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ATTITUDES OF ELECTRICAL ENGINEERING STUDENTS' TOWARDS ELECTRONIC SUBJECT AND ITS RELATION TO ACADEMIC ACHIEVEMENT

Salar Karim Fatah,

Department of Physics,
College of Education, University of
Garmian, Kurdistan Region of Iraq.

Kurdistan H. Mohammad,

Kalar Technical Institute,
Sulaimaniyah Polytechnic University,
Kurdistan Region of Iraq.

ABSTRACT

Attitudes of students toward the lessons is one of the important factors for learning and success. The declining interest in learning among students in a higher institution is a challenge to all. this study aims to investigate the attitudes toward Electronic modules and its relation with academic achievement.
This study was a descriptive study. The sample was selected by census methods and include all 84 students of the first stage in Kalar Technical Institute/ Sulaimaniyah Polytechnic University-Kurdistan Region of Iraq in the academic year (2014-2015). A questionnaire was made by researchers for data collection. It consisted of (21) items and the achievement test related to the theoretical and practical aspect of the electronic subject. The questionnaire was applied after having verifying its validity and reliability on a small sample of 25 students Data were analysis by spss22.
Findings showed that there is a positive attitude toward the electronic subjects. Also, there is a significant correlation between the students' attitudes towards the electronic subjects and the collection (practical part) but no statistically significant with the achievement (the theoretical part) of the same subject. There was statistical significance between gender attitude toward Electronic subject. (α= 0.05).
there is a relationship between students' attitudes toward the electronic subject practical part but, there is no relationship between the attitudes and achievement for theoretical part.

Keywords: Attitudes, Achievement, Electronic subject, Students.

INTRODUCTION:

Students are an important part of the basic foundation upon which society is built and developed, so they need be paid attention and their energies invested in all areas of life rather than being wasted in various ways which are not helping the society. The attitudes are a complex psychological trait that involves elements of knowledge and emotion, Opinions, preference, acceptance, rejection, etc., this broadness in the content of the trend has made it include most of the psychological implications of the direction of subjects studied by students (Al-Hamdani, 2005). Muller defined Attitudes as: "a set of thoughts, feelings, perceptions and beliefs about a subject that direct an individual's behavior and determines his position" (Muller, 1982).

The development of scientific attitudes is one of the goals that scientific education seeks to achieve among students, because of their role in building the behavior of the individual and constructing their personality in accordance with the requirements of the modern life, Baumel and Berger considered scientific trends the most important results that come from the result of teaching of science (Baumel& Berger, 1967), so the educators emphasize that the pattern of trends in the students is considered to be one of the main drivers of behavior in the field of education and modern psychology (Michael, 1997: 92). A major goal in the educational process is motivating students and it should be achieved (Mari and Ahmad, 2002: 49). Alderman define Achievement as: "Demonstrates the ability to achieve the learning experiences that have been developed for him" (Alderman, 2007:).

Barakat emphasizes that learning that leads to positive attitudes towards the student is more beneficial than that leads to the mere extension of scientific knowledge. Science and knowledge are constantly subject to forgetfulness factors, while attitudes continue to be permanent and continuous. Moreover, attitudes help students to apply what they learned in the practical life after graduation, which requires attention to their attitudes, tendencies, motivations and desires towards the subjects and their relationship to the level of their academic achievement (Barakat, 1975: 175).

Some studies indicated a positive attitude toward the study subjects (Hussein and Ibrahim, 2008) and other studies indicated a negative trend such as the study (Nasser, 2012). Some studies showed that there are differences in attributed to the impact of gender, (Al-Bayati, 2010, Murad and Jumaa, 2006) indicates a positive correlation between achievement and attitudes.

Nasser Study (2012) in a study aimed to identify the attitudes of students and teachers in Iraq/ found that there was a negative trend among the sample (male more than female) towards the subject and a positive correlative relationship between the students' attitudes towards the subject and their educational achievement. There were also statistically significant differences in both the attitudes towards the subject and the educational achievement attributed to the effects of gender with the benefit of females.

In another study Al-Bayati Study (2010) aimed to identify the relationship between the attitudes of the students of the sciences department in their academic achievement. The results revealed a positive correlation between scientific trends and student achievement. Study of Hussein and Ibrahim (2008) showed positive trends towards the animal tissue subject, there were also statistically significant differences in the attitudes of students towards the subject and the educational achievement attributed to the impact of gender and for the benefit of female students.

David study (2008) in a study aimed to find out the relationship between the curriculum (course) and specialization and the achievement of scientific in chemistry concluded that there is a significant positive correlation between the cumulative rate and the trend towards science in relation to the specialization of science, and the absence of a significant statistical correlation between the achievement in chemistry, the cumulative average and the end of the test.

The electronic material is one of the basic and important materials in the Department of Electricity and has applications in various fields and areas of life. As a consequence, it is important to know the attitudes of the students in that subject to support the positive and negative aspects of the teacher by following the quality technique and methods of modern teaching and make students the focus of the educational process. Electronic subject is one of the subjects scheduled for the first stage/electricity department at the University of Sulaimaniyah technical two hours theoretical, and two hours practical a week. It aims to introduce students to the parts of electronic devices used in electrical power systems and to connect the electronic circuits of materials made of semiconductors of different types and composition. Then, study the properties and uses in their electronic circuits. Within, give an idea of electronic light, and its components with circuits integrated with simple applications of the operation amplifier (Sulaimaniyah Technical University, 2013: 12).

The universities or technical institutes as technical educational institutions are an important center for the launch of science and knowledge. Its main tasks are to prepare cadres equipped with modern scientific techniques to keep a pace of the rapid development of the modern era. The students of these institutions are undoubtedly the main core in the development of society in various fields (Al-Hamdani, 2005). The reason for

interest in student attitudes is due to its influential role in directing human behavior. It plays a key role in directing the social behavior of the individual in many life situations. Individual acquire direction as a result of their passing through multiple attitudes and experiences. As the trends are acquired in human behavior, they can be extinguished, modified, improved or changed (Al-Ghurairi, 2003). If the attitudes toward the subject material is positive, the students can accept the article and easy to understand and collect information, but if this attitude is negative, the students do not accept to recall the material, so it will be difficult to understand and collect information (Habashi, 1991, 58).

Based on the above, the current research is a scientific attempt to detect attitudes toward the electronic material and its relation to the academic achievement of the students of the electricity department.

METHODOLOGY:

The researcher used the analytical descriptive approach, which is a research based on the study of the phenomenon as it exists in reality and is treated as a precise description (McMillan & Schumacher, 2001).

The study population consisted of (193) male and female students of the electrical department at the Technical Institute of Kalar, affiliated to Sulaimaniyah Technical University for the academic year (2014/2015). Purposive sampling was used for selecting sample. The researcher distributed the questionnaire to all the students of the first stage (95) The total number of completed questionnaires was 84, 46% of the study population and 88% of the sample, which were based on statistical analysis, table (1) shows the distribution of the sample of the study through completed questionnaires:

Table 1: The distribution of the sample according to their gender

Variables	Categories	Number of sample members	percentage
Gender	Male	39	%46.5
	Female	45	%53.5
Sum		84	%100

For collecting data, the researchers used this tools:

For measuring academic achievements, the test has scored the acquisition of electronic subject that consists of two parts: The final practical achievement test: The researchers prepared the final practical test that was conducted to the students of the research groups, which is the implementation of each part of a number of laboratory experiments and roundabout (move) in real and individual and get the results correctly and accurately over a specified period of time. The researchers prepared a theoretical test of the 30 multi-choice questions to measure the scientific information related to the electronic subject in the research group.

For measuring attitudes toward electronic subject the researchers used questionnaire which is considered as one of the best means of collecting information, and its relevance to the nature of this type of study in terms of effort, speed and potential. Aubedat (2003) states that a questionnaire is a suitable tool for obtaining information, data, facts related to a specific situation, and to obtain facts on existing conditions with methods, as well as a convenient means of collecting the necessary data "(Aubedat, 2003, 145).The researchers prepared a measure of the attitudes of the students of the Technical Institute Kalar towards the electronic subject, which consists of (25) items (questions) on the Likert quintile scale (strongly agree, agree, I do not know, disagree, disagree strongly) by preparing an open survey questionnaire to a survey sample composed of the (20) students were selected randomly, as well as the use of some previous studies such as the study of (Al-bawi, 2006; and Al-Hasnawi, 2006) with the experience of researchers in this area of studying.

Reliability means that the questionnaire measures what has been prepared to measure it and does not measure anything else that is different from it. The research instrument is reliability if it can actually measure what is being measured, and Aubedat (2003) for which it is possible to rely on their judgment, and this is known as the truth of the arbitrators "(Aubedat, 2003, 150). The Validity of the scale was presented to the specialists in the field of educational and psychological sciences to indicate their observations on the items, and the researchers modified some items in the light of those observations. To determine the reliability of the scale, the test-retest method was used on the same survey sample of 20 students two weeks after the first application of the scale (Adames, 1964: 85). The coefficient of stability between the two application results using the Pearson correlation coefficient was 0.79. The stability of the scale was calculated by using the Kronbach-Alpha equation with a value of 0.72. Therefore, the measure of direction was consistent with the conditions of stability and it was ready to apply to the sample of the research, after the deletion of (4) items of them because of the lack of

conditions of honesty and stability, and the tool consists of two parts: the first part is personal data, and the second part is (21) item in the form of Ladder five. Data were analysis by mean and standard deviations, T-test and Pearson correlation coefficient (Auda, and Khalil, 1988: 355), Cooper (1978: 39).

RESULTS:

First objective of this study was to investigate "What are the attitudes of the students in the electricity department at the Technical Institute Kalar towards electronic material?" The researchers extracted the mean, standard deviations, and the levels in order to determine the attitudes of the sample members towards the electronic material. Table (2) shows this.

Table 2: The mean and standard deviations of the attitudes towards the electronic material

Order of Questions	Items (sections)	Rank	Arithmetic average	standard deviation
7	I would like more information about the electronic material	1	3.84	1.23
13	I am very pleased to attend an electronic material lecture	2	3.76	1.29
11	I would like to study and design the electronic circuits and identify their applications	3	3.75	1.30
14	I would like to have electronic discussions with distinct students and subject teachers	4	3.74	1.21
1	I think electronics has a big role in scientific and technological progress	5	3.71	1.24
2	Study the electronic subject for the purpose of learning and not just pass it	6	3.61	1.27
6	I think the electronic material is very basic and important in the electricity department	7	3.58	1.29
4	I have complete confidence in myself and my potential in learning the electronic subject	8	3.56	1.29
12	I see that electronic subject is of great benefit to society	9	3.54	1.25
17	I feel the importance of electronic subject in industrial applications	10	3.46	1.20
18	I see that electronic subject develop my skills of scientific thinking	11	3.38	1.08
21	I hope to participate in exhibitions and scientific activities related to electronic subject	12	3.38	1.38
5	I would like to study electronic subject to get a career for my future life	13	3.37	1.33
19	I wish to specialize in electronics to complete my future studies	14	3.06	1.33
20	I am bored and tired of exhibitions and scientific activities related to your electronic subject	15	3.05	1.21
15	I hate the subjects of electronic as it deals with things that cannot be seen and deal with it	16	2.99	1.27
9	Develop your electronic subject for curiosity	17	2.87	1.23
10	Enjoy access to information on electronic subject from the Internet	18	2.78	1.40
16	Consider the electronic subject of the subjects interesting and fun	19	2.71	1.27
3	The best study of electronic subject on other subjects in the Department of Electricity	20	2.67	1.20
8	The electronic subject is saturated some of my wishes	21	2.54	1.20
	Total		**3.33**	**0.82**

In the light of the results shown in Table (2), the first question can be answered. The respondents identified their answers to each question item. They were ranked in descending order according to their arithmetic mean. Then the researchers discussed the sections that achieve the first and last rank of the sections of the questions. The section that received the first rank according to its arithmetical mean is the section "I would like to have more

information about the electronic subject", where it obtained an average of 3.84 of 5 degrees that were approved by 76.8% and high, while the section (the electronic subject is saturated some of my wishes) got the lowest average account and reached (2.54) percentage (51%) and weak. The whole obtained average score was 3.33 of 5 degrees, which was approved (66.6%) and to a medium degree. This indicates that the trends of most of the students of the Technical Institute Kalar towards electronic subject are moderate.

The second objective: "Are there statistically significant differences at the level of indicating (α = 0.05) between the trends of the students of the electrical department at the Technical Institute of Kalar toward the electronic subject attributed to the effect of gender (male and female)?". The authors calculated the arithmetic mean, standard deviations and the analysis of (T) analysis. Table (3) shows these results:

Table 3: results of t-test to determine the significance of differences in students' responses to their specialization according to the gender variable

	Group	The Number	Arithmetic average	standard deviation	Value (T) test	Statistical significance
Gender	Male	39	3.08	0.96	-2.34	0.021
	Female	45	3.49	0.62		

Table (3) shows that there is a statistically significant difference at the level of (α = 0.05) of the students' attitudes towards the electronic subject due to the gender of the students and results showed that females have more positive attitudes than males.

The third objective: Is there a relationship between academic achievement (theoretical - practical) and the attitudes of the students in the electrical department towards the electronic subject? The researchers calculated the (Pearson Correlation coefficient) to determine the correlation between the attitudes toward the subject and the academic achievement (practical and theoretical) in the electronic subject. Table (4) shows the results.

Table 4: Pearson test results to find the correlation between academic achievement and the attitudes

Theoretical achievement	Practical achievement	Trend towards Module		
.020	.318**	1	Pearson Correlation	Trend towards Module
.854	.003		Sig. (2-tailed)	
84	84	84	N	
-.151	1	.318**	Pearson Correlation	Practical achievement
.169		.003	Sig. (2-tailed)	
84	84	84	N	
1	-.151	.020	Pearson Correlation	Theoretical achievement
	.169	.854	Sig. (2-tailed)	
84	84	84	N	
** Correlation is significant at the 0.01 level (2-tailed).				

Table (4) shows the existence of a positive correlation at the significance level (0.05 = α) between the students' attitudes towards electronics subject and practical part achievement, while the relationship between educational theory part and attitudes of students is weak and statistically significant at the significance level (0.05 = α). This result means that students are more consistent with the practical part compared to the theoretical part.

DISCUSSION:

The study aimed to know the attitudes of the students of the electrical department towards the electronic material and its relation to the academic achievement, finding showed that the level of students' attitudes toward electronic material is not the required level. This result agrees with the study of (Al-Busaily et al (1991)) and differs with the study of (Hussein and Ibrahim (2008). The researchers attribute the reason to the nature of the subject and the language teaching the subject since it is taught in English, that the students accepted in the technical institutes their level in the English language is not the required level. Another reason may be the

methods or strategies taught by the instructor of the subject, which is not suitable for this subject in this time.
Also according to the results the females were more disciplined than the male students. This result agrees with the study of (Naser, 2012, and Hussein and Ibrahim, 2008), and differ with the study of (Murad and Jamma, 2006; Tamam, 2004). The researchers attributed the reason to the nature of the material because it is more suitable and appropriate for female students compared to other subjects studied by students in the electricity department because it deals with electronic devices and parts. Another reason, the female students also resort to an educational method when presenting slides, writing notes, arranging results and working in groups in a consistent manner. They, therefore, have a better tendency than (males).
This result means that students are more consistent with the practical part compared to the theoretical part because of the practical part students are interacting more with the subject. Within, they can work by themselves, and they learn about the substances used in a laboratory. This result confirms the role of the laboratory, beside its associated activities with importance in science education and the development aspects of scientific thinking. Additionally, laboratory skills are appropriate to them. This result agrees with the study of (Nasser, 2012; Bayati, 2010; Murad and Jumaa, 2006).
Totally previous study confirms the finding of this research. For example, Murad and Juma's study (2006) that aimed to identify the relationship between the attitudes towards chemistry and the academic achievement of sixth-grade students in Diyala / Iraq, found a positive correlation between the achievement in chemistry and students' attitudes towards a subject. Then, the absence of significant differences attributed to the impact of gender. Hattab et al. (2000) study found that the percentage of females with positive attitudes more than males.
Although this research finding was agree with previous study but there was some limitation in this study too for instance the study was limited to students of the first stage of the electricity department of the Technical Institute Kalar at the sulaimaniyah technical university in the second semester of the academic year 2014/2015. Also The study was limited to the attitudes of the students of the first stage in the electricity department toward electronic subject on a special scale prepared for this purpose.
According to finding of this research It is importance to focus on the process of creating the desired attitudes of students and scientific with educational methods to develop the student's desire and improve its positive attitudes towards the subjects. Then it recommends to urging faculty members to use modern teaching methods and methods to develop and implant attitudes among students.

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