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Behavioural Intention to Re-Use Online Learning Platform

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Abstract. The Technology Acceptance Model (TAM) is a model used to predict user acceptance of information systems based on perceived usefulness and perceived ease of use. If the user sees the benefits and ease of using the information system, it will cause the user to accept it. This study examines IT system quality and perceived usefulness to reuse online learning applications. This research analyses the measurement of perceptions of the quality of the IT system used by respondents in the scope of online learning. We operate a survey method; the respondents in this research were students and teaching staff users of online learning applications. Respondents, most of whom are students in Sumatra, are interested or intend to reuse online learning applications if there is a good information quality factor and more benefits from online applications. The perceived usefulness construct plays a full role in mediating the relationship between information quality and intention to reuse online learning applications.

Keywords: *usefulness, online, intention, platform, acceptance*

Abstrak. Technology Acceptance Model (TAM) adalah model yang digunakan untuk memprediksi penerimaan pengguna sistem informasi berdasarkan kegunaan yang dirasakan dan kemudahan penggunaan yang dirasakan. Jika pengguna melihat manfaat dan kemudahan menggunakan sistem informasi, maka akan menyebabkan tindakan pengguna menerima penggunaan sistem informasi tersebut. Penelitian ini bertujuan untuk menguji pengaruh kualitas sistem IT dan persepsi kegunaan terhadap niat untuk menggunakan kembali aplikasi pembelajaran online. Penelitian ini menganalisis pengukuran persepsi terhadap kualitas sistem IT yang digunakan oleh responden dalam lingkup pembelajaran online. Kami mengoperasikan metode survei, responden dalam penelitian ini adalah mahasiswa dan staf pengajar pengguna aplikasi pembelajaran online. Responden yang sebagian besar adalah mahasiswa di Sumatera tertarik atau memiliki niat untuk menggunakan kembali aplikasi pembelajaran online jika ada faktor kualitas informasi yang baik dan manfaat yang lebih dari aplikasi online. Konstruk kegunaan yang dirasakan memainkan peran penuh sebagai variabel mediasi hubungan antara kualitas informasi dan niat untuk menggunakan kembali aplikasi pembelajaran online.

Kata kunci: *kegunaan, online, niat, platform, penerimaan*

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Introduction

The need for online learning during the COVID-19 pandemic is massively needed to keep the learning process are sustainable. Along with the development of technology and to assist the teaching and learning process, an e-learning application system is required. E-Learning is a learning method that utilizes computer technology, computer networks, and/or the Internet. E-Learning allows students to learn via computers in their respective places without physically going to lectures in class like conventional lectures.

According to Heinich (1996), multimedia combines two or more media integrated into information or learning programs. Using web-based interactive media and electronic learning (e-learning) is multimedia learning. Two-way communication and interaction will take place more effectively between teachers and students. The teacher delivers learning materials, and students respond to the learning materials they receive. According to Gagne (1988), the teacher acts as a transmitter of material and receives feedback from students, and provides reinforcement (reinforcement) on the learning outcomes they have taken. Some examples of network-based interactive multimedia learning facilities (websites) that can be used include Cisco Webex, Zenius, Ruang Guru, TuWeb, and other online-based interactive media.

TAM theorizes that the effects of external variables (e.g., system characteristics, process development, training) on intention to use an application are mediated by perceived usefulness and ease of use. According to TAM theory, perceived usefulness is also influenced by perceived ease of use because, all in all, the easier the system is to use, and the more valuable it is (Venkatesh et al., 2003). Over the last decade, significant progress has been made in explaining and predicting user acceptance of

information technology at work. In particular, substantial theoretical and empirical support has accumulated in favour of the Technology Acceptance Model (Davis, 1989).

However, most of the research on innovation so far has only focused on the process of sharing knowledge to obtain new knowledge resources that aim to improve the company's innovation capability (Lin, 2007), because basically innovation activity is how to implement knowledge, ideas or new activities into the firm. Miles (2005) concludes that if companies want to be innovative, companies must interact and exchange knowledge and ideas with other parties in their environment.

This study was compiled based on the Theory of Reasoned Action (TRA) to measure individual attitudes and behaviour towards satisfaction with information systems. TRA, which was developed by Fishbein and Ajzen (1975), is a theory related to the attitudes and behaviour of individuals in carrying out activities.

TRA was adopted by the Technology Acceptance Model (TAM), a model introduced by Davis (1989) that describes the behavioral aspects of information system users. TAM is a model used to predict user acceptance of information systems based on perceived usefulness and ease of use. If the user sees the benefits and ease of using the information system, it will trigger the user's actions to accept the use of the information system. This research was conducted to examine the relationship between the quality of the information technology system and the perceived usefulness of the intention to reuse information technology systems.

The concept of TAM is expressed based on the theory of rational behaviour, which assumes that humans have a rational nature, and human social behavior is not influenced by coercion or unconsciousness. Based on this theory, it can be seen that rational human behavior is a decision made by an individual in a conscious and not forced state. However, Venkatesh et al. (2003) revealed a more complex and compelling theory called Technology Adoption and Utilization Integration Theory which consists of four core concepts such as performance expectations, hard-work expectations, social influence, and contributory factors, as well as four accompanying variables, namely gender, age, experience and voluntary. This research does not measure the concept of consumer expectations regarding the performance of

technology-based services and social factors as did Venkatesh et al. (2003). However, it focuses more on testing the relationship between information technology quality, perceived usefulness, and intention to reuse online learning applications.

Theoretical framework

Quality of Information Technology

Davis et al. (1989) define the quality of information systems as perceived ease of use, which is how much computer technology is felt to be relatively easy to understand and use. The quality of information systems shows that if information system users think that using the system is easy, users do not require much effort to use it, so they will have more time to do other things that are likely to improve their overall performance. The results were obtained by DeLone and McLean (1992), McKiney et al. (2002), McGill et al. (2003), Almutairi and Subramanian (2005), and Livari (2005) show that the quality of information systems has a positive effect on user satisfaction.

To analyze the quality of the technology used by the company, it can be observed based on two aspects, namely, the level of innovation carried out, and the scope of innovation carried out (Lin, Chen, and Chiu, 2009). The level of innovation carried out is divided into radical innovation and incremental innovation (Salavou & Lioukas, 2003). Meanwhile, it is divided into technical and administrative innovations (Afuah, 2003). Technical innovation is seen from the product, service, marketing, and technology used to produce the product or service, which is the company's main activity. Administrative innovation is seen from the creations made to the company's organizational structure and administrative processes.

Perceived Usefulness

Davis et al. (1989) define usefulness as a level where a person believes that using a particular subject will improve someone's work performance. Perceived usefulness is the extent to which a person believes that using technology will improve their job performance. Perceived usefulness is a belief about the decision-making process. If someone believes that the information system is valuable, they will use it. On the other hand, if someone believes that the information system is less valuable, they will not use it (Jogiyanto, 2007). From this definition, it can be interpreted that the benefits of using

computers can improve the performance and work performance of people who use them.

Rai et al. (2002) examined the relationship between perceived usefulness and user satisfaction using three information system success models. The three models are the DeLone and McLean (1992) information system success model, the Seddon Model (1997), and the Seddon Model (1997), which were modified by adding the relationship between perceived usefulness and system use. The results of the research show that perceived usefulness affects user satisfaction.

Zhong et al. (2020) empirically test the level of technology acceptance by consumers, explicitly examining the Value-based Adoption Model (VAM) concept in the hospitality industry with the moderating variable of consumer demographic information. Self-service technology that uses artificial intelligence technology can be applied to robotic technology services in the hotel industry. Trends in technology use are based on consumer needs, level of service quality, and modification of excellent service in the hospitality industry.

Johnson et al. (2018) show that perceived ease of use, benefits, visibility, and security positively affect an individual's intention to use m-payment services. Furthermore, ubiquity and trialability positively affect individual security perceptions, while concerns over privacy risks negatively affect security perceptions. The concept used in this study is the concept of value-based adoption of technology (Value-based Adoption Model) which consists of perceived usefulness, quality of information technology, and intention to use technology. In contrast to Venkatesh et al. (2003), this study reveals the psychological perceptions of behavioral intention.

Intention to re-use Online Learning Platform

Repurchase intention has been conceptualized as the probability that consumer plans, or needs, to purchase a particular good or service in the future (Schiffman & Kanuk 2004). Return or continuation intention is the probability that a customer who has bought and used a good or service plans to continue buying and using it.

DeLone and McLean (1992) found that system quality can affect user satisfaction. DeLone and McLean's success model suggests that system quality measures technical

success, information quality measures semantic success, and system use, user satisfaction, individual impact, and organizational impact measure success effectiveness. DeLone and McLean (1992) assume that system quality and information quality, individually and together, affect user satisfaction and reuse intention.

This research focuses more on measuring consumer intention to reuse the learning application in terms of acceptance of new technology so that it is different from the research conducted by Breohl et al. (2019), Pikkarainen et al. (2004), and Venkatesh et al. (2003). In this study, there are several differences with Hertzfeld's (2019), which revealed that the use of robotic services in the hotel industry in Japan is constrained by the ability of automated technology, which cannot reduce employees' workload does not reduce operational costs. Murphy et al. (2019) revealed that robotic automation systems must determine the relationship between hotel management needs, robotic systems, and consumer needs to work optimally.

Zhong et al. (2020) revealed that behavioral intentions using robotic applications in the hospitality industry could be influenced by several factors: perceptions of positive attitudes, perceptions of usefulness, perceived value, sentimental value, behavioral control, and ease of use of technology-based services.

Szajna (1996) conducted an empirical test of the technology acceptance model (TAM) following the research method conducted by Davis (1989). The research results revealed that perceived usefulness significantly affects using the internet. Perception of convenience does not directly affect the intention to use the internet; specifically, it can affect use intention if it passes through the perception of usefulness.

Alshurideh, Al Kurdi, and Salloum (2019) conclude that social influence and confirmed expectations factors positively affect perceived ease of use, benefits, and satisfaction. These three factors positively influence students' intention to use the Mobile Learning System. Kumar & Palanisamy (2019) operates sub-group analysis, resulting in four respondents groups. The adoption of mobile payments is dominated by men who live in fast-growing cities. Perceptions of usefulness and ease of use emerged as influencing factors in the adoption of mobile payments. Prakosa & Sumantika (2021) reveal that trust and usability factors can influence someone to buy a

product through the marketplace. Still, perceptions of usability and convenience are not related to the intention to use the marketplace. Perceived ease of use, perceived usefulness, and trust affect online shopping attitudes in e-marketplaces.

Shankar and Datta (2018) conclude that perceived ease of use (PEOU), perceived usefulness (PU), trustworthiness, and self-efficacy (SE) have a significant positive impact on m-payment adoption intentions. However, subjective norm (SN) and personal innovation (PI) do not significantly impact m-payment adoption intention. E-Learning is a learning method that utilizes computer technology, computer networks, and/or the Internet (Shankar & Datta, 2018). E-Learning allows students to learn via computers in their respective places without physically going to lectures in class like conventional lectures. The existence of e-learning is expected to help students better understand the learning material provided by the lecturer. Based on the literature review and previous research, we formulated three hypotheses.

H1: the quality of the information system has a significant effect on the perceived usefulness of online learning applications.

H2: perceived usefulness significantly affects the intention to reuse online learning applications.

H3: the quality of the information system has a significant effect on the intention to reuse online applications.

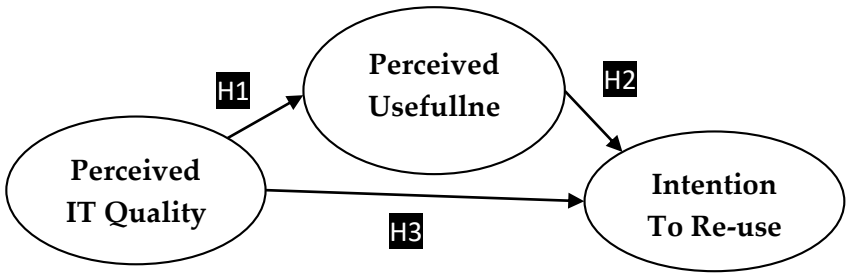

Figure 1. Research Model

Source: adapted from Zhong at al. (2020), Rai et al. (2002), dan McGill et al. (2003),

Method

We operate a survey method using online questionnaires to obtain primary data directly. An online survey was conducted via email, and we also used an online form survey. We operated a purposive sampling technique based on non-probability sampling to avoid bias. The respondents' criteria are the students who already use interactive multimedia-based online learning platforms such as Zoom meeting, Google Teams, Isco Webex, zenius, Ruang Guru, TuWeb, and other online-based interactive media available in South Sumatera.

Questionnaire Design and Research Measurement Tools

1. The perceived usefulness was measured using a 5-point Likert scale with five answer options. This measurement item was adopted from Abdillah (2009).
2. The information system quality was measured using a 5-point Likert scale with five answer options. This measurement item was adopted from DeLone and McLean (1992).
3. The variable of re-use intention is individuals' perception, which consists of four cognitive; intention to recommend, intention to use the same internet provider, hope in the future, and intention to use the following service. This measurement item was adopted from Davis (1989), Szajna (1996), and Abdillah (2009).

Validity and Reliability of Measurement

Data collection in this study was carried out by distributing online questionnaires to respondents. The data collection process was carried out for two weeks to 200 respondents and resulted in 194 questionnaires to be processed.

We performed the reliability test, and it is shown by the value of Cronbach's Alpha. We also operated the reliability test using SPSS and produced a value above 0.8 on all constructs. We performed confirmatory factor analysis to execute a validity test for each indicator item in this study. In particular, the results of the validity of each indicator on the variables of information system quality, perceived usefulness, and intention to reuse online learning applications.

On the measurement test of the re-use intention variable, one indicator has a loading factor value of less than 0.5, namely the npu4 indicator. The code indicator npu4, which states, "*I intend to use online learning media in the future*," has a loading factor value of less than 0.5 so that the item must be dropped and not included in the following process. Respondents perceived that they not only use online learning media to carry out learning activities. In general, respondents have zero desire to continuously use online learning methods.

The researchers believed that respondents in the Sumatran area, especially in Bengkulu Province, are not generally able to access a good internet connection. Therefore, this hampers the online learning process. This is confirmed in one of the respondents' statements regarding the perceived usefulness of online learning, which states *"online learning is effective"* with the code u5, which has a loading factor value below 0.4.

Hypotheses Test Technique

The analysis of the measurement model in this research was carried out using Confirmatory Factor Analysis (CFA); the researcher will only examine one research model and use structural equation modeling (SEM) to assess how well the model fits the empirical data (Hair et al., 2010). To examine the hypothesis, we operated the regression analysis based on structural equation modeling by looking at the critical ratio value generated from the calculation of loading of each relationship between constructs contained in the research model and looking at the estimated value of standardized regression weights.

Result

The results of Structural Equation Modelling (SEM)

Result of Measurement Model Test

We operated AMOS 20 software program to analyze Structural Equation Modelling based on confirmatory factor analysis. Figure 1 is the result of the measurement model test based on SEM. Based on Table 1, the chi-square (X^2) value is 178,530, and the chi-square probability is 0.000, below 0.005. This value indicates that the measurement model is quite good. According to Hair et al. (2010: 670), the chi-square test results (X^2)

are not problematic. Researchers must always complete the test with another goodness of fit index; as necessary as the others, the chi-square value (X^2) and degree of freedom (df) should always be reported.

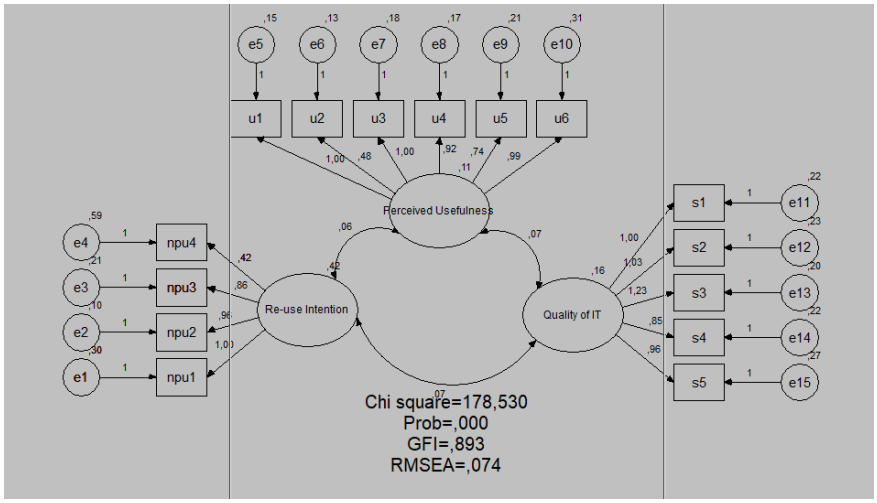

Figure 2. Result of Measurement Model

While the value of the normed chi-square (X^2/df) is 2.052, indicating that this measurement model has a good fit based on the empirical data and is appropriate based on the goodness of fit index value, which is less than 3.00. The GFI value of the measurement model, the CFI Index, and the RMSEA shows a good fit between the measurement model and the empirical data.

Table 1.

Goodness of Fit Index of Measurement Model

Index Goodness of fit	**Score**
Chi-square (X^2)	178,530
Probability Scaled Chi-square (p-value)	0,000
Degree of freedom (df)	87
Normed Chi-square (X2/df)	2,052
Goodness of Fit Index (GFI)	0,893
Comparative Fit Index (CFI)	0,885
Root Mean Square Error of Approximation (RMSEA)	0, 074

Source: processed data, 2020.

Result of Structural Model Test

After performing the test of the measurement model, the next step is to analyze the structural model. Figure 2 is the result of structural model measurement based on SEM.

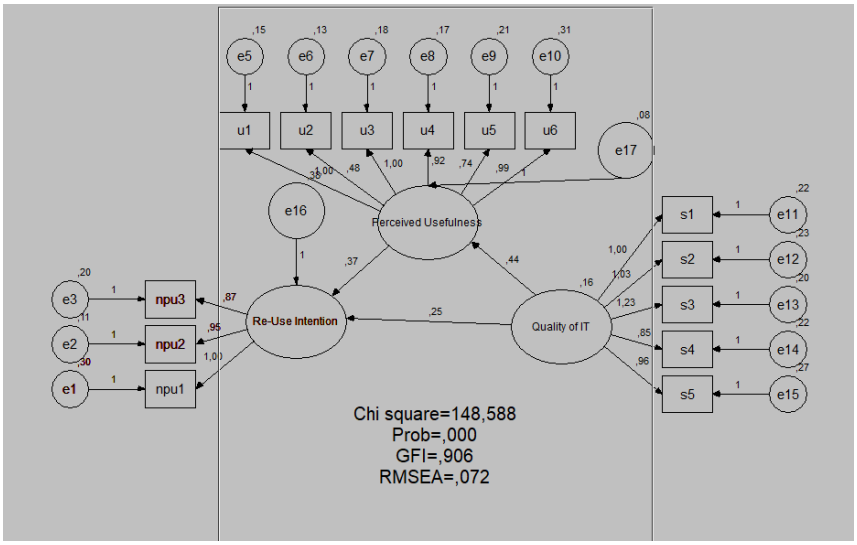

Figure 3. Result of Structural Model

Based on Table 2, the chi-square (X^2) value is 148,588 with the structural model degree of freedom value in this study of 74 so that the normed chi-square (X^2/df) value is 2.008. The value of the Normed Chi-square (X^2/df) is more significant than 3.00, so that the structural model in this study has a good match with the empirical data.

Table 2.

Goodness of Fit Index Structural Model

Goodness of fit Index	**Score**
Chi-square (X^2)	148,588
Probability Scaled Chi-square (p-value)	0,000
Degree of freedom (df)	74
Normed Chi-square (X2/df)	2,008
Goodness of Fit Index (GFI)	0,906
Comparative Fit Index (CFI)	0,902
Root Mean Square Error of Approximation (RMSEA)	0,072

Source: processed data, 2020.

The RMSEA value of 0.072 is in the range of 0.03 and 0.08. This indicates that the structural model fits the empirical data well. The comparison of the goodness of fit values between the measurement model and structural model shows that structural tests are preferable than the value of the GOF measurement model. This indicates that this structural model has the goodness of modeling validity and goodness of fit.

Discussion

We performed path analysis to determine the relationship between construct based on the regression weight value and critical ratio. We refer to the critical ratio value, which is ±1.96 at a significance level of 0.05. If the critical ratio value is greater than ±1.96, then the causal relationship between the two constructs is significant. A positive or negative sign on the critical ratio value indicates a direct or inversely proportional relationship between the constructs.

Based on Table 3, the value of regression estimation is 0.443 by a critical ratio value of 4.725 and a *p-value* of 0.000 (p<0.05). The first hypotheses testing (H1) results show a positive and significant relationship; it indicates that the respondents' perceptions of the quality of information systems significantly correlate with the perceived usefulness of online learning applications. This statistical result supported the first hypothesis, and perceived usefulness can be influenced by the reliability of the quality of the information system, respondents who feel the superior quality of information system tend to elevate the benefits of using online learning platforms.

Table 3.

Significant and Estimation value between-construct

Relationship Between-construct			Estimate	S.E.	C.R.	*P*	Information
Usefulness	<-	Quality of IT	,443	,094	4,725	***	Significant
Intention to Reuse	<-	Usefulness	,367	,220	1,672	,048	Significant
Intention to Reuse	<-	Quality of IT	,254	,180	1,412	,158	Not Significant

Source: processed data, 2020.

Based on Table 3, the results of the statistical test on the second hypotheses test (H2) show the estimated regression value is 0.367 by a critical ratio value of 1.672 and a *p-value* of 0.048 (p<0.05). The result indicates that the relationship between perceived usefulness and the intention to reuse online learning applications has a positive and significant relationship between constructs. The respondents' perceived usefulness positively correlates to the choice to reuse online learning applications. If respondents perceive that perceived usefulness is essential, they will be interested in using online learning applications. The test results can explain that hypothesis 2 (H2), which states that perceived usefulness has a significant effect on the intention to reuse online learning platforms are supported.

The results of the third hypothesis testing (H3) postulate that the perception of the quality of information systems has a significant effect on the intention to reuse online applications. The statistical test shows a regression estimation value of 0.254 by a critical ratio value of 1.412 and a *p-value* of 0.158 (p>0.000). The results of hypothesis test 3 show an insignificant relationship, so hypothesis 3 (H3) states that the perception of the quality of the information system has a positive effect on the intention to reuse online applications is not supported in this research. The quality of the information system cannot directly affect the intention to reuse online platforms. We describe the path analysis result to show the relationship between constructs in Figure 2.

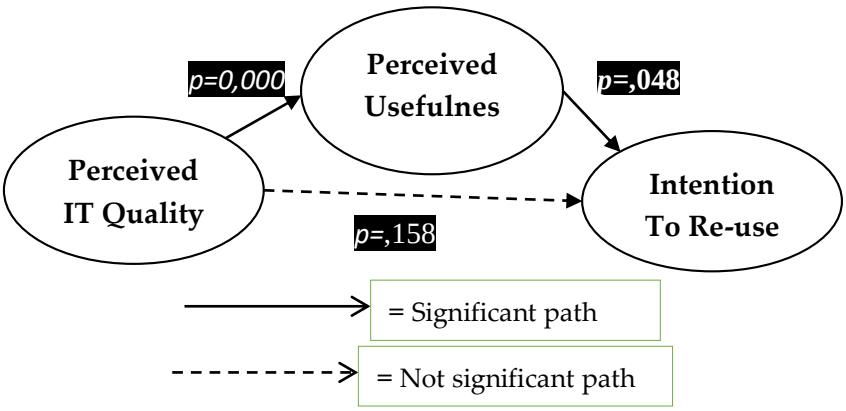

Figure 2. Path Analysis Result

The results of this research reveal that the construct of information system quality cannot affect the intention to reuse directly, but the construct of perceived usefulness mediates it; this is indicated by the results of statistical analysis on hypotheses testing. The role of perceived usefulness as a mediator of the relationship between the quality of information systems and the intention to reuse online learning applications is visible in this research. Good quality information must be accompanied by the well-perceived usefulness of online learning platforms to elevate the intention to reuse.

Conclusion

This research aims to examine the relationship between information system quality, perceived usefulness, and intention to reuse online learning applications. The results can be concluded that:

1. The quality of the information technology has a positive and significant effect on perceived usefulness.
2. The perceived usefulness construct has a positive and significant effect on the intention to reuse online learning applications.
3. The quality of information technology has no significant effect on the intention to reuse online learning applications.

The findings in this study reveal that respondents are interested or intend to reuse online learning applications if there are factors of good information quality and more benefits from online applications. The perceived usefulness construct plays a full role in mediating the relationship between information quality and intention to reuse online learning applications.

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