

Students' perception towards using electronic feedback after the pandemic: Post-acceptance study

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Recent studies on e-feedback have answered many questions concerning the effectiveness of e-feedback in educational and non-educational sectors. They stated clearly that e-feedback is efficient and practical. From both teachers' and students' perspectives, e-feedback has influenced their learning and teaching environment effectively. It is a good technique to personalize the learning strategies. Based on the previous assumption, this study aims at exploring the effectiveness of e-feedback in an educational environment taking into consideration the TAM model and the external factors of trustworthiness and enjoyment. The data is collected by an online questionnaire that was distributed among a group of students. Facilitating communication among teachers and students. It helps in replacing the traditional feedback and assess the learning environment during the pandemic periods. The two constructs of perceived ease of use and perceived usefulness affect positively the intention to use the e-feedback and initiates this type of feedback as a prominent procedure to be used frequently in the learning environment. In addition, the perceived enjoyment and perceived trustworthiness increase the chance of using e-feedback. Recently, e-feedback is highly dominant among online platform users.

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1. Introduction

Within the global trend of online learning, a technology-based environment has been increasingly used by educational institutions as an alternative to the traditional classroom environment. E-feedback is part of the online environment and it is an effective tool that is implemented to enhance the educational process due to the fact that it removes all the time and location constraints. E-feedback helps in initiating direct communication between teachers and students and increases the level of their satisfaction towards many educational practices. Furthermore, it increases students' motivation, the ability for problem-solving and encouraging active knowledge construction (Ali, 2016; ElShaer et al., 2020; O AbuSa'aleek & Shariq, 2021; Sáiz-Manzanares et al., 2021; Zareekbatani, 2015). The quality of the e-feedback has been explored to reflect on the main advantages of this tool. According to (Watkins et al., 2014), the quality of feedback is high in the educational environment as it

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improves students' academic learning skills. The combination of e-feedback with other software such as GradeMark has even increased the quality of this tool as it lessens the burden on teachers' shoulders.

The comparison between e-feedback and handwritten or pen and paper feedback has been investigated to reach astonishing results. In a study by (Edeiken-Cooperman & Berenato, 2014), students stated that handwritten feedback is more preferred in comparison with handwritten feedback because it gives them the chance to have more personal support with their teachers. Despite the fact that e-feedback has many advantages, it imposes certain perceived limitations including the time-consuming nature of the e-feedback processes and lack of face to face discussion and the increase of the workload on teachers' shoulders, slow loading time and incapability to download virtual feedback (Ali, 2016; Zareekbatani, 2015). Though researchers have tackled the issue of e-feedback excessively from different perspectives, they have never investigated the impact of e-feedback depending on a conceptual model that comprises theories such as TAM. In previous studies, the focus was on the investigation of the effect of e-feedback from a purely educational perspective where the focus is on educational practices. What sets this study apart from other studies is the fact that e-feedback is dealt with within a conceptual model that focuses on the external factors of enjoyment and worthiness in addition to the main constructs in the TAM model which are the perceived ease of use and perceived usefulness.

2. Literature Review

Recent studies on e-feedback have focused on the impact of this tool in the assessment process during the spread of COVID19. They assume that e-feedback has imposed certain challenges that were not evident before the pandemic. The challenges are related to timing and technology delay. The e-feedback takes different forms including explanations, suggestions, clarifications, praises and commands. However, the most preferred type of feedback is self-assessment questionnaires that have automatic feedback to their responses in real-time. In this respect, previous studies come out with important results stating that students' perception of e-feedback is positive and promising. It increases their level of satisfaction, hence, it is considered a good technique for the personalization of learning (O AbuSa'alek & Shariq, 2021; Sáiz-Manzanas et al., 2021).

Studies that tackle the effectiveness of feedback in the educational sector have explored the purposes behind using this tool instead of the traditional pen and paper tool. They aimed to investigate the effect of feedback on assessment, teaching qualities, learning styles and learning logs. These studies have provided solid background concerning the benefits of e-feedback in motivating the students and enhancing their learning skills (Edeiken-Cooperman & Berenato, 2014; ElShaer et al., 2020; Watkins et al., 2014; Zareekbatani, 2015). What stands in contrast with the previous results is the fact that other studies have shown that e-feedback has negative implications from two different perspectives, namely, the teachers and the students. From teachers' perspective, e-feedback has increased the workload especially when the number of students is high in one group>from students' perspective, e-feedback is not highly preferred because it deprives them from direct contact with their teacher and peers (Zareekbatani, 2015). To solve the problem of the overload in working hours, it is suggested that the use of particular systems especially GradeMark can facilitate the learning system and makes the e-feedback easier as it provides valuable lessons that can support the pragmatic approach (Watkins et al., 2014).

Electronic feedback in the medical sector has been investigated from a rather different perspective in comparison with electronic feedback in the educational one. The difference lies in the fact that electronic health is more concerned with the information and data that affect patients' behaviour. The perception of patients towards receiving personalized feedback from health sectors was positive. Most of them appreciate the given feedback and positively evaluate the details given (Zieve et al., 2017). Gender distinction is also connected to the effectiveness of electronic feedback in the health sector. In a study by (Roter et al., 2004), the impact of gender in evaluating the received electronic feedback is crucial. Females are more positively affected by the feedback, hence, contribute better with effective communication change compared with males. They state that video-based feedback has a huge impact on communication skills among patients. The received feedback has improved the quality of communication among patients. Hence the patients become more self-confidence and can solve problems. Similarly, a research paper by (Leminen et al., 2018) has approved the effectiveness of feedback with patients which help in digitalizing the data and keeping records of patients.

Electronic feedback stands in contrast with handwritten feedback. The contrast lies in the style of responding to the students. Though the electronic feedback has improved its effectiveness. However, it seems that handwritten feedback is more preferred due to the closeness between the teacher and the students which gives them the chance to have personal support from their instructors. In addition to the challenges of the electronic feedback in slow loading time and the inability to download the feedback (Ali, 2016; Edeiken-Cooperman & Berenato, 2014).

Within the technology and communication sector, the conception of feedback is investigated from different perspectives. The feedback is usually connected with systems that are used by users to fulfil different purposes. In a study by (Engel et al., 1994), feedback can facilitate user-system communication more efficiently. The feedback diminishes the obstacles that may face the users and enhance the completion of the task. The Type of electronic feedback may take different forms and serve different goals. Lur'e feedback is kind feedback that has a linear and indefinite-dimensional system that controls many factors. The table below summarizes the main studies that dealt with e-feedback in different sectors.

Table 1
Research on Electronic Feedback in Various Sectors

No.	Sectors	Authors	External Variables	Instrument of Study	Samples	Country
1.	Educational Sector	(ElShaer et al., 2020)	Perceived relevance, pertinent features and expectations of the quality of electronic feedback	Survey	Soundest from different majors	UK
		(O AbuSa'alek & Shariq, 2021)	E-feedback in Blackboard and WhatsUp	Interview	Participant	Saudi Arabia
		(Sáiz-Manzanares et al., 2021)	Feedback in LMS	Longitudinal Studies	Health Science Students	N/A
		(Watkins et al., 2014)	The effectiveness of timeliness, accessibility, consistency, and quality of GradeMark System in the medical field	Survey	Students from school of nursing and medicine	UK
		(Edeiken-Cooperman & Berenato, 2014)	Preferences of electronic feedback over the handwritten feedback	Survey	Undergraduate students from Elementary Education and Special Education	USA
		(McGrath et al., 2011)	Students' perception of developed and undeveloped feedback in relation to fairness and usefulness	Written comments stated by the students	College Students	Canada
		(Ali, 2016)	Screencast feedback in relation to accuracy in content and structure of essay writing	Online questionnaire	University Students	Egypt
2.	Health Sector	(Zareekbatani, 2015)	students' perceptions of the benefits of the e-feedback and learning logs	interviews, online learning logs, and an open-ended questionnaire	High-intermediate to advanced EFL learners	Iran
		(Leminen et al., 2018)	The effect of electronic feedback practices on patients' behavior	Electronic Patients' Database	Patients	Finland
		(Roter et al., 2004)	The effect of Video-based Feedback program	Interviews	Patient	USA
		(Gupta et al., 2020)	E-Feedback (FB) surgery residents' (GSRs) training.	Questionnaire	Patient	USA
3.	Technology and Communication Sector	(Zieve et al., 2017)	Personalized Feedback for in relation to multiple health risk behaviors	Semi-structured, qualitative interviews	Patients	USA
		(Engel et al., 1994)	The relation between feedback and effectiveness of system-based users	Laboratory Experiment	E-feedback and I-feedback on specific user-system communication	The Netherlands
4.	Economy Sector	(Grabowski & Callier, 2011)	Lur'e feedback	LaSalle's invariance principle	Linear and non-finite system	Belgium
		(Martin, 2021)	Virtual feedback and productivity	Experiment (A task is sent via e-mail to the participants)	Participants	USA

2. The Technology Acceptance Model (TAM)

E-learning is an essential part of the learning process that becomes broadly trended around the world. It has been implemented for more than a decade especially due to the changes that took place in order to shift the educational and non-educational means of learning to the e-learning system particularly after the era of pandemic Covid19. Electronic feedback in both sectors is considered to be the vital channel which proves the quality of the electronic ongoing used process whether it is on the right path or needs any further advancement. The Idea of adopting the e-learning method still faces a lack of factors that leads to negative results that may not enhance the users to align with the norm of the Technology Acceptance Model (TAM).

Research studies on information systems usage are based on various theoretical perspectives. One of these theories is The Technology Acceptance Model (TAM), which was developed by (F. D. Davis, 1989; F. D. Davis et al., 1992). It is considered as the most significant and frequently applied theory for describing an individual's acceptance of information systems or technology, which is determined by perceived usefulness (PU) and perceived ease of use (PEOU) (Lee et al., 2003). Besides

the TAM Model, the researchers of this study consider other external factors as perceived trustworthiness (PT) and perceived enjoyment (PE), which are also used to determine an individual's acceptance of a technology.

In teaching, technology is an effective factor which can promote innovation, provide a variety of learning spaces, and improve instructional activities. The aforementioned effects are associated with the ease of use. Besides, most studies on online learning have confirmed that perceived ease of use (PEOU) affects perceived usefulness (PU), and both positively affect attitude. Attitude and perceived usefulness (PU) also affect continuity of use (Mo et al., 2021). In addition, there is a study conducted by Walter, (Walter et al., 2015) that shows the existence of a clear connection between the perceived enjoyment (PE) and perceived usefulness (PU). The e-feedback when it is addressed to the users in a perfect way it will also target the perceived useful factor. The study also illustrates that if the e-feedback is given frequently on simple tasks for the users it is considered more entertaining and useful. Thus, the users feel more enjoyment and funnier by receiving the comments that lead to completing their wanted tasks and maintaining their attention by using electronic platforms' feedback.

In this study, TAM is employed to investigate students' perception toward using e-feedback after the COVID-19 pandemic. It highlights students' attitude toward e-feedback and their intention to use, which will eventually determine whether e-feedback will be adopted after the pandemic.

2.1. Hypotheses Development

2.1.1. Perceived Ease of Use (PEOU)

Another element in the Technology Acceptance Model (TAM) is the perceived use (PEOU) of technologies. This element indicates the degree to which system usage is considered to be effortless according to the person who uses it (Esteban-Millat et al., 2018). In other words, perceived ease of use (PEOU) of technology predicts user's attitude towards using the technology, subsequent behavioral intentions, and actual usage (Masrom, 2007). If a system or technology users' perceptions of its ease of use and usefulness are positive, they will accept it and work with it without any problems (Lee et al., 2003).

As regards e-feedback, in research from (ElShaer et al., 2020) a group of the study participants selected e-feedback as the most favoured method because of its accessibility (41.3%). Furthermore, Al Damen (2020) conducted a study to investigate the effectiveness of teacher e-feedback in asynchronous teaching. The study shows that teachers used various feedback methods, such as WhatsApp, emails, voice comments, track changes in Google Docs, screen recording, and others. Besides, many of the students, who participated in the aforementioned study, stated that the e-feedback they have received was sufficient and adequate. In addition, according to new research, language instructors, for instance, have a wide range of new ways of developing and providing language learners with e-feedback (Alharbi & Al-Hoorie, 2020; Neumann & Kopcha, 2019; Saeed & Al Qunayeer, 2020) as cited in (O AbuSa'aleek & Shariq, 2021). (O AbuSa'aleek & Shariq, 2021) have mentioned other ways for providing e-feedback, such as Blackboard LMS, Wiki and Facebook, blogs and discussion boards. Thus, it can be concluded that the e-feedback had been accessed from a variety of platforms and it was reached and reviewed easily.

Both PEOU and PU affect the user's attitude towards using and intention to use technology. (F. D. Davis, 1985), as cited in (Rizun & Strzelecki, 2020). Nevertheless, there are contradictory results, which have been given by some researchers who used TAM to analyze e-learning technologies. The PEU, for instance, was not a good predictor of the intention to use a learning management system, while it was a major influence on students' attitude towards using and on intention to use (Liu et al., 2009).

In spite of the possible contradictions, the researchers have set two hypotheses for the students' PEOU of electronic feedback, which were employed through online learning due to COVID-19 pandemic.

Hypothesis 1 (H1): Perceived Ease of Use of electronic feedback positively affects students' acceptance of electronic feedback.

2.1.2. Perceived Usefulness (PU)

The perceived usefulness (PU) of technologies (in this case, e-feedback which has been implemented through online learning during the COVID-19 pandemic) is one of the key elements in the Technology Acceptance Model (TAM). Perceived usefulness (PU) can be identified as the degree to which a user of a specific technology believes that it would contribute to his/her work or study performance in comparison to other methods that this user may use to accomplish his/her tasks. Perceived usefulness (PU) also influences a user to decide whether to accept or reject that specific technology (Abdullah et al., 2016; Liu et al., 2009) as cited in (Rizun & Strzelecki, 2020).

In the context of e-feedback, (Van den Bulck et al., 2020) investigated the effect of electronic audits and feedback in primary care and factors that contribute to their effectiveness. The finding revealed that twenty-two studies (76%) showed that e-feedback was effective. Another study was conducted to examine the learners' perception of e-feedback in writing multicultural class using Edmodo. The finding reveals that learners' showed a positive perception of e-feedback. They also confirmed that the feedback was useful in L2 writing. The learners expected that e-feedback improved writing skills, particularly on grammar accuracy and organization (Tatsanajamsuk & Saengboon, 2021). In addition, in the aforementioned research from (ElShaer et al., 2020), over half of the study respondents (58.9%) agreed that e-feedback is useful in improving students' learning. Positive results were also revealed for e-feedback as being useful to reflect on overall performance (55.5%) and for future assessments (55.8%). Furthermore, in research from (Saeed & Al Qunayeer, 2020), an effective and interactive e-feedback was found to help learners to make successful textual revisions to their assignments, even if this is only after several iterations of feedback (Saeed & Al Qunayeer, 2020). In other words, the e-feedback helped the students to understand and accomplish their assignments effectively.

In the context of e-feedback, which were employed through online learning due to COVID-19 pandemic, the researchers have used the TAM theory to develop hypotheses about the PU as follows.

Hypothesis 2 (H2): Perceived Usefulness positively affects students' acceptance of electronic feedback.

2.1.3. Perceived Trustworthiness (PT)

The word trust means the readiness of one party towards the actions of another party. Means to perform according to the expectation of another party to monitor or control that other party (Mayer et al., 1995). Perceived trustworthiness (PT) involves the norm of having two parties: a trustee and the trustor. Actually, it depends on the perception of the trustor on the targeted trustee (Mayer & Davis, 1999). The idea of the perceived trustworthiness (PT) to conceptualize the trustor's perception of the trustee's ability and integrity (Ferrin & Dirks, 2003). More information will be known over the time to guide the beliefs of trustworthiness such as depending on trustee behavior (Alarcon et al., 2018).

In other words, trustworthiness is defined as the degree with which users can build his or her confidence. The trust-worthiness can be of different degrees which are high, neutral or low. The level of trustworthiness will be high whenever the user believes that his/her expectations are met; forming a positive clear picture. On the other hand, the low degree of trustworthiness is clearly illustrated when users' expectations are not met; proposing a negative picture. Accordingly, when users can develop neither a positive picture nor a negative one, the degree of the trustworthiness is neutral (Wiener & Mowen, 1986). In general, if the received feedback is authentic and error free can be fully trusted by any person he/she can accept it as useful (Walter et al., 2015). This shows the positive combination of perceived trustworthiness (PT) and perceived usefulness (PU).

Accepting technologies depends completely on receiving comments or messages. There is a research study clarifying that the sent comments and messages rely on certain features such as trustworthiness and expertise. The aforementioned features are vital to motivate users to access and view the e-feedback or information. Additionally, features of correspondents affect message quality expectations and message acceptance (Ter Mors et al., 2006).

Further studies show that the perceived trustworthiness (PT) has another feature which is service quality of the products that affects perceived usefulness and other factors. In the e-business environment, consumers can easily get information, details about the wanted products or any services via advanced technology systems like feedback or recommender systems. Thus, the customers can experience the advantages of perceived trustworthiness (PT), perceived usefulness (PU), perceived ease of use (PEOU) without being in the marketplace. Besides, using advanced systems in e-business enable consumers to get feedback, comments and product rating (Cho & Sagynov, 2015).

Additionally, in the e-business situation, accepting online products rely on the quality that can be easily identified. This is because the users or the customers are not able to touch, feel, see and smell the products (De Figueiredo, 2000). The service quality depends on the judgment of the customers on the products whether it is excellence or superiority (Bei & Chiao, 2001). Actually, they depend on the products reviews and information to consider the degree of quality characteristics in terms of the sensory since they cannot touch the online products and this enhances the perceived trustworthiness (PT). Resulting, the connection of perceived usefulness (PU) by getting online information about the products which leads to the positive effect on perceived ease of use (PEOU).

One of the studies shows perceived trustworthiness (PT) in using mobile services that targets reliability between the advanced service provider and the used system. It has been added that risks and privacy issues also influence the concept of trust in the technology system. In general, the trust in the service is always affected by the ability to use the system or service (Govender & Sihlali, 2014).

More and more, recent studies in the field of technology acceptance and adoption have created relations between perceived trustworthiness (PT) and the perceived usefulness (PU) on one hand and the trustworthiness and the perceived risk on the other hand. According to (Ma, 2021), the factor of the perceived usefulness (PU) positively affects the trustworthiness whereas the perceived risk negatively affects the trustworthiness. Based on the previous assumption, the following hypothesis can be formed:

Hypothesis 3 (H3): Perceived Trustworthiness (PT) effects positively on the acceptance of electronic feedback.

2.1.4. Perceived Enjoyment (PE)

According to a research study, the significance of perceived enjoyment (PE) is generally visible while adopting a new technology that has a positive impact on users. That leads the user to be more motivated and enjoy performing the activity several times (Suki & Suki, 2011). One of the studies shows perceived enjoyment (PE) considered as a key role which affects intention for any daily life context (Zhou & Feng, 2017).

In view of that, utilizing technologies influences the students specifically. In other words, it enables them to get innovative experiences which increases their interest and motivation level in the learning situation that meet their satisfaction. Some studies showed some factors, including perceived enjoyment (PE), that have a great effect on behavioral intention of the students to accept a motivated new teaching platform (Balog & Pribeanu, 2010).

Furthermore to the previous research, whenever there is an acceptance of any technology system to be used in teaching, enjoyment plays a key role in engaging the students fully in the teaching and learning situation. As a result of what they are doing, the e-feedback is compulsory to the students to keep on the ongoing process of learning.

A study confirms that e-feedback enhances the students to follow and monitor the directions enthusiastically which makes their learning environment more enjoyable and useful. They can track their performance on each task directly without referring to the course component (Carless, 2006). Additionally, e-feedback upgrades the possibility of students to go back to their given feedback and store them for the upcoming future tasks (Parkin et al., 2012). Another study shows that e-feedback has enjoyable observations which promotes the idea of using electronic teaching platforms. Some educators stated that giving e-feedback is the most professional and enjoyable work of their teaching duty since they do believe in constructive and expressive feedback in general (Davis & Ryder, 2012).

Another study shows that e-feedback has funny social signals and comments which promotes an enjoyable environment for the students and users in general to continue using technologies. There are many websites that provide funny, cool comments and reviews as e-feedback to motivate the engagement with electronic sites. Thus, better understanding can be gained by using funny social feedback and comments can help to design more innovative electronic systems to be used effectively (Bakhshi et al., 2014). Hence, the following hypotheses was developed:

Hypothesis 5 (H5): Perceived Enjoyment (PE) effects positively on the acceptance of electronic feedback.

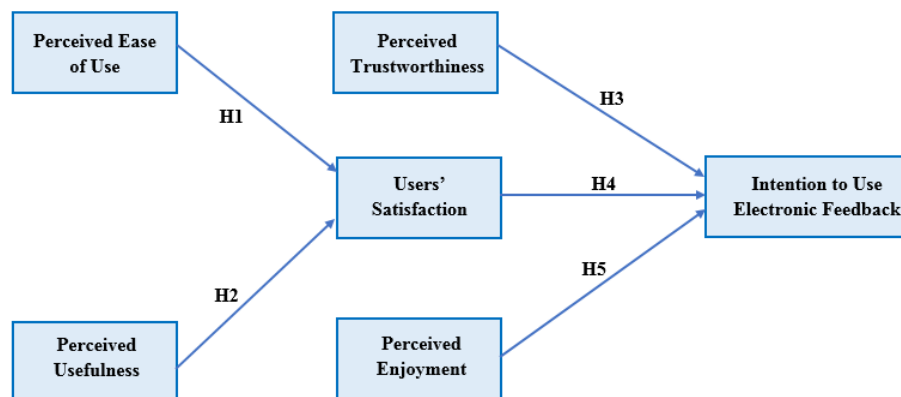


Fig. 1. Research Model

3. Research Methodology

3.1. Data collection

The data was collected amid the time period of the 01-February-2001 and 30-April-2001 through the distribution of the online surveys between the students studying in UAE universities, throughout the winter semester 2020/2021. A total of 1000 questionnaires were distributed in order to get the response from the respondents which made up to 820 questionnaires that is a response rate of 82%. Additionally, the particularly missing values directed to the rejection of the 180 of the questionnaires that were filled, therefore the team took into account the 820 properly completed and valuable questionnaires. Rendering to (Krejcie & Morgan, 1970), the completed 820 effective responses were gathered through the sample size level that was considered suitable which means that the predictable size of the sample for a population of 1500 is the 306 respondents. In comparison to this the sample size of 820 is much more higher that is the reason why the assessment with the structural equation modelling is considered adequate as a sample size (Chuan & Penyelidikan, 2006), that was then employed for the hypotheses confirmation. Above all, the basis of the Hypotheses was established through the already present theories, along with the utilization of the e-feedback context. The structural equation modelling (SEM) (SmartPLS Version 3.2.7) was used by the team of the researchers in order to evaluate the measurement model and the resultant path model was then utilized for the advanced treatment.

3.2. Personal /Demographic Information

Table 2 consists of the evaluation of the personal/demographic data. The males and females' students were present in the ratio of 42% and 58% respectively. For the 48% of the respondents, the student's age was seen to be among the 18 and 29 years whereas the respondents who were above 29 years were 52%. Most of the respondents had university degrees. Earlier in this view, the bachelor degree was held by 52% of the individuals while 35% had a master degree, and the 13% of the respondents possessed the doctoral degree. Conferring to (Al-Emran & Salloum, 2017), the "purposive sampling approach" was used when the with the respondents is simple and they were willing to volunteer. Various college students made up this study sample; who had different ages, were a part of various programs at changed levels. Additionally, the demographic data was also taken into account by the help of IBM SPSS Statistics ver. 23. The demographic data of the respondents is presented in Table 2.

Table 2
Demographic data of the respondents

Criterion	Factor	Frequency	Percentage
Gender	Female	477	58%
	Male	343	42%
Age	Between 18 to 29	395	48%
	Between 30 to 39	289	35%
	Between 40 to 49	106	13%
	Between 50 to 59	30	4%
Education qualification	Bachelor	426	52%
	Master	286	35%
	Doctorate	108	13%

3.3. Study Instrument

A survey instrument was acknowledged in order to validate the hypothesis. A set 17 items was included with the goal of measuring the sex constructs that were present in the questionnaire. The sources of these constructs are present in Table 3. For the applicability improvement of the study, the researchers altered the questions that existed in the earlier studies.

3.4. Pilot study of the questionnaire

The pilot study was used in order to measure the reliability of the questionnaire items. A selection of 100 students was made haphazardly from the decided population that created this pilot study. On the basis of the 10% of the total sample size of this analysis, the sample size was absolute with (1000 students) and the standards of the research were cautiously followed in this respect. For the evaluation of the findings of the pilot study, Cronbach's alpha test was utilized for the internal reliability with the help of IBM SPSS Statistics ver. 23, which resulted in the acceptable conclusion of the measurement items. A reliability coefficient of 0.70 was regarded as acceptable, if we stress on the declared pattern of social science research studies (Nunnally & Bernstein, 1978). The Cronbach alpha values for the subsequent 5 measurement scales are provided in Table 4.

Table 3
Measurement Items

Constructs	Definitions	Items	Instrument	Sources
Perceived Ease of Use	Perceived ease of use is defined as the extent to which a user thinks that the system is free of effort.	PEOU1	The received electronic feedback can be easily reviewed.	(F. D. Davis, 1985)
		PEOU2	The received electronic feedback can be accessed via college emails and learning platforms.	
		PEOU3	Overall, the received electronic feedback has been reached easily.	
Perceived Usefulness	Perceived usefulness is defined as the extent to which a person adheres to the fact that the system is useful.	PU1	The received electronic feedback is useful therefore I check the learning platform throughout the day for regular updates.	(F. D. Davis, 1985)
		PU2	The received electronic feedback helps me in solving different assignments and homework.	
		PU3	The received electronic feedback is highly effective to understand my daily classes.	
Users' Satisfaction	Users' satisfaction refers to the judgment that is made by users indicating the significant value of the service regarding its effectiveness and benefits.	US1	The received electronic feedback satisfies my needs because it is free of effort.	(Mansoori & Baradaran-Kazem-Zadeh, 2007)
		US2	The received electronic feedback satisfies my needs because it is useful.	
		US3	The received electronic feedback satisfies my needs because it is efficient.	
Perceived Trustworthiness	Trust refers to the willingness to perform a specific by a party due to the fact that it is trust worthy.	PT1	Overall, the received electronic feedback is trust worthy.	(Mayer et al., 1995)
		PT2	The received electronic feedback serves my interest because it has high degree of privacy.	
		PT3	The perceived electronic feedback has trustworthy recourses	
Perceived Enjoyment	Perceived Enjoyment refers to the degree to which users evaluate the system as being funny and enjoyable.	PE1	The received electronic feedback has funny comments.	(Van der Heijden, 2004)
		PE2	The received electronic feedback has enjoyable observations.	
		PE3	The received electronic feedback has exciting and pleasant directions to follow.	
Intention to Use after the pandemic	Intention to use a system is an outcome of continuous and constant use of system which results in making useful decisions.	IU1	I am keen on continuously check the received electronic feedback.	(Venkatesh et al., 2003)
		IU2	Overall, I think that on-line learning platforms will be efficient even after the pandemic.	

Table 4
Cronbach's Alpha values for the pilot study (Cronbach's Alpha ≥ 0.70)

Constructs	Cronbach's Alpha.
IU	0.815
US	0.886
PEOU	0.786
PU	0.820
PT	0.769
PE	0.830

Note IU, Intention to Use Electronic Feedback; US, Users' Satisfaction; PEOU, Perceived Ease of Use; PU, Perceived Usefulness; PT, Perceived Trustworthiness; PE, Perceived Enjoyment.

3.5. Survey Structure

The questionnaire survey was given to the students (Al-Emran & Salloum, 2017). The survey included three sections

- The first section put an emphasis on the personal data of the participants.
- The second section focussed on the two items that illustrated the general question relating to the electronic feedback.
- The third section included the fifteen items that presented the "Users' Satisfaction, Perceived Ease of Use, Perceived Usefulness, Perceived Trustworthiness, and Perceived Enjoyment".

The (17 items) will be considered through a five-point Likert Scale and these scales are made up of: strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agreed (5).

4. Findings and Discussion

4.1. Data Analysis

By utilizing the SmartPLS V.3.2.7 software, (PLS-SEM) was applied to carry out the analyzation of data in the respective study. Structural model and measurement model were utilized which is a two-step technique and assessed the collected data. (J. Hair et al., 2017). Following are the reasons for the PLS SEM Selection. PLS-SEM is considered to be the most favourable choice provided that research needs to enhance a theory which is already existent (Urbach & Ahlemann, 2010). It is also capable of handling the studies which contain complex models. 18. Another advantage is that PLS-SEM IS capable of

evaluating the complete model as a whole (Goodhue et al., 2012). It also gives concurrent analysis when it comes to measurement and structural models which will provide accurate calculations (Barclay et al., 1995).

4.2. Convergent validity

To quantify the measurement model the construct reliability which includes (Cronbach's alpha (CA), Composite Reliability (CR), Dijkstra Henseler's (PA) also the validity (both discriminant and convergent validity was suggested by (J. Hair et al., 2017). To determine the construct's reliability. Table 5 shows the value of Chronbach alpha lies within 0.809 and 0.856, which are in the acceptable range i.e. 0.7 (Nunnally & Bernstein, 1994) the values if composite (CR) have the values that fall in the range of 0.832 and 0.881, these are also greater than the recommended value of 0.7 (Kline, 2015). the researcher should also report the construct reliability through Dijkstra-Henseler's rho (ρ_A) reliability coefficient (J. Hair et al., 2017). Like CA & CR the values of the reliability coefficient ρ_A must represent the values of 0.70 or higher, further advanced research (J. F. Hair et al., 2011; Henseler et al., 2009; Nunnally & Bernstein, 1994) in exploratory research and values are higher 0.80 and 0.90. The reliability coefficient for each contract is higher than 0.7 as shown in Table 5. According to the results of construct reliability at the end the constructs are assumed to be error free. The factor loading and average variance extracted (AVE) also required to measure the measurement of convergent validity (J. Hair et al., 2017). The recommended value of 0.7 still falls below than the all-factor loadings values as shown in table 4. Furthermore, the AVE values fall within the 0.626 and 0.750 also higher than the threshold value of 0.5. For all the constructs the convergent validity can be successfully achieved on these upcoming results.

4.3. Discriminant validity

Fornell-Larker criterion, and the Heterotrait-Monotrait ratio (HTMT) were the criteria suggested to be measured in order to measure the discriminant validity (J. Hair et al., 2017). As seen in Table 5 the necessities were confirmed with the help of Fornell-Larker condition. It was seen that all AVEs were found to be greater than their respective constructs.

In Table 6 HTMT ratio results are shown which shows that the threshold value of 0.85 is one step forward then the value of each construct (Henseler et al., 2015). With the help of these findings' discriminant validity is measured. The method was found to be valid when it came to assessing the measurement model. So, it was concluded that structural models can be utilized with the help of collected data.

Table 5

Convergent validity results which assures acceptable values (Factor loading, Cronbach's Alpha, composite reliability \geq 0.70 & AVE $>$ 0.5)

Constructs	Items	Factor Loading	Cronbach's Alpha	CR	PA	AVE
Perceived Ease of Use	PEOU1	0.725	0.823	0.840	0.843	0.660
	PEOU2	0.795				
	PEOU3	0.819				
Perceived Usefulness	PU1	0.763	0.856	0.862	0.829	0.725
	PU2	0.887				
	PU3	0.808				
Users' Satisfaction	US1	0.742	0.835	0.853	0.849	0.723
	US2	0.745				
	US3	0.843				
Perceived Trustworthiness	PT1	0.813	0.809	0.832	0.839	0.750
	PT2	0.815				
	PT3	0.852				
Perceived Enjoyment	PE1	0.800	0.820	0.861	0.869	0.626
	PE2	0.703				
	PE3	0.758				
Intention to Use Electronic Feedback	IU1	0.802	0.844	0.881	0.890	0.686
	IU2	0.825				

Table 6

Fornell-Larcker Scale

	IU	US	PEOU	PU	PT	PE
IU	0.884					
US	0.369	0.807				
PEOU	0.168	0.365	0.861			
PU	0.360	0.586	0.223	0.886		
PT	0.264	0.500	0.571	0.341	0.890	
PE	0.162	0.454	0.324	0.259	0.198	0.863

Note IU, Intention to Use Electronic Feedback; US, Users' Satisfaction; PEOU, Perceived Ease of Use; PU, Perceived Usefulness; PT, Perceived Trustworthiness; PE, Perceived Enjoyment.

Table 7

Heterotrait-Monotrait Ratio (HTMT).

	IU	US	PEOU	PU	PT	PE
IU						
US	0.506					
PEOU	0.726	0.687				
PU	0.767	0.703	0.848			
PT	0.561	0.740	0.550	0.441		
PE	0.760	0.725	0.743	0.713	0.557	

Note IU, Intention to Use Electronic Feedback; US, Users' Satisfaction; PEOU, Perceived Ease of Use; PU, Perceived Usefulness; PT, Perceived Trustworthiness; PE, Perceived Enjoyment.

4.4. Model fit

Some fit measures were given by SmartPLS which include standard root mean square residual (SRMR) which precisely fits the criteria. d_{ULS} , d_G , Chi-Square, NFI, and RMS theta shows that the model fit in PLS-SEM (Trial, n.d.). The difference among correlations and models refers to correlation matrix (Hair, J., Hult, G. T. M., Ringle, C., Sarstedt, M., Hair, J. F. F., Hult, G. T. M., ... Sarstedt, 2016). Also, it was seen that values which were less than 0.08 were taken as good model fit measures (Hu & Bentler, 1998). NFI is the ratio between Chi2 value of the proposed model to the null model or benchmark model (Lohmöller, 1989). When it comes to NFI values, a value higher than 0.90 was taken as good model fit (Bentler & Bonett, 1980). The NFI value is directly proportional to the parameters, so it is not taken as a model fit representor (Hair, J., Hult, G. T. M., Ringle, C., Sarstedt, M., Hair, J. F. F., Hult, G. T. M., ... Sarstedt, 2016). The two metrics which refer to the discrepancy among empirical covariance matrix and covariance matrix are squared Euclidean distance, d_{ULS} , and the geodesic distance d_G . with the help of composite factors they are applied (Dijkstra & Henseler, 2015; Hair, J., Hult, G. T. M., Ringle, C., Sarstedt, M., Hair, J. F. F., Hult, G. T. M., ... Sarstedt, 2016). For the reflective model RMS theta is used. It is seen that if the value of RMS theta is near to zero it refers to an improved PLS-SEM model. When the value is close to 0.12 refers to good fit. Apart from these two all others refer to non-fit (Henseler et al., 2014). Saturated model is the one which shows relation among all the constructs. On the other hand, an estimated model is the one which takes into account the total effects and also model structure into account.

Table 8

Model fit indicators.

	Complete Model	
	Saturated Model	Estimated Mod
SRMR	0.042	0.042
d_{ULS}	0.775	1.349
d_G	0.563	0.562
Chi-Square	438.392	439.870
NFI	0.856	0.856
Rms Theta	0.061	

RMS_theta Value is 0.061 which refers to the fact that goodness-of-fit for PLS-SEM model is sufficient in order to depict global PLS model validity.

4.5. Hypotheses testing using PLS-SEM

By utilizing Smart PLS which had maximum likelihood estimation of being able to look out for the interdependence among the different theoretical constructs belonging to the structural model. (Al-Emran et al., 2020; Salloum et al., 2019). With the help of this evaluation of proposed hypotheses was done. It can be seen in Figure 2 and Table 9 that the model is seen to have predictive power of higher value (Chin, 1998). The R^2 values for Intention to Use Electronic Feedback and Users' Satisfaction were found to be above 0.67.

The values of t-statistics, p-statistics, also the beta (β) for the respective hypotheses in Table 10. The values are according to PLS-SEM technique. The hypotheses have been backed up by different researchers. Hypotheses H1, H2, H3, H4, and H5 are supported with the help of empirical data. The results showed that Users' Satisfaction (US) significantly influenced Perceived Ease of Use (PEOU) ($\beta=0.639$, $P<0.001$), and Perceived Usefulness (PU) ($\beta=0.274$, $P<0.05$) supporting hypothesis H1 and H2 respectively. Users' Satisfaction (US), Perceived Trustworthiness (PT), and Perceived Enjoyment (PE) has significant effects on Intention to Use Electronic Feedback (IU) ($\beta=0.732$, $P<0.001$), ($\beta=0.334$, $P<0.001$), and ($\beta=0.514$, $P<0.001$) respectively; hence H3, H4, and H5 are supported.

Table 9R² of the endogenous latent variables

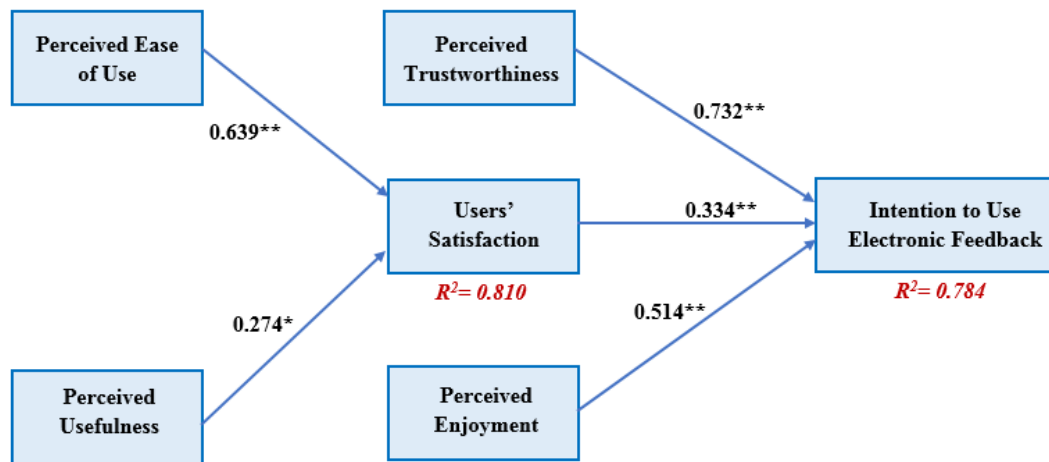
Constructs	R ²	Results
US	0.810	High
IU	0.784	High

Note IU, Intention to Use Electronic Feedback; US, Users' Satisfaction

Table 10Hypotheses-testing of the research model (significant at $p^{**} \leq 0.01$, $p^* < 0.05$)

H	Relationship	Path	t-value	p-value	Direction	Decision
H1	PEOU → US	0.639	19.304	0.000	Positive	Supported**
H2	PU → US	0.274	3.215	0.034	Positive	Supported*
H3	PT → IU	0.732	12.683	0.001	Positive	Supported**
H4	US → IU	0.334	9.369	0.000	Positive	Supported**
H5	PE → IU	0.514	14.118	0.000	Positive	Supported**

Note IU, Intention to Use Electronic Feedback; US, Users' Satisfaction; PEOU, Perceived Ease of Use; PU, Perceived Usefulness; PT, Perceived Trustworthiness; PE, Perceived Enjoyment.

**Fig. 2.** Path coefficient of the model (significant at $p^{**} \leq 0.01$, $p^* < 0.05$)

5. Discussion of Results

The current study offers a deep insight on the effectiveness of e-feedback from students' perspective. Based on the obtained results, it seems that students' perception towards the intention to use e-feedback is supported. The proposed hypotheses regarding the effectiveness of PEO, PU PT and US are confirmed. Previous studies have supported the current study results regarding TAM constructs (Al-Marroof et al., 2021; Alfadda & Mahdi, n.d.; Lazim et al., n.d.). Results have shown that e-feedback can be used to facilitate the educational process. The perceived ease of use and the perceived usefulness have a direct impact on students' perception of e-feedback depending on the all path coefficients. They are considered statistically significant which may be due to the fact that it was the only available tool during the spread of the pandemic and it keeps teachers and students in close contact in the time of crisis. These findings are also in agreement with previous studies that supported students' satisfaction and preference for the e-feedback (Al Damen, 2020; ElShaer et al., 2020). The finding of the current study is also in line with prior studies in terms of the effective contribution of e-feedback on overall achievements (ElShaer et al., 2020; Tatsanajamsuk & Saengboon, 2021; Van den Bulck et al., 2020).

The current study has shown that trustworthiness is a dominant factor that affects the acceptance of e-feedback. The results are in line with prior studies as it highlights trustworthiness as an obligatory, factor that is related to the qualitative and quantitative features of a system (Ma, 2021; Schicker et al., 2021). The integration of trustworthiness with other TAM factors was evident in previous studies and the obtained results are in agreement with the results of the current study where both trustworthiness and the perceived usefulness are two influential factor that affect positively the acceptance and adoption of technology (Khan et al., 2021; Ma, 2021). There are also other prior studies that are in line with current study in terms of trustworthiness (Alarcon et al., 2018; Bei & Chiao, 2001; Cho & Sagynov, 2015; De Figueiredo, 2000; Ferrin & Dirks, 2003; Govender & Sihlali, 2014; Ma, 2021; Mayer et al., 1995; Mayer & Davis, 1999; Ter Mors et al., 2006; Walter et al., 2015; Wiener & Mowen, 1986). In addition, the results that are related to the impact of the perceived enjoyment are in agreement with the results present in previous studies (Bakhshi et al., 2014; Balog & Pribeanu, 2010; Carless, 2006; C. Davis & Ryder, 2012; Parkin et al., 2012; Suki & Suki, 2011; Zhou & Feng, 2017). It illustrates the significance of perceived enjoyment along

with the effect of the perceived usefulness by adopting technologies positively having great effect on improving the ongoing process of learning by utilizing e-feedback.

5.1. Theoretical and Practical implications

E-feedback can be of great importance to professors, teachers, students, developers and organizers. The effectiveness of e-feedback helps in facilitating the process of learning and teaching by enhancing the means of communication among different parties. E-feedback is considered as a tool that can be used in different educational settings, adhering to the fact that it is similar to other tools such as smartwatch, Google classes and computerized teaching tools (Al-Marooof R.S., 2021; Hernandez, 2021). It can also be used in various platforms and methods, such as WhatsApp, emails, voice comments, and track changes in Google Docs, screen recording, and others (Al Damen, 2020). In addition, effective and interactive e-feedback can help learners to make successful textual revisions to their assignments, even if this is only after several iterations of feedback (Saeed & Al Qunayeer, 2020). In the context of the theoretical and practical implication of electronic feedback, sufficient training for users and using various e-feedback methods and platforms wherein its implemented (Al Damen, 2020). In addition, effective formulation of e-feedback must be adopted to elect students' responses and interaction over the feedback (Saeed & Al Qunayeer, 2020).

5.2. Managerial implications

The developers of the technology can take benefit from the current study to develop the e-feedback in a way to make it less difficult to deal with e-feedback from teachers' and professors' perspectives. According to them, e-feedback is considered a burden that is time-consuming. Therefore adding certain features can enrich the use of this tool. In addition, previous studies have proposed that the weak internet signals and the time needed for the upload and the download of the e-feedback may badly affect the use of the e-feedback (Ali, 2016; Zareekbatani, 2015). Another feature of e-feedback should be taken in consideration is having virtual or video-based feedback options that lessen the workload of the educators instead of typed e-feedback. Additionally, the developers should check and update the latest technology platforms that enhance e-feedback features used by the both educational and non-educational sectors to gain the target of the TAM model of enhancing a technology-based environment supported by the factors. The results recommend using e-feedback that enhance using technology platforms (TAM) by showing the positive effects of the Perceived Ease of Use, Perceived Usefulness, Perceived Trustworthiness and Perceived Enjoyment which lead to users' satisfaction and intention of use.

5.3. Limitations and Suggestions for Future Studies

The present study is limited in scope to the investigation of e-feedback in the educational environment. Future studies can explore the importance of e-feedback from different perspectives; focusing on industry, banking, agriculture and health settings. The limitation is extended to include the data collection methodology because it was dependent on a closed set of questions that were compiled under an online questionnaire. This limitation paves the way for future studies to adopt different methodology in which they focus on interviews, open-ended questions and semi-structured interviews. The investigation of the age difference factor was not part of the scope of this paper, hence, future studies can investigate the effect of age -the difference in controlling the e-feedback. Another limitation has to do with the location. This study was conducted in the Gulf area where Arab students' perceptions were the focus of the study. Therefore, future studies can tackle the significant effect of e-feedback in other parts of the world, creating a comparison among students' from different cultural backgrounds.

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