

College of Education faculty members' use of Instructional Techniques: The reality and the obstacles

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Abstract

This study aimed to examine a university faculty's use of educational technologies as part of the teaching and the obstacles encountered by using a descriptive survey approach. Fifty-seven faculty members from the College of Education at Al Baha University completed a 33-item questionnaire about their use of educational technologies. The results indicated that there was a high level of use of computers, the Internet, smart boards, educational videos, social media, and emails. The findings also revealed that the challenges faced by the faculty included poor Internet availability, a lack of awareness of the importance of teaching techniques, an absence of electronic courses offered to students, and a lack of laboratory equipment.

Keyword :

Faculty members; Instructional Techniques; University teaching.

Introduction

Several countries have recently become interested in developing educational settings in universities to improve the performance of the staff and students when incorporating educational technology in teaching. Many international, Arab, and local universities have therefore established centers for educational technology. Integrating Technologies in the Classroom are very useful overviews of software and hardware associated with integration.

According to Reiser (2007), the definition of instructional technology has been reviewed a number of times in the last fifty years or so. In 1963, it

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was defined as the design and use of messages that control the learning process, but by 1970, this definition had evolved into it being regarded a systematic way of designing, carrying out, and evaluating the whole process of learning and teaching according to specific objectives.

Lei and Zhao (2007) determined that the technology is massively used for inquiry and communication than for expression and construction. Students spend between 3-4 hours on computer. The use of technology devices is regular around academic environments. Instructors who use technologies in class show the beneficial of educational tools, which obviously help improving students' achievements. In addition, Instructors should be aware of the kinds of devices appropriate for classroom teaching, which can increase the way of successful teaching and overcome its obstacles.

Most educators have viewed educational technologies as supplementary means of presenting instruction, freeing the classroom from limited time and space. However, moving from traditional teaching methods to modern technology implementation has been an obstacle for some universities (Kurt, 2014).

Several domestic and international conferences such as UNESCO in Berlin in 1987, the International Project for Technology and Career in 1992, the Dubai conference in 2016 and ISTE in U.S.A

in 2017 have discussed the use of modern technologies in the educational environment. The use of educational technology in teaching has meant that faculty members need to continuously obtain new skills to deal with the new technologies. Encouraging the administration and professors in every educational institution to use educational technologies in their teaching.

Elemam (2016) looked at the use of information and communication technology (ICT) in Sudan by conducting a survey with 40 teachers. The results showed that teachers rarely used ICT in their teaching, often had no ICT skills, no financial aid, no Internet connectivity, and inadequate technical assistance. The teachers also lacked the time needed to implement ICT in their classrooms.

Universities in Saudi Arabia play an important role in the development of individuals and institutions. It is therefore important that educational technology is available at the College of Education faculty at Al-Baha University. The University of Al-Baha is a new university and the use of technology is being used in a modern way. The aim of this research is to identify the reality face those using educational technologies, including the challenges faced by the faculty and staff when trying to implement these technologies.

In order to do so, Al-Baha University has established an academic department called the Department of Educational

Technology, which aims to provide the necessary technology required for each department within the university and training courses that teach faculty members how to effectively employ educational technology, teaching materials related to technology in the college of education and then starting academic programs for postgraduate students.

Instructors at college of education in Al-Baha University face challenges and barriers all the time. The status of technology makes them think about the implications of their role as instructors and lifelong learners themselves. The challenge is to make use of their ongoing knowledge and skills about what to teach and how to teach. Technology is just one, but an important consideration in that equation.

Hew and Brush (2007) examined the reason not all teachers incorporate technology into their education. Some resource obstacles are being solved by an increasing amount of computers, software applications and faster, more consistent networks in schools. But teachers tend not to use technology if they are frustrated when it does not work properly or when there is a lack of technical support at their school. Teachers also point to limited time to review new technology tools and learn about tools they can use in teaching.

The researcher also conducted the pilot study with a group of 20 college instructors to determine the problem of the study through interview method to

view the information in the sample. It was found that the low usage of technologies between 30-50% of the total number of studies, which prompted the researcher to conduct a study in members' use of technologies and obstacles.

Although various studies have discussed the reality and challenges of universities using educational technology, few have been conducted at the local level. Investigating the obstacles that need to be overcome in order to implement educational technology at the College of Education at Al-Baha University could therefore fill a gap in the literature.

Based on the researcher's experience, where working as a faculty member at the Faculty of Education for Boys at the University of Baha since 2013. It became clear to the researcher that there is a problem in the use of technologies because of the obstacles facing members of employing educational technologies in teaching and learning students. Also, faculty members believe that university education should be based on traditional lectures using books. There is also an absence of training courses and a lack of educational techniques.

The present study is the first that aims to reveal the using and obstacles of instructional techniques at the Faculty of Education at Al-Baha University. The researcher noticed the focus on the use of reality and obstacles as parts of the educational processes the present time, since they

provide an effective way of solving current educational problems, by providing students with the time needed to develop their thinking and thus increase academic achievement.

Hence, the research problem is found in the following statement: faculty members lack knowledge related to computer software and hardware in the field of education and learning, because of the ineffectiveness of using traditional methods. Therefore, the use of instructional techniques to address this deficiency is required.

The literature advocates various degrees of educational technologies and discusses its obstacles in the learning environment. Faculty members need to employ e-learning techniques, educational videos, the Internet, and emails in their teaching, but they may face a lack of technical equipment, a lack of incentives, and difficulty using e-learning management systems. The purpose of this study was to examine the use of educational technologies and the associated challenges at the College of Education at Al-Baha University. The study aimed to answer the following research questions: To what degree do faculty members of the College of Education at AL-Baha University use educational technology? Additional question is: what are the obstacles facing faculty members in the use of educational technologies? The study aimed to: measure college of education faculty members' use of educational technologies: The reality

and the challenges. Provide recommendations for increasing the use of educational technologies at the College of Education at Al-Baha University. Identify the implementation of technology at the Faculty of Education, Al-Baha University. Explore the current barriers that prevent the implementation of instructional techniques in university teaching and learning.

The Importance of the study

Many educators are not aware of technologies advantages in teaching by organizing the lesson and making it more attractive for individuals by visualizing the data. The importance of this study comes as it can:

- Present the reality of using technology in teaching.
- The study is a requirement to keep up with contemporary trends in the employment of modern educational innovations in teaching and learning.
- Be a starting point for further research that can be applied to different areas across a range of higher education institutes.
- The results of this study are expected to fill out the knowledge gap of using instructional techniques in university teaching and learning.
- To explore the barriers during instructional techniques

implementation at university teaching.

Delimitation

The study was conducted at the College of Education at Al-Baha University. The researcher designed the survey to detect the degree of technology use by the faculty and the obstacles to using educational technologies.

Definition of terms

The faculty members who participated are professionals who teach at the College of Education at Al-Baha University and who either have the title of assistant professor, associate professor, or professor.

The term technology was defined by Kimble (1999), technology is used across the globe to gather information, keep records, create proposals, construct knowledge, and so, furthermore Lei and Zhao (2007) used the term to refer to the process of making life easier by using electronic products like computers, cell phones, etc. In addition to doing all of that, technology is used in education to give instructions, and as Reiser (2007) stated, instructional technology is the analysis of the students' problems and the design, development, implementation, evaluation, and management of technology to help solve these problems. Also, instructional technology is defined as theory and practice as following specific learning or teaching theory.

Operationally, using technology is a way of transferring theoretical data onto technological devices in order to help learners understand information easily. In general, technology is used for inquiry and communication rather than for expression and structure. For the purpose of this research, technology used in the teaching and learning activities by faculty members at college of education, Al Baha University will be explored. It will also examine the challenges faced by faculty members when using it.

Operationally, Educational technology is the use of both physical hardware, software, and educational theoretic to facilitate learning and teaching.

Hew and Brush (2007) defined obstacles as the barriers to the use of technology in the classroom are numerous and include, among other things, resource constraints, teacher knowledge and skills, attitudes and beliefs of teachers.

Operationally, it is a block of action and prevent the progress of a concrete goal.

Literature review

According to Jhuree (2005), information and communication technology (ICT) can help reform educational settings in both rich and poor countries. For this reason, ICT needs to replace traditional instruction in the educational environment. Technology motivates learners to study and makes teaching easier and

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more attractive for teachers. Developed countries tend to have more resources, knowledge, experience, and skills than developing countries, with the latter lacking adequate technical assistance and teacher preparation.

According to Sahin and Turan (2009), the study aims to detect the impact of using technology on learning and teaching in a classroom environment. The results revealed only pedagogically sound teaching and appropriate technologies lead to improvements in learning. From the points of students, the integration of technology in learning requires some critical skills.

A study by Zare-ee (2011) looked at university teachers' perceptions of ICT in teaching and research using surveys and interviews. The participants included 107 male and eight female instructors from the Iran University in Iran. The results showed that they strongly agreed with the educational benefits of ICT in higher education, but that they faced difficulties when trying to implement ICT, due to limited resources and a lack of skills, time, and support from the policy maker.

Mndzebele (2013) looked at the use of ICTs in schools in Swaziland and found that the teachers lacked ICT knowledge, had no technical aids, no Internet connectively, no financial support, and no time availability. Technology helps learners' study more effectively and many schools use various educational technologies.

A study by Ramorola (2014) looked at the obstacles facing teachers when implementing technology in South African school. The study method use document review and observations to collect data. The findings revealed that there were obstacles to applying the technology, such as the lack of technological equipment, the lack of qualified teachers in technology integration, maintenance and technical problems as key challenges affecting the effective integration of technology at the school level. Integration of technology requires effective planning, time, dedication and adequate resources.

According to Kozma and Vota(2014), examined the difficulties of employing of information and communication technology in developing countries to support educational environment. There are some challenges include limited electricity or Internet infrastructure in rural areas, limited availability of technical support staff, dominance of minority languages and unqualified educational members. The study concluded ICT in developing countries need to find out the contribution ICT to support these countries.

Mohamed (2016) examined training needs of university faculty members, in order to achieve the desired quality in the light of technological innovations in Saudi Arabia. The measuring tool was a descriptive-analytic design. The study tool was a survey. The study sample

was made up of 135 faculty members from different Saudi universities. The results revealed to train faculty members related to technologies moderns.

Riu and Cubeles (2016) looked at the use of technology in classrooms in a university setting. Their study used a descriptive survey design and involved 112 professors in Spain who were asked about their use of mobile and social media (SM), learning management systems (LMS), and graphic and dynamic visualizations (graphics). The results showed that there was limited use of technology in classrooms. Furthermore, significant differences in the use of technology in the classroom were found between teachers from different disciplines and academic backgrounds, but there were no differences related to age or gender.

A study by Alhashimi (2014) looked at the use of technology in Oman when teaching Arabic, as well as the teachers' attitudes and suggestions. Twelve teachers took part and the results showed a high degree of technology use in the classroom. The findings also showed that there were also obstacles to applying the technology, however, such as learning how to use blackboard and designing programs. It is important to note that the use of educational technologies is common in Arabian countries, due to a cultural focus on research and science.

Albirini (2006) explored the instructors' attitudes toward the use of information and communication technologies of high school English as

a Foreign Language (EFL) in Syria. Also, the researcher examined the relationship between computer attitudes and five independent variables: "computer attributes, cultural perceptions, computer competence, computer access, and personal characteristics (including computer training background)"(P.373). The suggestion of this study shows that teachers may have positive attitudes toward ICT in education. Attitudes of instructors were explained by computer features, cultural views and computer competence. The results shed light on the instructors' attitudes toward the use of technology tools in educational setting.

According to Bingimals (2009), the study refers to the perceived barriers to technology integration in science education. The research tool was a meta-analysis of related literature. The findings show that teachers' willing to customize information communication technology into classroom. However, there were no confidence, no competence and resources missing.

Methodology

Research design

Data was collected via a questionnaire (descriptive approach) and distributed to faculty members at the College of Education. The literature related to technology use in teaching was reviewed to inform the design of the questionnaire. The faculty members' response to the

questionnaire showed they consider technology as an important mediating tool for both students and teachers, as educational technology makes it easier for instructors to prepare and deliver lessons, as well as receive feedback,

despite the challenges of implementation such as unavailability resources and internet weakness.

Table 1. Alpha Kronbach coefficient to measure the reliability of the study instrument

Number	Component	Number of items	Reliability
1	Use	13	0.894
2	Obstacle	20	0.803
Total validity		33	0.85

It is clear from the **Table 1** that the study instrument has a statistically acceptable reliability with a total reliability coefficient of 0.85, which is a high degree of reliability, as it is ranged between 0.894 and 0.803, which are high reliability coefficients that can be trusted when being applied to the current study.

Participants

The researcher conducted a pilot study among 20 faculty members to identify the time taken to conduct the main study and any potential obstacles. The results of the pilot study indicated that there were no obstacles. Fifty-seven out of one hundred faculty members at the College of Education took part in the main study who were chosen randomly.

Procedure

Review the literature and previous studies related to the technologies use and obstacles approach. Identify the list of technology items and abstracts in education: the researcher examined the reality and challenges of technologies by interviewed college instructors, and then wrote their responses to prepare the study tool. Then design the survey and show it to reviewers of faculty members. The questionnaire was designed according to the information obtained from the faculty members by the researcher. The questionnaire was composed of 33 statements and the participants marked how much they agreed with each one according to a five-point Likert scale: 5 = Always, 4 = Often, 3 = Sometimes, 2 = Rarely, 1 = Never. The pilot study provided information about potential areas of improvement that was used to modify

the survey. Questionnaire items 1 to 13 measured the use of educational technology and items 14 to 33 looked at any obstacles in the use of educational technology. Data management and statistical analysis were conducted using the Statistical Package for the Social Sciences (SPSS 22 version). A quantitative method was employed to obtain information about the extent of the use of technology in the classroom. The descriptive design focused on the use of educational technologies and the challenges involved. A letter of permission was submitted to the Albaha University in Saudi Arabia to allow the investigator to conduct and distribute the survey to the study's target population. The researcher distributed the survey to members in the college of education. There were two ways to obtain the questionnaires: one was to pick them up from faculty members, and the other way was through mail. The researcher started with college of education at Albaha university for a pilot study to examine the design, wording, relevancy, length, and potential issues, and then conduct the main study. The researcher gave the participants two weeks to one

month to complete the survey and return it to the researcher.

- **Ease, difficulty, and discrimination coefficient: Ease, difficulty, and discrimination coefficients for test vocabulary:** the corrected ease coefficient was calculated from the effect of guesswork, difficulty, and discrimination coefficient for each of the test items (according to the coefficient of corrected ease of estimation effect) through the results of the application of the test on the survey sample. The coefficient of ease and difficulty, and the coefficient of discrimination to calculate the coefficient of ease and difficulty of the test as a whole, were taken as: ease coefficient (1.3), coefficient of difficulty (2.0) and coefficient of discrimination (0.26).

Table 2. Judging the degree of use and obstacles according to the arithmetical Means:

The arithmetic mean of the degree of sustainability and constraints

N	The arithmetic mean	The degree of use and obstacles
1	1 to less than 1.8	Very low degree

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N	The arithmetic mean	The degree of use and obstacles
2	1.8 to less than 2.6	Low degree
3	2.6 to less than 3.4	Medium degree
4	3.4 to less than 4.2	High degree
5	4.25 to less than 5	Very high degree

Results and discussion

The following section presents the results and discussion in the order of the questions included in the study.

The results of the statistical analysis of the field study were presented to identify the degree of educational technologies use among faculty members and the challenges they face using them at the College of Education at Al-Baha University. The following section is a presentation of the results and discussion of the questions included in the study.

Results related to the academic level variable: Are there statistical differences in the degree of faculty members' use of educational technologies in Al Baha University due to the academic level variable?

The averages and standard deviations were calculated based on the degree of use of educational technologies in Al Baha University due to the academic level variable? As shown in **Table (3)**, where there were apparent differences in these averages. To ascertain the statistical significance of these differences, T test method was used in this study to analyze the data. There was no Statistical differences in the degree of faculty members' use of electronic applications at Baha University due to the academic level variable. The researcher attributes this result to they have the same training because of the same college which is College of Education. Also, the technology devices are available for all.

Table (3) Means, standard deviations, and t test, the degree of faculty members' use of electronic applications at Baha University due to the academic level variable.

Rank	Descriptive Statistics			Leven's Test		T Test		
	N	Mean	Std. Deviation	F	Sig.	t	df	Sig.
Assistant	52	44.52	8.36	1.783	.187	-.388	55	.700

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Rank	Descriptive Statistics			Leven's Test		T Test		
professor								
Associate Professor	5	46.00	4.74			-.612	6.702	.560

The second related results: Are there statistical differences in the degree of faculty members' obstacles of educational technologies due to the academic level variable?

The averages and standard deviations were calculated based on the degree of obstacles of educational technologies in Al Baha University due to the academic level variable? As shown in **Table (4)**, where there were apparent differences in these averages. To ascertain the statistical significance

of these differences, T test method was used in this study to analyze the data. There was no Statistical differences in the degree of faculty members' obstacles of electronic applications at Baha University due to the academic level variable. The researcher attributes this result to they have the same training because of the same college which is College of Education. Also, the technology devices are available for all.

Table (4) Means, standard deviations, and t test, the degree of faculty members' use of electronic applications at Baha University due to the academic level variable.

Rank	Descriptive Statistics			Leven's Test		T Test		
	N	Mean	Std. Deviation	F	Sig.	T	df	Sig.
Assistant professor	52	69.27	11.46	4.702	.034	-.449	55	.656
Associate Professor	5	71.60	4.22			-.945	11.250	.365

To what degree do faculty members use educational technologies?

The means and standard of deviations of the items relating to this question were used to answer this

question. **Table 5** shows that the scores were generally high, with an overall average of 3.43. The Means for the individual items ranged from 2.60 to 4.14 and from medium to high. The highest score of the scale was the

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seventh item (4.14) of the mean, and the twelfth item (2.60) of the mean in the last rank, as seen in **Table 5**. The researcher attributed this to fact faculty member use educational technologies. These results indicate that Al-Baha University should provide faculty members with technological devices and services, and train them to use smart boards and social media in the educational environment. These findings are consistent with several previous studies regarding the willingness of

faculty members to use educational technologies (e.g. Alhashimi, 2014; Zare-ee, 2011; Ramorola, 2013; Kozma & Vota, 2014; Kurt, 2014) when instructors are skilled at using them and educational technology is easy to use; sufficient resources are accessible; workload requirements for teachers are reasonable, and they have enough time to employ technology resources. However, these findings are not consistent with those of Riu and Cubeles (2016).

Table 5. Means, standard deviations, and order of degree use.

No.	Items	Means	SD	Rank	Degree
1	I use e-learning techniques in teaching.	3.51	±.85	6	High
2	I use the Internet in teaching	3.46	±1.09	7	High
3	I use educational videos in teaching.	3.21	±1.15	10	Moderate
4	I use models in the lesson presentation.	3.21	±1.13	11	Moderate
5	I use projectors in teaching.	4.04	±1.00	2	High
6	I use educational aids in teaching.	3.75	±.95	3	High
7	I use websites to obtain information related to teaching materials.	4.14	±1.09	1	High
8	I read about technological innovations in the related field.	3.72	±1.11	4	High
9	I manage assignments electronically.	3.28	±1.35	9	Moderate
10	I use multimedia in lectures such as audio, video and motion.	3.32	±1.21	8	Moderate
11	I use social media to share and interact.	3.61	±1.11	5	High
12	I am interested in teaching lectures electronically via the web.	2.60	±1.25	13	Moderate

No.	Items	Means	SD	Rank	Degree
13	I send assignments to students via e-mail.	2.81	±1.29	12	Moderate
	The use (the overall of scale)	3.43	±1.12	-	High

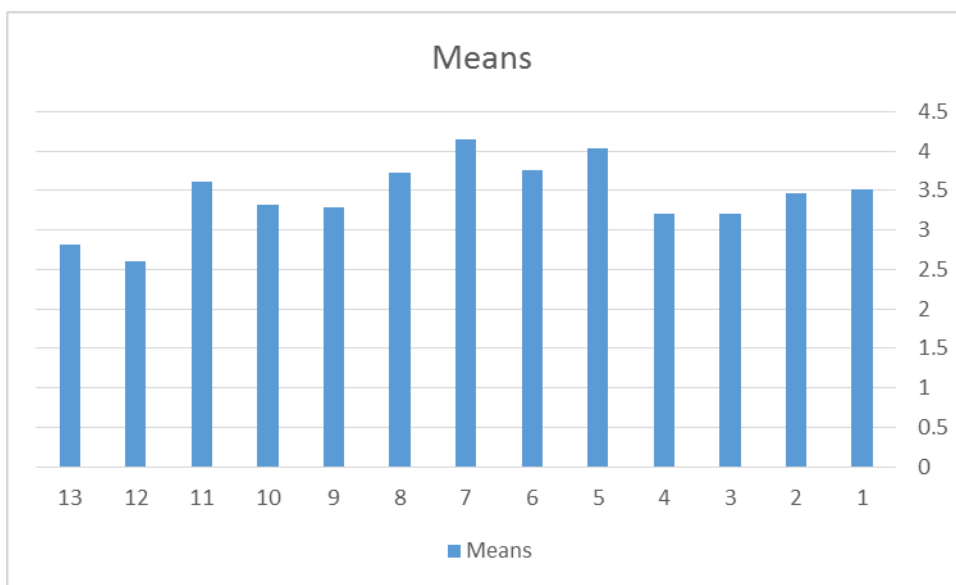


Figure 1 Average values of use

What are the obstacles facing faculty members in the use of educational technologies?

The Means and standard deviations of the items relating to this question were used to answer this question. **Table 6** shows that the scores were generally high, with an overall average of 3.48. The arithmetic Means for items ranged from (2.74) to (3.86) and from medium to high. The highest score of the scale was the eleventh item (3.86) of the mean, which is related to faculty members using educational technologies (items 10-12-13 **table 6**). The second item mean was (2.74) of

the mean in the last rank, as seen in **Table 6**, which is related to faculty members using the educational technologies (items 1-2-5-6 **table 6**). These results indicate that the obstacles to using educational technologies include not maintaining computers effectively, small classroom sizes, and the fact students do not participate in electronic homework. Therefore, the solution would be for the university to provide workshops and training courses for staff, purchase electronic devices, and set up a wifi network. These findings are consistent with previous studies

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such as those by Mndzebele (2013) and Riu and Cubeles (2016).

Table 6: The arithmetical Means, the standard deviations and the order of the obstacles degree.

No.	Items	Mean s	SD	Rank	Degree
1	There is a lack of technical equipment in the classroom.	3.61	±1.21	10	High
2	My experience is insufficient to deal with technical devices.	2.74	±1.11	20	Moderate
3	Student experience is insufficient to deal with technical devices.	3.30	±.91	16	Moderate
4	There is a need to prepare training programs for faculty staff.	3.56	±1.25	12	High
5	There is a lack of incentives for the use of modern technology.	3.67	±1.06	7	High
6	I have limited time to use modern technology.	3.30	±1.13	15	Moderate
7	I lack knowledge of the design of educational programs.	3.18	±1.10	17	Moderate
8	I have difficulty using e-learning management systems.	2.82	±1.09	19	Moderate
9	I find it difficult to design software for each subject.	3.33	±1.20	14	Moderate
10	There is a lack of Internet access in classrooms.	3.82	±1.24	2	High
11	There is a lack of availability of computers, projectors and display screens in each classroom.	3.86	±.99	1	High
12	There is limited availability of maintenance and technical support when needed	3.75	±1.04	4	High
13	There is limited compatibility of the projectors in the classroom with the	3.63	±.88	9	High

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No.	Items	Mean s	SD	Rank	Degree
	operating systems of the professors' personal computer.				
14	There is incompatible power of some electrical connections in the classroom.	3.68	±1.09	6	High
15	There is a lack of smart boards.	3.67	±1.12	8	High
16	The university site lacks educational programs.	3.61	±1.24	11	High
17	The classroom is too small compared to the number of students	3.79	±1.15	3	High
18	There are a lack of learning environments equipped with intelligent and appropriate teaching devices.	3.73	±1.04	5	High
19	Rate student interaction regard technical assignments. ← what does this mean?	3.39	±1.22	13	High
20	Availability of well equipped teaching rooms.	3.09	±1.33	18	High
	The obstacles (the over all of scale)	3.48	±1.12	-	High

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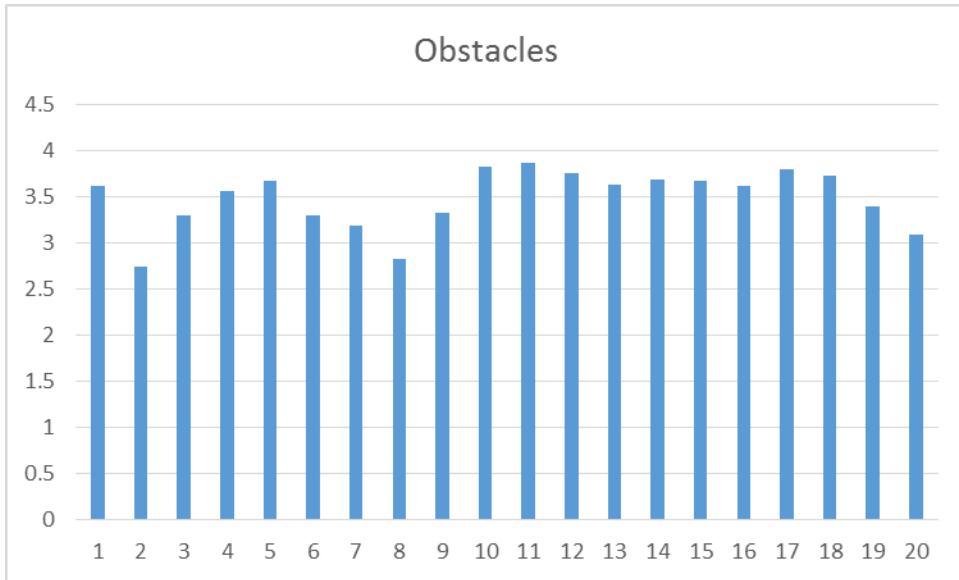


Figure 2 Average values of the obstacles

The seventh item was the highest in the reliability of use. The eleventh item was the highest of the challenges.

Conclusion

The purpose of this study was to measure the use and obstacles of educational technologies at the College of Education at Al-Baha University. The results indicated that faculty members are willing to incorporate technology into their teaching and that they already use technology for educational purposes to a high degree. The attitudes regarding technology use are positive, which paves the way for further reform efforts. The obstacles to the use of educational technologies include the lack of maintenance of computers and the fact some staff do not seem motivated to blend technology into the

teaching and learning processes. In conclusion, technology use requires a real plan to overcome those obstacles.

Recommendations For Future Study

The following are recommendations for further study:

- The university should provide workshops and training courses for staff, purchase electronic devices.
- Benefit from the scale of faculty members to measure the use and barriers.
- It is important to employ the technologies in teaching according to the members' responses.
- Working to educate faculty members through the use of

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instructional techniques in teaching and learning.

Suggestions For Future Study

- More studies are needed to investigate the use and obstacles of emerging technologies in teaching and learning.
- Examine the technologies use and barriers by students in the educational process. -- As the sample of the current study only included male participants from the Al-Baha educational college at Al-Baha

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University in Saudi Arabia, future studies are needed to include female and participants from other cities

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