

## Faculty Acceptance of e-Resources at Applied Sciences Colleges in Oman: Application of the Technology Acceptance Model (TAM)

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**Abstract:** This study investigated factors that influence faculty members attitudes toward accept e-resources at the Applied Sciences colleges in Sultanate of Oman, this is due to the unexpected decrease after the first year of use by the faculty. To achieve this, a set of behavioral factors has been relied upon, such as the behavioral intention (BI) and the perceived usefulness (PU) and perception of easiness (POE). These factors may also be affected and related to other external factors such as information quality.

The study population consists of faculty members working in six CAS in the Sultanate of Oman. 120 of them were chosen as a representative sample, and a questionnaire was distributed to them, which included various factors to measure their acceptance of the e-resources available on the electronic system.

The results of the study confirmed the presence of a statistically significant relationship in the effect of behavioral factors such as (PU) and (POE) in using e-resources. It also indicated that there is a direct relationship between information quality (IQ) as an external variables and belief variables (PU and POE) which in turn affects the behavioral intention to use e-resources (BI).

**Key Words:** Perception of easiness (POE), perceived usefulness (PU), behavioral intention (BI), information quality (IQ), colleges of applied sciences (CAS).

### 1. Introduction

The e-resources importance growing in universities and colleges because of users characterized by the increasing demand for information that use to prepare their research and scientific requirements or to develop their skills in the field of higher education (Gautam, 2017). In response to this growing demand, academic libraries as primarily responsible for the supply of information services in academic institutions, expand their services and increase participation in the electronic databases. They also competed in the establishment of electronic information systems that facilitated her to provide information services for around 24 hours (Adegboro, 2011).

The utilize of e-resources by academics and researchers, It is, therefore, a significant zone of research in recently information environment. It has turned to an essential part of institutions in higher education as it plays a necessary function in gathering the needs of these institutions from information and communication. Sejane (2017) concur that e-resources enable access to a broad domain of data from anywhere in the world, such as up-to-date scientific papers. It allows educational institutions to share information and to organize the output to a wider user with websites. There are International efforts around the world to let access and use of e-resources in academic digital libraries.

However, the acceptance of the use of e-resources by users in general and academics and researchers, in particular, is still, a significant variable to judge the success of the effectiveness and confidence of this type of information in education and research (Kelson, 2016).

### 1.1 Study Problem

This study seeks to measure the acceptance of the use of e-resources in CASin Oman by faculty members. It also aims to determine the impact of some elements, such as perceived benefit (PU) and perceived ease (POE). The Technology Acceptance Model (TAM) will be applied in this study, which provides external and behavioral factors that help measure technology acceptance. It also has the flexibility to develop external factors that are compatible with the study community and is expected to have an impact on the degree to which it accepts technology.

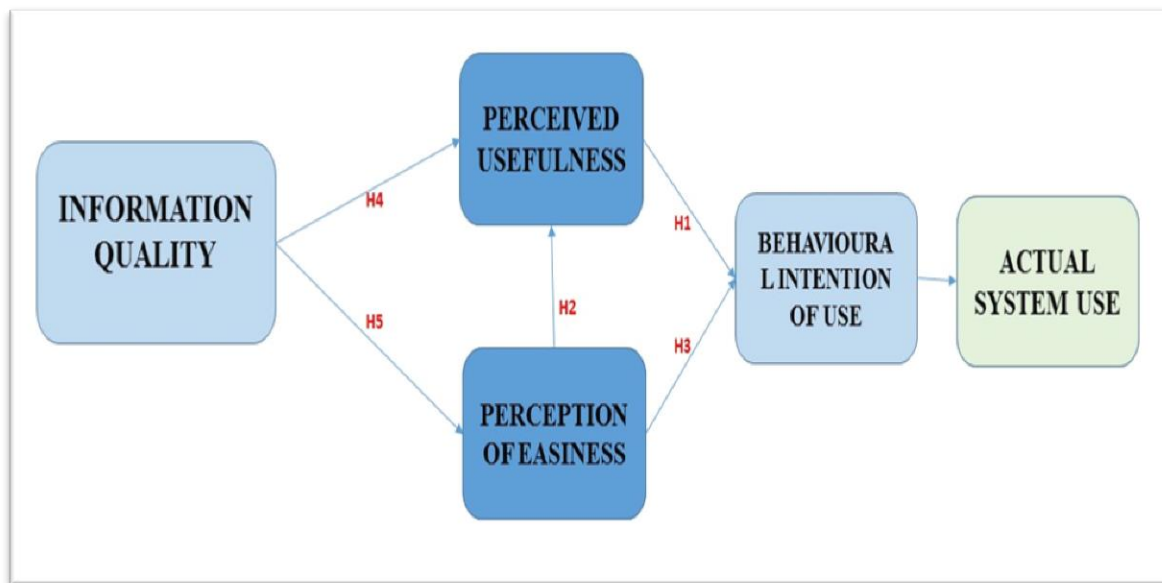
### 1.2 Study Objectives

1. Identify the relationship between perception of easiness and behavioral intention to accept the use of e-resources.
2. Determine the relationship between perceived usefulness and behavioral intention to accept the use of e-resources.
3. Evaluate the relationship between the information quality and behavioral intention to accept the use of e-resources.

### 1.3 Study Hypotheses

- H1. Perceived usefulness has positive effects on behavioral intention.
- H2. Perception of easiness has positive effects on perceived usefulness.
- H3. Perception of easiness has positive effects on behavioral intention.
- H4. Information quality has positive effects on perceived usefulness.
- H5. Information quality has positive effects on Perception of easiness.

Figure: 1



The hypothesized model

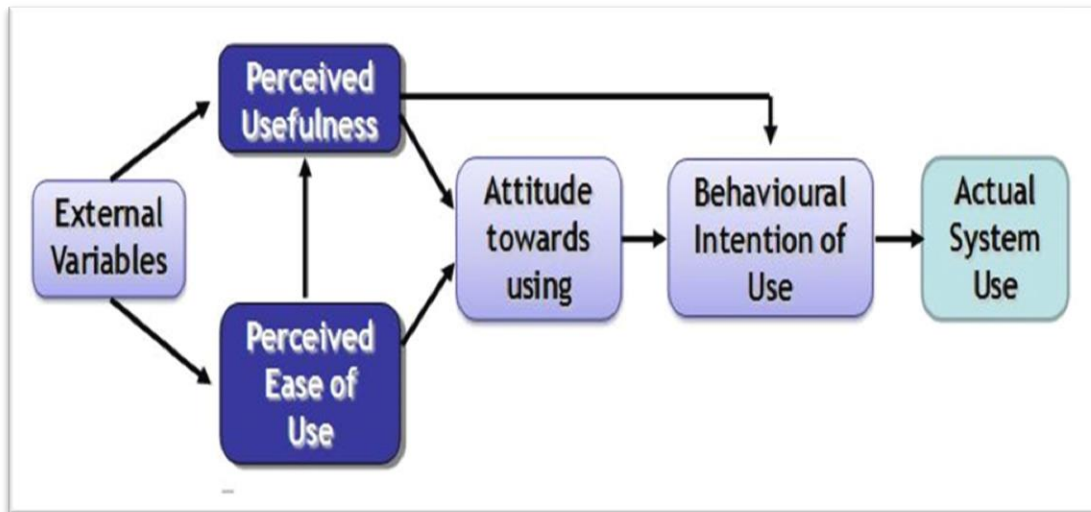
## 2. Literature Review

The researcher in this part presented previous studies according to the basic variables covered by the study, which constitute the basic elements of the developed model proposed by the study based on the original model of the "TAM", which plays the primary role in influencing the behavioral intention of faculty members to accept the use of e-resources in Applied Sciences colleges in Sultanate of Oman.

### 2.1 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) is the most commonly used model of all models and theories in IT and IS. In addition, TAM has drawn researchers' attention to studying technology adoption and they focused more on these problems (Alkandari, 2015). Technology adoption has actually achieved importance through TAM (Davis, Bagozzi & Warshaw, 1989; Maillet, 2015). This is due to the reasons put forward by Davis (1989), who declares that there has been a deficiency in the field of IT, as regards valid and high-quality measures to predict the extent of user acceptance, its relationship to system usage and its associations with the system being used. As a result, TAM has introduced a suitable scale for predicting users' acceptance and the usage of technology, based on perceived usefulness and perceived ease of use.

Figure:2



Technology Acceptance Model (TAM)

## 2.2 The Perception Of Easiness (POE)

Davis (1989) defines perception of easiness (POE) as "the degree to which an individual believes that his use of a specific system will be with less effort. Davis points out that there is direct and an indirect effect of a high degree of importance to the perception of easiness on the behavioral intentions of the potential system user. While Park et al. (2009) showed that this perception indirectly affected the behavioral intention of the potential user of the electronic library in developing countries by influencing the perceived usefulness, but his study concluded that the perception of easiness did not directly affect the user's behavioral intent. In the same context, Tao (2008) reveal that an information system that can easily supply the information needs of users will be a useful system for them. This is confirmed by the outcomes of his study, which stated that perception of easiness plays a clear function in the acceptance of e-resources positively on the usefulness. The results of a study by Jeong (2011) and Adetimirin (2015) confirm that the perception of easiness effect does not affect behavioral intent significantly without influencing the perceived usefulness of the Booktobi system used in primary schools in Korea. Stocker (2010), Mallya (2017) and Rahmana (2017) confirmed the same result. Most studies always suggest the influence of one belief on another, but there are studies suggesting that the effect of both beliefs (ease and usefulness) is equal to behavioral intent (Agarwal & Prasad, 1999; Altanopoulou, 2017; Kharbat, 2017).

## 2.3 Perceived Usefulness (PU)

Davis claims that individuals tend to use a specific system if they feel this system will allow them to perform their tasks better (Davis et al., 1992, p. 1116). Tao (2008) Confirms that the most influential variable was perceived usefulness the acceptability of the e-resources used by health students, but there are studies suggesting that the effect of both beliefs (ease and

usefulness) is equal to behavioral intent (Agarwal & Prasad, 1999). Most studies agree that the perceived usefulness is effect stronger than the effect of the perception of easiness perception of easiness directly on the behavioral intention (Jeong, 2011; Adegboire, 2011; Thong et al., 2002; Davis, 1993). This is confirmed by a study (Izuagbe, 2016; Boonsiritomachai, 2017), which dealt with two variables (productivity& relative advantage) which affect the usefulness of using e-resources in the libraries of Nigerian private university. The results indicated that the increase in the perceived usefulness is offset by an increase in the adoption of the e-resources usage. As the outcomes of the research (Mallya, 2017; Fasi, 2018) this was applied to students of private universities in India, where accepting the use of the Internet for academic reasons was concerned, perceived usefulness was a significant factor in determining the student's behavioral intention to use the Internet for academic reasons.

## 2.4 Information Quality (IQ)

Information quality concerns with the interaction among the users and the content of the information sources. In his study, Tao (2008) points out that there is an indirect impact of the quality of information on behavioral intention through a direct impact on easiness and usefulness from use. A similar agreement exists between prior research that the concept of information quality is often expressed as "relevance", It can be defined as "the degree to which the search results match the search function in the research analysis" (Thong et al., 2002, p221). Park et al. (2009) state that the e-library system, which is more integrated with the actual needs of the user, is more usable and adaptive. This is verified by his research outcomes, which showed that the "relevance" is a positive determinant of using the TEEAL electronic library system, as well as a positive predictor of its usefulness.

Gautam & Sinha (2017) noted that "relevance" is one of the most important obstacles hindered the academics usage of e-resources of Allahabad University. The results of the Ratnasari (2017) research that has been applied to 115 Students and academics of University of Indonesia about re-use IEEE Xplore Digital Library, confirm that the impact of the "relevance" on the usefulness is greater than its effect on the easiness. This outcome was compatible with prior research (Lwoga & Sife, 2018; Hong et al., 2002; Thong et al., 2002; Venkatesh & Davis, 2000; Kardoonia, 2016). Outcomes of Aklabi (2011) in his research was discovered that there are differences between the research samples in terms of their information needs. The phrase "I do not find information what I want" came as a fifth reason why sources of information were not used, and recommended that information content should be developed to suit the needs of users. Adegboire (2011), Yeou (2016) is the same recommendation as well as interest in the research process and the relationship between e-resource system availability and user needs.

## 3. Study Methodology

### 3.1 Study Approach

The descriptive analytical approach was used as being the most appropriate to the nature of this study and to achieve its objectives, and it is "the approach that depends on studying the reality of the case and is interested as an accurate description and expresses qualitative and quantitative expression" (Obeidat, Ades and Kayed, 2001, p. 23), and this approach is considered appropriate for a topic of the study because it is based on collecting data to identify the factors that affect the acceptance of faculty members in applied sciences colleges to use e-resources.

### 3.2 The study population and sample

This study was applied to a sample of faculty members in the six CAS in the Sultanate of Oman, which has a total number of 602 members, and the researcher took a random sample consisting of 20% of the total number, and the study relied on the sample calculation on the Sample Size Calculator program Available at <http://www.surveysystem.com/sscalc.htm>, according to the degree of confidence Interval (8) and the confidence level of Confidence Level (95%), the sample was determined at a rate of (20%) to reach a total of 120 faculty members, and the following table shows how the sample was taken and its details:

Table: 1 study population and sample

college	Total	sample
College of Applied Sciences, Ibri	96	20
College of Applied Sciences, Nizwa	123	24
College of Applied Sciences, Rustaq	154	31
College of Applied Sciences, Salalah	55	11
College of Applied Sciences, Sure	60	12
College of Applied Sciences, Sohar	114	22
Total	602	120

The researcher distributed the study questionnaire to all the individuals of the sample as shown in the previous table, and (113) questionnaires were retrieved, and a number of (5) questionnaires were excluded because the conditions required to answer the question were not fulfilled, and thus the number of questionnaires subject to the study was (108). That is, it is 90%.

### 3.3 Data collection tool

The researcher relied in his study on the questionnaire as a main tool for collecting data. The questionnaire was divided into two parts:

The first part: It is concerned with collecting personal data on the study sample such as age, gender, years of academic experience, academic degree, the department to which it belongs and the college.

The second part: This part discussed the factors that affect the acceptance of the use of electronic information sources, and is divided into 3 main axes:

- Perception of easiness (POE)
- Perceived usefulness (PU)
- Information quality (IQ)

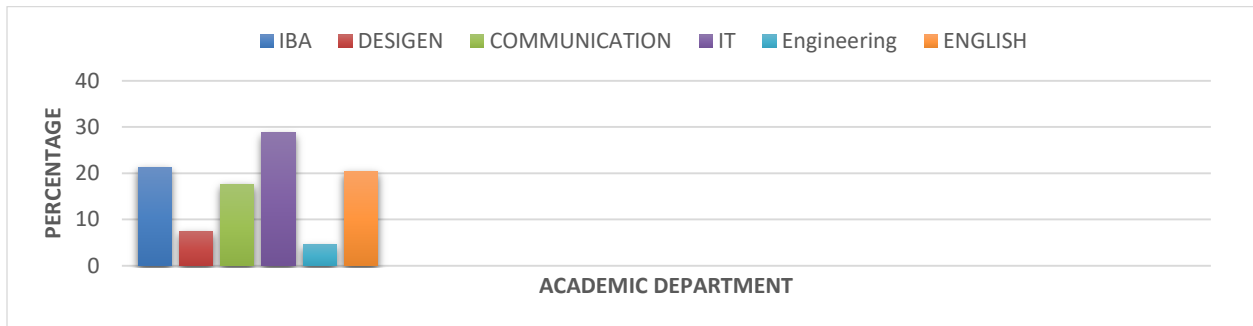
## 4. Findings:

### 4.1 Demographic Data

#### 4.1.1 Academic Department

The figure below indicates that (28.7%) of the faculty members covered in the study are from the Information Technology Department at the Faculties of Applied Sciences, and the high participation rate by the Information Technology Department is due to the fact that electronic information sources fall within the interests of this specialization, and then after that, the departments of International Business and the English Language Department come in consecutive percentages, and the least participating departments were the Engineering Department, and this may be due to two reasons: the Department's modernity and its presence only in Sohar College of Applied Sciences only.

Figure: 3



Distribution of sample percentages by academic department

4.1.2 Gender:

The results of the study indicated that the percentage of males reached (67.6%) by (73) faculty members, while the percentage of females reached (32.4%) by (35) faculty members out of (108) members of the study sample, and this percentage is logical given that there are more male faculty members than females in the colleges of Applied Sciences, and when comparing the percentages of the study sample between males and females, we find that the study community is largely identical.

Table: 2 Distributing the sample according to the percentages and comparing them to the actual percentages in the Faculties of Applied Sciences.

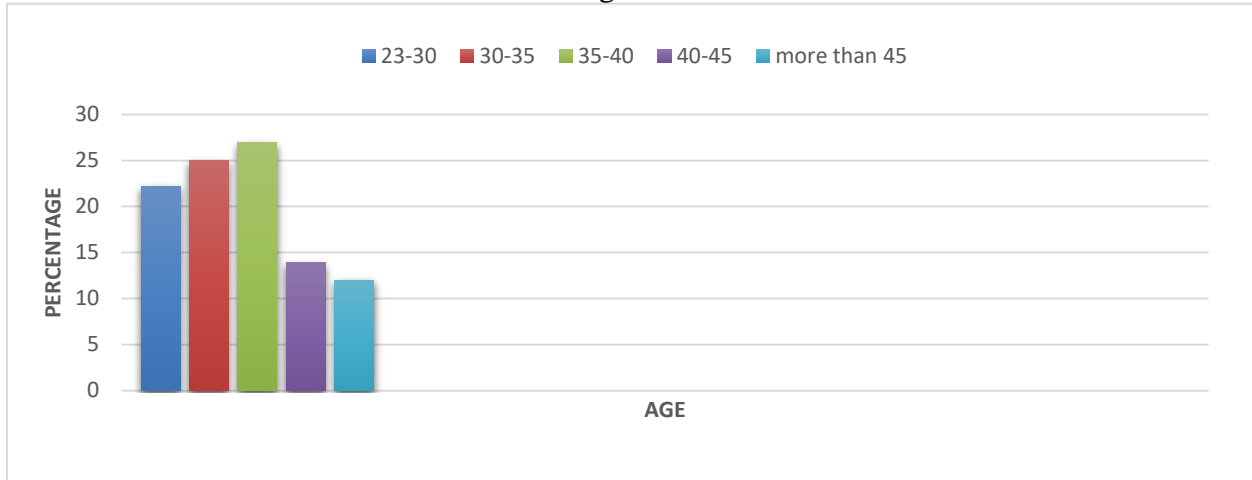
Gender	Actual number	Actual percentage	Sample	Sample percentage
Male	413	% 67	73	% 67.6
Female	203	%33	35	%32.4
Total	616	%100	108	%100

4.1.3 Age:

The graph indicates that (74.1%) of those covered in the study are between the ages of (23 to 40) years, and this may be an indication that most of the faculty members of the Faculties of Applied Sciences are young and middle-aged elements due to the novelty Faculties of Applied Sciences,

which opened in 2005. The results of the study also indicated that those covered by the study and those whose ages are more than (40) years old reached a rate of (25.9%) only, which indicates that most of this category are of the category (professor and associate professor) The most academically experienced class.

Figure: 4

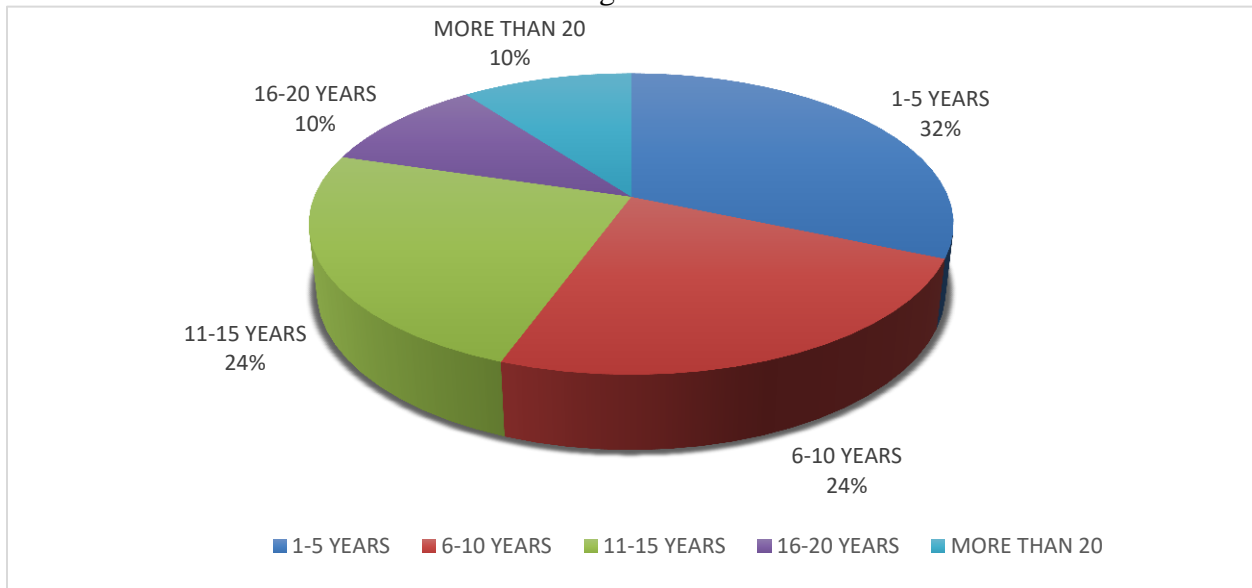


Distribution of sample percentages by age.

4.1.4 Academic Experience:

The previous figure indicates that more than half of the sample in the study does not exceed their academic experience (10) years, and this confirms what we mentioned previously from the relationship of the modernity of colleges with the ages of the sample members, which was also reflected on the academic experience of workers in the colleges of applied sciences.

Figure: 5



Distribution of sample percentages by academic experience



#### 4.2 Study results related to hypothesis testing:

H1. Perceived usefulness has positive effects on behavioral intention.

Table: 3 Correlation coefficient between the Perceived usefulness and the behavioral intention.

Variables	Pearson correlation	statistical significance
Perceived usefulness × Behavioral intention	.467**	0.000

H2. Perception of easiness has positive effects on perceived usefulness.

Table: 4 Correlation coefficient between the Perception of easiness and perceived usefulness.

Variables	Pearson correlation	statistical significance
Perception of easiness × Perceived usefulness	.726**	0.000

H3. Perception of easiness has positive effects on behavioral intention.

Table: 5 Correlation coefficient between the Perception of easiness and the behavioral intention.

Variables	Pearson correlation	statistical significance
Perception of easiness × Behavioral intention	.517**	0.000

H4. Information quality has positive effects on perceived usefulness.

Table: 6 Correlation coefficient between the Information quality and perceived usefulness.

Variables	Pearson correlation	statistical significance
Information quality ×	.341**	0.000

Perceived usefulness		
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H5. Information quality has positive effects on Perception of easiness.

Table: 7 Correlation coefficient between the Information quality and Perception of easiness

Variables	Pearson correlation	statistical significance
Information quality × Perception of easiness	.411**	0.000

## 5. Discussiton

Discussion was divided in light of the variables of the TAM model, starting with belief variables, then the external variable.

### 5.1 Perception Of Easiness:

The results of the study indicated that there is a direct relationship between the perception of easiness of e-resources and the behavioral intention for use amounted to (.467\*\*) according to Pearson correlation coefficient (hypothesis 1), and this can be attributed to the skills that faculty members possess in dealing with technology, both those they acquired it during their studies or after joining colleges, this has greatly contributed to facilitating their use of e-resources and other information systems in colleges, and they may possess such skills due to several reasons, including:

- The nature of the applied specializations to which they belong and which obliges the employees of these colleges to possess certain skills such as computer skills, and proficiency in English language.
- Availability of modern information systems in colleges and providing a lot of services through them.
- The interest of the Ministry of Higher Education in development of human resources has greatly contributed to developing the skills of faculty members in the field of information technology.

The results also indicated a correlation between the perception of easiness of use of e-resources and the perceived usefulness from use amounted to (.726 \*\*) according to Pearson correlation coefficient (hypothesis 2), and this indicates that the perception of easiness impact on the perceived usefulness is greater and stronger than its impact on Behavioral intent, hence it is clear to us that the perception of easiness affects the behavioral intention directly and indirectly by directly and strongly influencing the perceived usefulness, and this effect is logical as any information system that meets the needs of its users with ease is a useful system for them, thus

reinforces the behavioral intent to use it. And as we mentioned earlier, the nature of the applied specializations to which the majority of the study sample belong (information technology, communication studies, design, international business administration, engineering) makes it easy for them to deal with technology and various information systems, or at least have basic computer skills which facilitate them to deal with e-resources, and this explains the positive relationship between the perception of easiness and the behavioral intention to use, as well as between them and the perceived usefulness.

This finding is consistent with the result of the Park et al study (2009), Thong (2002), Holmes (2013), Stocker (2010) and Mallya (2017), where Park et al. (2009) for example indicated to the strong and direct impact that the perception of easiness of digital libraries in developing countries has on both the behavioral intent to use and the perceived usefulness from use.

### 5.2 Perceived Usefulness:

The results of the study indicated that there is a direct relationship between the perceived usefulness from the use of e-resources and the behavioral intention for use amounted to (.517 \*\*) according to Pearson correlation coefficient (hypothesis 3), and this confirms that the perceived usefulness effect on the behavioral intention is stronger than the effect of perception of easiness from the viewpoint of the faculty members, and the reason for that may be due to the lack in CAS for specialized printed periodicals, where provision has ceased since the transfer of these colleges from colleges of educational sciences to CAS in 2005, and faculty members found the e-resources an ideal alternative for obtaining specialized information that meets their needs and taking into account the specializations of these colleges.

This finding is consistent with the study of Izuagbe (2016), Sejane (2017), Al-Khathami (2010), Pai & Huank (2011) and Yusoff (2009), as well as the Jeong study (2011).

### 5.3 Information Quality:

The results of the study indicated that there was a direct relationship between the information quality and the perception of easiness (.341 \*\*) according to the Pearson Correlation Coefficient (Hypothesis 4), as the extent of the information quality is a positive predictor of the ease of using e-resources by the faculty members. The results of the (hypothesis 5) also indicated that there is a direct relationship between the information quality and the perceived usefulness, which is stronger than the relationship it has with perception of easiness, amounted to (.411 \*\*) according to the Pearson correlation coefficient, due to the specialists in e-resources in developing it in accordance with the disciplines in the colleges of Applied Sciences, as well as taking into account any notes received by the library about the nature of the content of these sources and the extent of their suitability to their needs, which the specialists submit directly to the e-learning and e-resources department in ministry, to be observed upon renewal of these sources.

This finding is consistent with the studies of Kim (2011) and Venkatesh & Davis (2000), Ratnasari (2017), Lwoga & Sife, (2018), Okafor (2016), Sadiku (2017) but it differs with the Park et al. study (2009) which confirm that the effect of information quality is strong and equal on belief variables (perception of easiness, perceived usefulness).

## 6. Conclusion:

This study dealt with the variables that affect the behavioral intention to use e-resources by faculty members in the CAS through the application of the (TAM) technology acceptance model, and the study found a direct relationship between belief variables (perception of easiness, perceived usefulness) and the behavioral intention to use. The study also found that there is a direct relationship between external variable (information quality) and belief variables (perception of easiness, perceived usefulness), which in turn affects the behavioral intention to use. These results acquire great importance in understanding the factors that affect the acceptance of faculty members in the CAS in the Sultanate of Oman to use e-resources to accomplish their academic and research tasks.

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