59.29	4	69.57	Total Average	

From the previous table it is clear that each group has different views in terms of any educational goals for the specialization of electrical engineering of utmost importance. The most important and least important for each group can be summarized as follows: For the teaching staff, the relative weight of the goals of science and technology received the highest relative weight of 82%, while the goals related to mental abilities and communication skills were relatively low (64%). While the highest relative weight of the goals related to the professional development of students is 68.62%. From the students' point of view, the highest relative weight of the goals related to personal development is 81.67% while the relative weight of the goals related to the professional development of the students is 75%.

Analysis of the second question: "Do students and faculty have the same order and priority for the educational objectives of electrical engineering specialization?" To answer the question, the researchers used an independent sample test to determine the differences between the two variables.

Table 2. The number, mean, standard deviation, T test value and significance level are shown

Level of significance	T test value	Standard deviation	Arithmetic average	number		Aim
//0.055	2.001-	4.696	20.160	25	Students	First aim
		3.362	24.600	5	Faculty	
//0.773	0.293-	3.577	9.720	25	Students	Second aim
		1.414	10.000	5	Faculty	
//0.443	0.779	3.227	14.200	25	Students	Third aim
		5.630	12.800	5	Faculty	
//0.913	0.110	3.916	13.800	25	Students	Fourth aim
		2.074	13.600	5	Faculty	
//0.510	0.667	3.475	17.920	25	Students	Fifth aim
		3.114	16.800	5	Faculty	
//0.782	0.280	14.869	75.800	25	Students	Total
		12.696	77.800	5	Faculty	

* The tabular value of (T) at the degree of freedom 23 and the level of significance 0.05 = 2.069. // not significant at 0.05

The above table shows that the calculated value of T for all objectives and total is less than the T value. This means that there are no statistically significant differences at the level of significance of 0.05 in all educational objectives of engineering specialization due to the variable of students and faculty.

11. Discussion

The results indicated that the objectives of science and technology were the most important for the faculty with a weight of 82%. For students, the goals for personal development are the most important at 81.67%. And the students' opinions showed that the goals related to professional development are the most important with a weight of 68.62% since in our society the young man should do the things of the house so he seeks to develop himself professionally in order to have a suitable job He is then able to perform his role in society. When comparing the views of the groups, there were no significant differences in the importance of the educational objectives of the Department of Electrical Engineering in the Faculty of Engineering at the Islamic University. It is indicating that the objectives were prepared accurately, where experienced engineers and students were consulted in their identification.

12. Recommendations:

1. Educating parents about the importance of choosing specialization based on the educational objectives of the specialization.
2. To sensitize high school students to the objectives of the department so that they can choose the specialization based on a conscious study.
3. Expanding the study to include employers and involve them in formulating the goals of the department.

13. References

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