HIGHER EDUCATION EFL ONLINE SUCCESS MODEL-AN ADAPTATION TO THE DELONE AND MCLEAN IS SUCCESS MODEL

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ABSTRACT

This study attempts to adapt and extend the DeLone and McLean Information System (IS) success model to enhance teaching, learning and knowledge-sharing in an online English as a Foreign Language (EFL) higher education foundation program. The study gathered the perspectives of lecturers by conducting semi-structured interviews in evaluate and adjust the model. The conceptual success model derived by this study, attempts to bridge the knowledge gap between research and practice and assess the knowledge-sharing and user interaction of virtual community of practice (vCoP) members. The study also suggests success indicators that could be the subject of future research.

Keywords: Virtual community of practice; Knowledge sharing, EFL, TEL, Higher education.

INTRODUCTION

Educational institutes moved online as the virus SARS-Cov-2 spread, leading to the COVID-19 pandemic. Governments declared the suspension of on-campus study starting from late February 2020 and set guidelines for the implementation of remote learning, taking into consideration several factors such as faculty and student support, quality of education and the wellbeing of everyone involved. The shift to online meant that the success of online courses and the models used was under the focus, and researching the level of knowledge sharing and user interaction of all members who form the communities of practice (CoPs) were key to the success. According to Moore (2008), the significance of communities of practice for connecting research and practice is that learning is distributed across a range of participants, and customary notions of learning and knowledge are challenged. Universities are investing heavily in information systems (IS) to provide the highest benefits to students, instructors, and other staff (Sinclair et el., 2016). E-learning systems are among the most significant of these information systems (Islam A, 2016). Existing models and frameworks that evaluate knowledge sharing online are an important tool to evaluate the success of the models used in the educational sector. There have been many attempts and studies to extend the DeLone and McLean model (Seddon, 1997). This study aims to adapt the DeLone and McLean's IS success model and propose a conceptual model for measuring the success of the online course used in the English as a Foreign Language (EFL) foundation program based on the perceptions of the lecturers' who form the virtual community of practice (vCoP) within the higher education institute.

Research Questions

Based on the perceptions of members in a virtual community of practice, what are the adaptions and extensions that can be applied to the DeLone and McLean IS updated success

model in order to be used as a measure of success of an English as a Foreign Language (EFL) foundation online program?

LITERATURE REVIEW

Virtual Communities of Practice in Education

A virtual community of practice (vCoP) is a platform that "attracts professionals operating in a specific knowledge domain, who share a common problem, interest, or topic" (Bolisani et al., 2020). They function as an interdependent network over an extended period of time, with the shared goal of furthering their 'practice' or improving the quality of their work (Wenger, 1998). Virtual communities of practice (vCoP) are comprised of community members who are from different parts of the world or from within the same location but who cannot communicate face-to-face due to various circumstances, so that they have to rely on technological means to communicate with each other. Wenger and Snyder (2000) reported that communities of practice have helped organisations improve their overall performance, enhance their communication structure, and support their goals. Communities of practice (CoPs), whether face-to-face or virtual, are not new in education. However, virtual CoPs have been revitalized during the pandemic, as a response to Covid-19 challenges imposed on teachers (Bolisani et al., 2020).

DeLone and McLean IS Success Model

The DeLone and McLean IS success model aims to create a comprehensive taxonomy model, which consists of interrelated dimensions for evaluating IS success (DeLone & McLean, 1992). DeLone and McLean's original IS model is considered the foundation for research in the component content management system (CCMS) domain and in the evaluation of information systems in IS research (Adeyinka T & Mutula S, 2010). The original model (figure 1) identifies six factors for IS success. It suggests that success can be represented by the system quality, information quality, the use, and user satisfaction which will affect the individual impact and ultimately the organisational impact (DeLone & McLean, 1992). This model provides a scheme for classifying the multitude of IS success measures and suggests the temporal and causal interdependencies between the six dimensions.
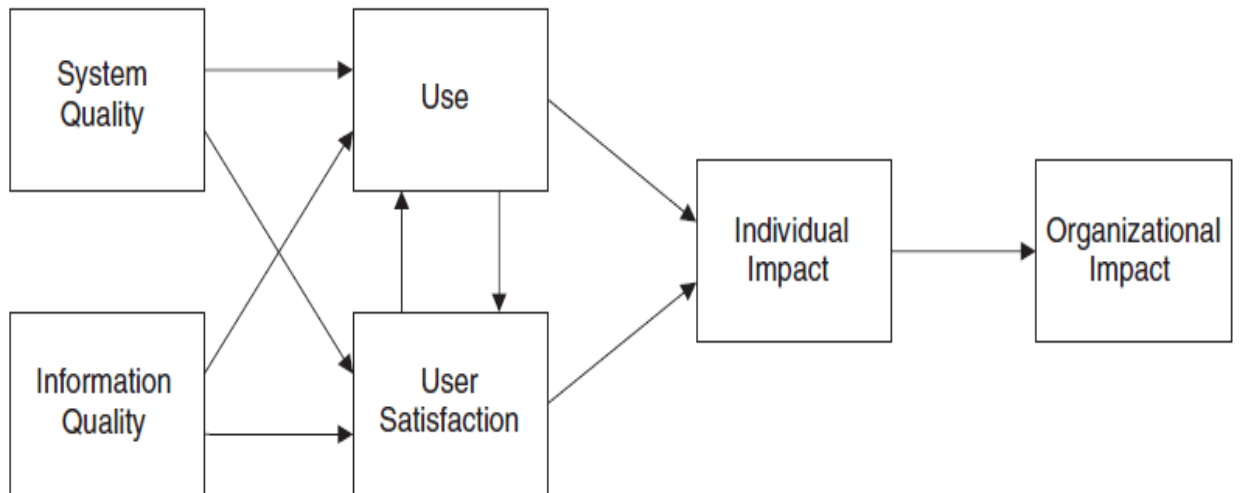
FIGURE 1
THE ORIGINAL INFORMATION SYSTEM SUCCESS MODEL

DeLone and McLean proposed a modified version in 2003 (Figure 2). The updated factors are system, information, and service quality, intention to use, use, user satisfaction, and net benefits (DeLone & McLean, 2004). They added intention to use as an alternative measure of use in order to assess the attitude of the users. Finally, they combined individual and organisational impact into one dimension, named net benefits. This enabled the expansion of their model to cover different contexts.
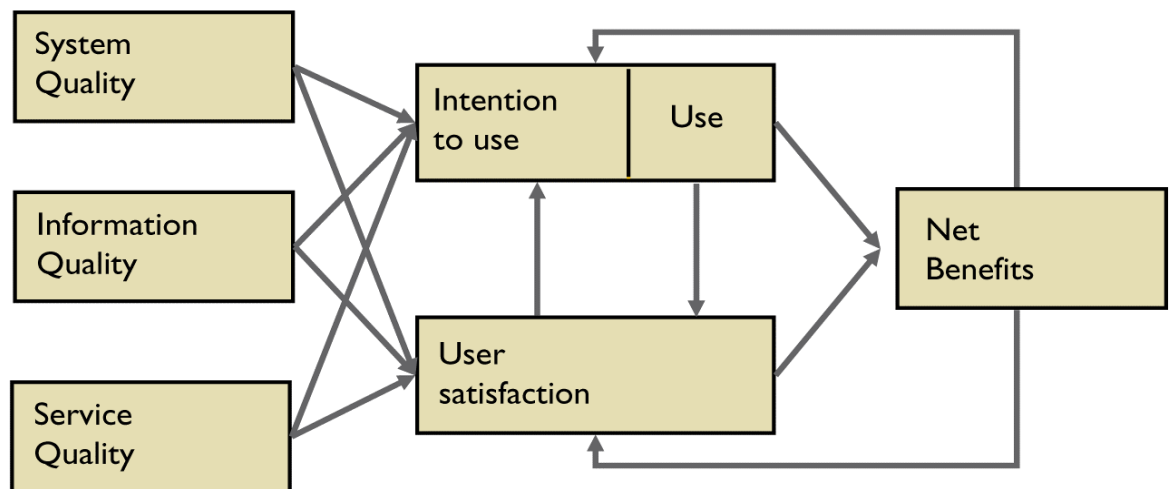

FIGURE 2
THE UPDATED DeLONE AND McLEAN MODEL OF INFORMATION SYSTEMS SUCCESS

The Application of the DeLone and McLean is Success Model in Online Learning

There has been a significant number of studies related to the application of the DeLone and McLean IS success model in online learning. This can be established by conducting a search on any scholarly literature database. Moreover, there has been much research conducted in the field of learning and teaching since the World Health Organization (WHO) announced COVID-19 as a global pandemic in the first quarter of 2020 (Alaghbary, 2021).   One research titled *A Systematic Review of the DeLone and McLean Model of Information Systems Success in an E-Learning Context (2010–2020)* by Sabah at el., (2021) found that 92 researches were related to the DeLone and McLean IS success model in the context of online education and that most studies developed a hybrid/extended model. The most highly investigated area among the selected studies was the success factor of these models.

The results of the study also identify knowledge gaps within the existing studies concerning the application of the DeLone and McLean IS success model in online learning. One significant finding was that the study did not account for the relationships among users and their joint effects on user decisions concerning e-learning-system adoption, utilisation, and success. Consequently, there was no mention of the online learning discipline, for instance, language or STEM related courses. A general blanket fits-all approach was adopted under the huge genre of education.

The Need to Expand the Adaption to Online EFL Higher Education Courses

Efforts to create a hybrid/extended model fall in line with the philosophy of DeLone and McLean, who have encouraged further development of their framework (DeLone & McLean, 2004). Therefore, the objective of the study is to adapt the DeLone and McLean's IS success model and propose a conceptual model by analysing lecturers' perceptions of the implementation of e-learning, evaluating the success of the implementation of e-learning, and analysing the factors that influence the success of e-learning in an online EFL higher education foundation program. Ultimately this study will attempt to summarise information system success into a more coherent body of knowledge and provide guidance for future research.

Epistemology and Ontology

According to Crotty, (2003) epistemology is a way of knowing and clarifying how we know what we know. Crotty also explains that ontology is "the study of being. It is concerned with "what kind of world we are investigating, with the nature of existence, with the structure of reality as such". Adding to that, the ontological assumptions are those that respond to the question 'what is there that can be known?' or 'what is the nature of reality (Guba & Lincolin, 1990).

As an EFL educator, I believe that knowledge can be generated and developed by observing best practices of my colleagues and myself within the field of this study. I believe my approach in this research will best fit my ontological and epistemological values and serve the research questions of this paper as I attempt to study perspectives.

MATERIALS AND METHODOLOGY

Research Participants

The three participants of this study are full-time university lecturers who have more than ten years of teaching experience in higher education and also have a master's degree in English language. All participants are Microsoft Certified Educators (MCE), which underlines that the educators have the global educator technology literacy competencies required to provide a rich, custom learning experience for students by applying 21st-century skills. The Microsoft Certified Educator Program is a professional development program that bridges the gap between technology skills and innovative teaching. Educators holding a Microsoft Certified Educator certification have proved that they have the skills needed to provide rich, customised learning experiences for their students that incorporate critical 21st-century skills using Microsoft tools.

Data Collection Methods

Three open-ended questions were given to the participants in order to stimulate their thoughts regarding the matter their perspectives on the research question of this study. The participants were required to provide answers to the following questions within two weeks. Q1) What are the different aspects of the DeLone and McLean's Model that are applied to the online English foundation program? Q2) What are the gaps within the DeLone and McLean's Model regarding the application to EFL e-learning? Q3) How does being a member of a vCoP benefit the success of the knowledge management system used in the EFL foundation program. All questions serve the aim of this paper, which is to adapt the DeLone and McLean's IS success model and propose a conceptual model for measuring the success of the online course used in the English as a Foreign Language (EFL) foundation program based on the perceptions of the lecturers' who form the virtual Community of Practice (vCoP) within the higher education institute. Following these three initial questions, in-depth interviews were conducted with each participant individually to elaborate further on their answers to these questions. Semi-structured interviews using guide questions based around a set of themes to facilitate the conversation (Cousins, 2008). The interviews were conducted between February and July 2022, while interview questions covered the period from when the shift to online teaching started (February 2020) to the current time, which is June 2022.

Ethical Concerns

As the participants are from the same institution I work in, we followed the rules and regulations regarding the institution's research and publication policy. As there are several ethical positions and concerns to be considered when expressing one's thoughts related to the institution and the program, I made it clear to the participants not to involve any institutional or student data that might cause damage to any party. I also assured the participants that their names would not be used in the publication, and I have stated that clearly in the ethics form. I also made sure that the participants read their part and the entire study before the final submission.

FINDINGS

In general, the findings indicate that the participants, from their perspectives as members of a vCoP, believe that DeLone and McLean's IS success model can be used as an evaluation tool for the knowledge management system used in the EFL foundation higher education program, if adjustments were made to fit pedagogical purposes. The interviewees articulated how the vCoP actually performed in applied contexts and explained the benefits they provide to the students and to the online program. The study revealed that DeLone and McLean's IS success

model can help vCoP members to learn, manage their knowledge online, and effectively evaluate the process if adapted and extended to fit the EFL online course.

Applicability and Integration

In order to use DeLone and McLean's IS success model to measure the success of the English language foundation program, some terminological adaptation was required to make the Model fit for an educational context. The use of vCoP depends on the reliability of knowledge, information, and collaboration among users. Knowledge sharing and individual interaction represent the actual success of the vCoP. Therefore, the factors that affect online knowledge sharing in EFL higher education are based on the success of vCoP. This study proposes the adaptation of specific terminology that is more relevant to the online educational context. This proposition is based on the perspectives gathered from the participants, which can be seen below.

One participant states that an extension of subcategories is needed in order for the model to fit the educational setting by saying: *"The Model shows only the main components on a general level, but I think that there are several subcategories that need to be included depending on the institution it is going to be implemented at. As an EFL professional, it is difficult to use this model as and how it can be applied in our educational setting. It is more suitable for a corporate /client-oriented organisation. However, it is understandable how the flow of the process is applicable but with some adaptation."*

This other participant also believes that there is a need to extend the model in order for it to measure the outcomes of the EFL program by saying the following: *"I think system quality, information quality and service quality can be used in our Foundation program. If we look at the University as an educational system, then definitely our program was designed to add to the system quality. However, the application of DM modal to EFL learning to measure students satisfactory does not take into consideration of choice. Students (due to the pandemic) were forced to take the courses online. The model also focuses on means of sending information rather than on receiving information. It measures how the information is sent but not how well a student receives the information."*

Quality of the Model

Based on the collected perspectives, this study proposes adapting Content Quality instead of information quality from the DeLone and McLean IS success model since the proposed model is about managing educational knowledge. The following participant suggested using the term Digital Content in the adapted model as it better reflects the educational context by saying: *"Although information quality (which I would suggest calling digital content) of the EFL foundation online program was somewhat substandard, it still proved to be effective. The consistency, availability, accuracy, usefulness, and reliability all were applied with poise. The limitation of IQ were related to the level of interaction with digital content by the students in comparison to paper books."*

The need to measure how well the information is received is also an important factor indicated by the participants, as we can see from the following quote: *"In the EFL foundation program, the level of the student (A1 to A2) sometimes hinders the students' ability to make use of the information or online books. The aspects of the DeLone and McLean model does not relate or measure how well students receive this information."*

In addition, Delivery Quality (Teaching online) is to replace service quality in the DeLone and McLean IS success model, as it refers to the overall support delivered by the service provider (DeLone & McLean, 2004). The participant states that: *"The EFL foundation program used Blackboard as its sole LMS platform to deliver classes which although may help with reliability, but its drawback was in the limitation to what a teacher could do in the classroom."*

However, system quality is to be used as is, as it defines the measurement of the information system processing in any IS model which is equally applicable to an online program structure. Nevertheless, system quality in the context of online learning requires the consideration of aspects such as security and accessibility based on the participant's perspective which says:*"As this concerns educational provision, I think that the model should take into account security, particularly when it comes to assessments. By security, I mean that there is no room for collusion - this may be included in system quality."*

The following participant believes that the system quality aspect of the DeLone and McLean's Model is a good measurement for the reliability and accuracy of the online EFL course. This is shown in the quote below: *"The foundation online system was able to achieve many of DeLone and McLean's model system quality. The material provided for the students was easy to access and asynchronous nature of the material made it very space and time convenient. The easy layout of the system eased students' ability to navigate among the material of the same course or shift from one course to another. The online courses were also very sophistic efficient which enhanced its reliability and accuracy."*

Ways that vCoP Benefit the Knowledge Management System

During the course of the study, the data provided by vCoP participants suggest that the online community benefits members by helping them do their jobs better, supporting their learning process, and extending or sharing their knowledge with one another (Stephan, 2022). The lecturers explained how vCoP support their members' learning processes in their interview responses. For example, one participant mentions: *"The foundation program members showed a great readiness to assist students need within a very short time. The online program was committed to providing services and continuous support for both students and lecturers (reliability). Both teachers and students felt a sense of trust in the system as all information maintained a high level of privacy. The method of sharing information and resources, the way all involved were able to ask questions and get answers are all a realistic sense of an effective online educational community."*

Another participant seconds the opinion above and also believes that the overall process of learning was successful based on the DeLone and McLean model: *"Since I'm coming from an educational background, we often look at matter from a pedagogical perspective similar to the learning that goes on in the traditional classroom, and the reality is obviously it is an online program and looking at it from the perspective of DeLone and McLean IS success model, the process is a natural flow that represents the main factors of the online EFL foundation program."*

Drawbacks to the Model

Some participants believed that not all factors of the DeLone and McLean's Model are represented fully when used in an educational context. For instance, collaboration which is an

important 21st-century skill can be limited due to technical limitations such as the absence of a stable internet connection or suitable devices, mainly on the part of the students. Thus, underlining the importance of adding such factors to the success model to better evaluate the online EFL program. Goodhue & Thompson, (1995) adapted utilisation from DeLone and McLean's Model (1992); they state that an information system should be utilised in order to determine performance, but they fail to stipulate how or to what level utilisation must occur. The following participant clearly agrees with the statement above by expressing the downsides of DeLone and McLean model, which lacks the measurements of some aspect of the online EFL program by saying the following: *"DeLone and McLean's Model lacks measuring the cultural background of students. Things like students' interaction with other students in an e-learning environment are extremely important in an EFL classroom. The model does not measure collaboration or motivation. It fails to see the humane side of the student and other than "empathy" no other personal attributes are measured. It may evaluate passive learning of students by measuring tangibles features (time, format, etc) but it does not extend its evaluation to active learning (student's engagement, knowledge application, motivation ,etc)."*

Another participant also adds: *"All aspects of the model apply to the Foundation programme - some more than others. I think the only questionable aspects would be the purpose to use in an educational environment as you would need to identify users (intrinsic) motivation to truly gauge their intention(s)."*

One main factor was that the ultimate aim of any language learning course, whether online or not, is to achieve the course's intended learning outcomes. Only then the net benefits of the program can be measured as we can see from the following opinion: *"I think the only questionable aspects would be intention to use as you would need to identify students' (intrinsic) motivation to truly gauge their intention(s). As for user satisfaction, I believe that this is, more often than not, geared towards the achievement of the course intended learning outcomes for the particular courses being performed online."*

DISCUSSION

The participants' perspectives show that being members of the vCoP helps exchange knowledge and information between educators and students. This study was aimed at exploring the effectiveness of DeLone and McLean's IS success model when used to evaluate knowledge sharing among vCoP members in an online EFL foundation course. It was identified that members were satisfied with the model as a tool to assess the quality of knowledge sharing in an educational context.

However, there is a need to relabel some of the DeLone and McLean's factors to fit the purpose of the language learning program. Other feedback was to redirect some of the factors to measure students' collaboration and also validate online assessment. These combined benefits lead to improved management of the online courses as they facilitate knowledge generation, knowledge classification and organisation, and knowledge transfer throughout organisations (Davenport & Prusak, 2000). Numerous scholars have expanded and refined the original DeLone and McLean model or have offered relevant criticisms (Aparicio at el., 2019). Critics have argued that the 1992 DeLone and McLean's Model requires incorporating more factors than necessary and that suitable alternatives exist (Sabah at el., 2021). As a result of this study, the concept model illustrated below (Figure 3) attempts to measure the success of an EFL online course by adapting and extending DeLone and McLean's updated success model and opening the door for future research to test this model on similar and other disciplines.
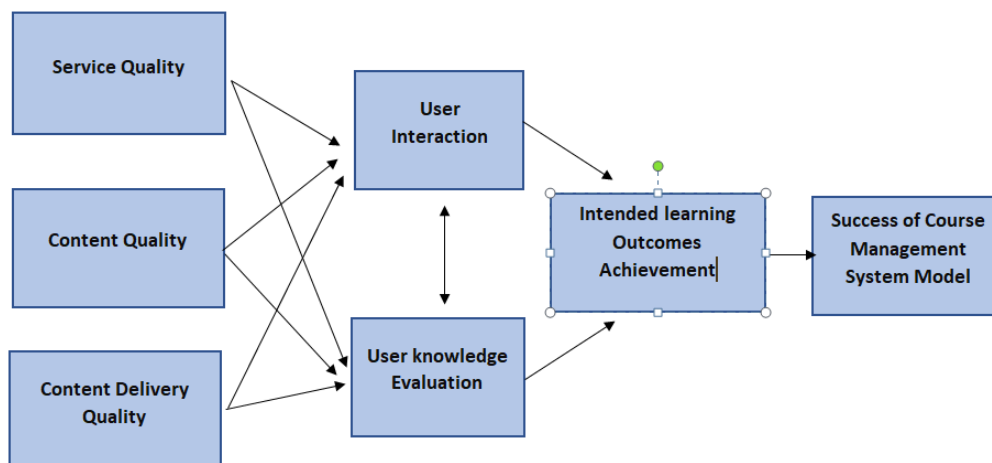
FIGURE 3
THE CONCEPT SUCCESS MODEL BASED ON THE UPDATED DELONE AND MCLEAN MODEL

CONCLUSION

This study was conducted in order to evaluate the success of the course model used in an online EFL foundation program. The current study attempts to adapt and extend the updated DeLone and McLean IS success model to evaluate the online course based on the perceptions of the lecturers who teach the online course. A conclusion that must be emphasised is that online language higher education courses will be the new norm for education as they have proved successful in recent years. In addition, virtual communities of practice will continue to grow and models for knowledge sharing and user interaction will continue to evolve. This study shows that there is a need to adapt models such as the DeLone and McLean Model to fit specific online learning courses nevertheless, EFL language courses and not only the broad genre of education. Future research should investigate the proposed success model in-depth and consider other disciplines. This will benefit education policymaking decision factors, staff and student psychological factors, and logistical educational system design factors.

REFERENCES

Adeyinka, T., & Mutula, S. (2010). A proposed model for evaluating the success of WebCT course content management system. *Computers in Human Behavior*, *26*(6), 1795-1805.

Alaghbary, G. S. (2021). Integrating technology with Bloom's revised taxonomy: Web 2.0-enabled learning designs for online learning. *Asian EFL Journal*, *28*(1), 10-37.

Alie, S. (2022). Organizational Knowledge Network through Community of Practice. *International Journal of Instructional Technology*, *1*(1), 9-16.

Aparicio, M., Oliveira, T., Bacao, F., & Painho, M. (2019). Gamification: A key determinant of massive open online course (MOOC) success. *Information & Management*, *56*(1), 39-54.

Bolisani, E., Fedeli, M., De Marchi, V., & Bierema, L. (2020, October). Together we win: Communities of practice to face the COVID crisis in higher education. In *Proceedings of the 17th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning ICICKM* (pp. 72-80).

Cataldo, C. G. (2009). Cultivating Communities of Practice: A Guide to Managing Knowledge, by Eti-enne Wenger, Richard McDermott, & William M. Snyder. Boston, MA: Harvard Business School Press, 2002. 284 pages, hard cover.

Cousin, G. (2009). *Researching learning in higher education: An introduction to contemporary methods and approaches*. Routledge.

Crotty, M. J. (1998). The foundations of social research: Meaning and perspective in the research process. *The foundations of social research*, 1-256.

Davenport, T. H., & Prusak, L. (1998). *Working knowledge: How organizations manage what they know*. Harvard Business Press.

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information systems research*, *3*(1), 60-95.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of management information systems*, *19*(4), 9-30.

DeLone, W. H., & McLean, E. R. (2004). Measuring e-commerce success: Applying the DeLone & McLean information systems success model. *International Journal of electronic commerce*, *9*(1), 31-47.

Ghamrawi, N. (2022). Teachers' virtual communities of practice: A strong response in times of crisis or just another Fad?. *Education and information technologies*, *27*(5), 5889-5915.

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Sage.

Sabeh, H. N., Husin, M. H., Kee, D. M. H., Baharudin, A. S., & Abdullah, R. (2021). A systematic review of the DeLone and McLean model of information systems success in an E-learning context (2010–2020). *Ieee Access*, *9*, 81210-81235.

Islam, A. N. (2016). E-learning system use and its outcomes: Moderating role of perceived compatibility. *Telematics and Informatics*, *33*(1), 48-55. doi: 10.1016/j.tele.2015.06.010

Riza, E. (2011). Workshop on electronics psychotherapy. *Procedia-Social and Behavioral Sciences*, *30*, 1408-1411.

Sabeh, H. N., Husin, M. H., Kee, D. M. H., Baharudin, A. S., & Abdullah, R. (2021). A systematic review of the DeLone and McLean model of information systems success in an E-learning context (2010–2020). *Ieee Access*, *9*, 81210-81235.

Seddon, P. B. (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information systems research*, *8*(3), 240-253.

Sinclair, P. M., Kable, A., Levett-Jones, T., & Booth, D. (2016). The effectiveness of Internet-based e-learning on clinician behaviour and patient outcomes: a systematic review. *International journal of nursing studies*, *57*, 70-81.

Wenger, E. (1999). *Communities of practice: Learning, meaning, and identity*. Cambridge university press.

Wenger, E. (2000). Communities of practice and social learning systems. *Organization*, *7*(2), 225-246.