

Literature Review of E-Learning Since 2015 - 2020

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ABSTRACT

This paper applies citation analysis from the side of the e-Learning field. By using a systematic approach to literature through the adoption of the methodology used, the analysis is based on citation indexes from relevant journal citation reports related to the e-learning field and the publication period published between 2015 - 2020 from search databases such as Emerald Insight and using a systematic literature review. The analysis is done by using search documentation, using search terms based on relative keywords in the e-learning field, such as by using the words “e-learning”, “obstacles”, “risks”, “impact technology”, “e-learning technology” by using two types of choices “or”, “and” by following and determining the inclusion criteria and exclusion criteria so that the answers to questions related to the citation index of names and journals are published in the Science Citation Index (SCI) Q1 and or SCI Q2. The literature review, especially in the field of e-learning, is expected to assist in determining the citation/list of journal references that will be used as reference material.

Keywords: *E-Learning, Inclusion, Exclusion, Database, SCI.*

1. INTRODUCTION

The development of information and communication technology has achieved significant opportunities for higher education institutions because it has helped quality education in space and distance learning programs[1]. Digital technology has played a role in transforming the changing teaching and learning process to become more digitally proficient in recent years. The global spread of the Covid-19 pandemic[2] changed the education system from traditional teaching methods to online teaching[3]. During the Covid-19 pandemic, online learning affected communication between teachers and students by preferring classes over online due to lack of motivation, understanding of the material[4]. The use of technology in learning, especially electronically conducted to develop and enhance a sense of community of teaching and learning collaboration[5], adopting open online courses motivates learners' intentions[6].

The role of the mentor is to meet the needs in the electronic learning environment by identifying the inhibiting factors for effective e-learning. In the e-learning environment[7] and responses from e-learning users are to

focus on evaluating the effectiveness of e-learning [8]. The use of online learning reveals the success of Delone and McLean's information systems by including self-efficacy constructs for user satisfaction and actual use to predict student performance[9] and to increase student satisfaction with online video presentation methods[10] also determinants of success and acceptance of e-learning students' character, instructor's character, learning environment, instructional design and support[11]. Teachers' perceptions of Web 2.0 and its use to improve student performance in education. Various obstacles impacting the successful implementation of e-learning get the focus of educators and researchers[12] and the factors that shape and influence the use of online design studios during Covid-19 to improve the learning process[13].

1.1 Our Contribution

The contribution of this paper is to help to conduct a literature review in the field of e-Learning, literature reviews from authors and published journals from 2015 – 2020, to find out the results of the literature reviews that have been

analyzed so that they can be used as reference materials based on SCI Q1 or Q2.

1.2 Paper Structure

The paper structure of this paper consists of 4 parts, including point 1 introduction which contains an explanation related to existing research in the field of e-learning. Point 2 background contains an explanation background or previous research. Point 3 research methodology provides general explanations related to data, research flowcharts/research procedures.

2. BACKGROUND

A literature review is one of the supporting parts in writing related specifically to the field of e-Learning and conducting a review of that field. The use of e-learning technology enables a more flexible and comfortable learning process. The e-learning platform can be accessed anywhere, anytime, regardless of the physical location or the presence of the instructor as long as there is an internet connection, such as at home, work, restaurant, or while travelling. E-learning is a viable alternative to a traditional teaching environment where lecturers and students occupy different physical spaces, and e-learning also has an impact on student academic achievement, as seen from the results of good assessments or exams, as well as the positive attitude of students in general. Interesting elements of e-learning enable students to acquire basic skills and competencies and take the initiative to learn more[14]. What people think, believe, and feel influences the way they behave[15].

Teachers are very important in the teaching and learning process in the education system; teacher satisfaction can work well and provide quality education to students[16]. A significant factor is the teacher's decision to maintain his profession or quit due to the uncontrolled workload and lack of teacher satisfaction.

The challenges at hand lead leaders to decide how to create working conditions that maximize staff motivation to perform well according to their roles[17]. The relationship between job stress, fatigue, and teacher turnover has an impact on teacher welfare[18], a sense of ownership, commitment and participation, and the opportunities provided by the Principal to Teachers in schools to be involved in decision making[19]. Leaders enforce direction in the form of regulation, control, or reward/punishment systems[17] while job satisfaction extrinsically includes salary, status, school support, and school administrator, leadership style[20] which are the ultimate goals of the organization, and influence leadership behaviour, work performance, style, adaptation, work motivation, and work success[16]. Transformational leadership is one of the most significant leadership models

in the advancement of education[21]. Effective and efficient the teaching and learning process carried out by the teacher is the quality of the teacher in education, to ensure the quality of teaching needs to be considered referring to behaviour when teaching in a class by providing teaching motivation[22].

Teacher attitudes and practices were measured using the Classroom Assessment Scoring System (CLASS) observation tool in three domain areas: emotional support, classroom organization, and instructional support[23]. Effective teaching leads to purposeful learning by creating a supportive learning environment and continuously evaluating the teaching and learning process to increase its effectiveness[24].

The use of unsuitable teaching materials in every lesson causes the message conveyed by the teacher to be less understood by students. The role of teaching materials will not be seen if their use is not in line with the contents of the learning objectives that have been formulated. If their use does not meet the learning objectives, the teaching materials cannot support a learning process. Without teaching materials, it will be very difficult for teachers to improve the effectiveness of learning, as well as students, without teaching materials it will be very difficult to adjust to learning. The modules used in learning activities have certain components as one of the characteristics of individual learning [25].

During full-time education, student learning is driven by a leader (teacher or parent) such as providing a good home environment and student motivation[26]. The effectiveness of mixed learning may depend on many other factors: student characteristics, design features, and learning outcomes[27].

The use of ICT as a facilitator in learning e-learning enables students to learn and reach broadly by accessing information from outside[28]. Technological developments are the main drivers of various learning models[29], improving learning and teaching with technology addresses the digital divide[30]. Technology online to address organizational leadership challenges in promoting the context of creative learning and team performance[31] also understand the user's perception of the effectiveness of the success factors in the adoption of the use of e-learning[32] and inhibiting factors of organizations in adopting and diffusion of e-learning innovations[33]. Digitally competent people, capable in a constantly changing technology and online environment[34] slow internet and lack of relevant information is also a challenge in the use of online resources[35] to create awareness and encourage higher education institutions in an effort to integrate continuing education into the curriculum, faculty operations [36].

3. RESEARCH METHODS

The research method used to conduct research on journals is by using a Systematic Literature Review (SLR). This research consists of a literature review focusing on related research in the field of e-learning research that reviews peer-reviewed journal articles, books, research papers, general viewers, case studies, conceptual papers, by following the guidelines for conducting a literature review[37][38][39] to get a list of recommendations[40]. The purpose of the review process is planning the review (identifying the need for review, conducting the review, determining research questions, developing a review protocol, evaluating the review protocol), conducting the review (identification of research, selection of primary research, assessment of study quality, data extraction and monitoring, data synthesis) and reporting reviews (determining deployment mechanisms, formatting master reports, evaluating reports)[38].

3.1. Data

The data of journal publication that will be carried out by the systematic review starting from 2015 – 2020 uses a research database in e-learning.

3.2. Process of Sorting Literature

In this study, the literature sorting process was carried out in two steps. The first step is related to the sources of relevant literature articles. A peer-reviewed international journal, all manuscripts are written in English and are peer-reviewed in an open-source manner with a 2015 – 2020 timeline can be shown in table 2. The sources are from relevant and reputable publishers, such as Emerald Insight, IEEE, Science Direct, Springer Link, Google Scholar, and others without distinguishing qualitative research and quantitative research or mixed research, not limited to country of study, level of education, vocational training, organizational and/or company training and according to the needs of the literature from all domains required in this research review which is in English. The terms for e-learning search keywords include technology-based learning, e-learning technology, developing socio-technical frameworks for assessing and evaluating e-learning, e-learning effectiveness measuring e-learning programs and courses, quality e-learning frameworks, ICT-based learning, e-learning technology, and assessing and evaluating e-learning and quality e-learning. It also uses various words such as success factors, success factors, obstacles, obstacles, problems, obstacles, failures. In the second step of the sorting process are review the title, abstract, introduction, and conclusion for each article. Based on the guidelines for conducting a literature review[37].

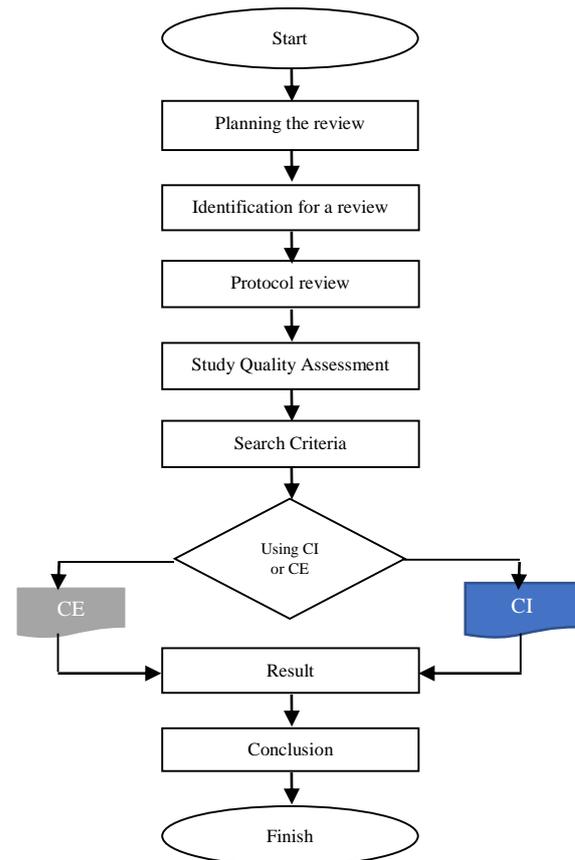


Figure 1. Flow Procedure of Research Methods

Figure 1 describes the flow procedure of research methods start from planning the review covering identification for a review, protocol review, study quality assessment, criteria searching, using inclusion criteria and exclusion criteria. Then the results are obtained, and conclusions are given.

3.3 Planning the Review

Planning the review is done by asking relevant research questions according to the field and research objectives using search strategies, search strings, and inclusion criteria.

3.3.1 Identification for a review

The development of Information and Communication Technology (ICT) has changed higher education. Learning innovation has brought major changes to higher education by providing opportunities for student learning, responsibility, internet use, web applications, social media platforms, mobile applications to be easier and informal[41].

Table 1. List of Research Questions (RQ)

Research Questions (RQ)	
RQ1	: Effect of e-learning technology
RQ2	: Frequency or level of project development factors, such as technology adoption, frequency or success rate, failure, user experience, behaviour
RQ3	: Identify costs and risk factors associated with technology
RQ4	: Identify the impact of technology on model reliability, performance, and cost
RQ5	: Identify the use of software development technology or software applications

Table 1 describes a list of research questions consisting of five research questions (RQ), including RQ1 the effectiveness of e-learning technology, RQ2 the frequency or level of development project factors, RQ3 identification of costs and damage factors related to technology, RQ4 identifying the effects of technology, RQ5 identifies technology software users.

Table 2. Reference according to criteria of Inclusion (I) and criteria Exclusion (E)

RQ	Reference	Total
RQ1	[36], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56]	16
RQ2	[36], [57], [58], [59], [60], [61], [46], [62], [63], [64], [65], [66], [67], [68], [69], [70], [71], [72], [73], [74], [53], [75],[76], [77], [78], [79]	26
RQ3	[80], [81], [47]	3
RQ4	[82], [83], [84]	3
RQ5	[85], [86], [87], [46], [67], [88], [89], [90]	8

Table 2 describes references based on criteria inclusion and criteria exclusion based on a list of research questions with various references and totals. For example RQ1 is 26 total reference, RQ2 is 26 total reference, RQ3 is 3 total reference, RQ4 is total reference is 3, and RQ5 is 8 total reference.

3.3.2 Protocol Review

The study is provided by[37] as a guide to finding resources to be sought to carry out research. For the purpose of this review, the search space determination involved an electronic database is shown in table 3.

Table 3. Document of Search

Source Data	Documentation
Digital Library	Emerald Insight, Springer Link, IEEE, Science Direct, Google Scholar, Link Pages
Language	English
Publication Year	2015 – 2020
Journal search	Journals, conference papers, proceedings
Search applied to	Full text to find papers and followed by search keywords that can be seen in the title, abstract, introduction, conclusion.

Table 3 explains the search for documents including digital library data sources, the availability of database documentation such as emerald insight, the language used when searching for documentation, and the year of publication of the journal for which a literature review will be carried out 2015-2020. It is also what is sought by journal category, proceedings, the application of the search prioritizes full text by first looking at the provisions including the title of the paper if it is not appropriate then proceeds to the abstract, introduction and conclusion of the desired content paper, if it does not match, then do re-election using the same method.

3.3.3 Study Quality Assessment

Based on the guidelines for conducting a literature review, assessment of study quality minimizes bias and maximizes internal and external[37], is the article published in the journal SCI Q1 or Q2?

3.3.4 Criteria of Searching

The searching criteria consist of keywords related to the e-learning field (technology-based learning, e-learning technology, develop socio-technical frameworks for assessing and evaluating e-learning, e-learning effectiveness measuring e-learning programs and courses, quality e-learning frameworks, ICT-based learning, e-learning technology, etc. assessing and evaluating e-learning, quality e-learning. It also uses a combination of various words such as success factors, success factors, obstacles, obstacles, problems, obstacles, failures), furthermore, it can be seen in table 4 regarding the search keys used in the e-learning field with the search string using the word “or” “and.”

Table 4. Keywords by used

Field	String of Searching
e-learning	Barrier OR obstacle Barrier AND obstacle OR risk Technology e-learning Impact Technology OR Reliability

3.3.5 Criteria Inclusion and Exclusion

The presentation of criteria inclusion (I) and criteria exclusion (E) guided the selection process for this article[39]. The inclusion and exclusion criteria can be seen in table 5 which is divided into two criteria, namely the inclusion criteria and exclusion criteria. The inclusion criteria (I) consist of criteria Inclusion 1 (I1) regarding peer reviewer publications. The criteria Inclusion 2 (I2) journals consist searched for using English. The criteria Inclusion 3 (I3) covers of relevant search keys. Criteria Inclusion 4 (I4) regarding journal papers/articles can be based on experience, discussion results, introductions. The criteria Inclusion 5 (I5) regards publications published starting from 2015 – 2020. Meanwhile, criteria Exclusion (E1) regards opinion pieces, comments, references, key notes, foreword and presentation. In collecting data to find out articles published in Q1 or Q2 journals, data taken from each article and entered into can be seen based on the name of the journal as the source and complete reference. Article classification refers to www.scimagojr.com to find out the ranking of journals and www.scopus.com to see the total number of citations of the article, how many studies were used to conduct Systematic Literature Review (SLR).

Table 5. Criteria Inclusion (I) and Exclusion (E)

Criteria	Description
Inclusion 1 (I1)	Publication peer-reviewer
Inclusion 2 (I2)	English Language in the study
Inclusion 3 (I3)	The research relevant to search key
Inclusion 4 (I4)	The articles can be empirical, discussion, introductions
Inclusion 5 (I5)	Publication year 2015 – 2020
Exclusion 1 (E1)	Option pieces, comments, references, keynotes, tutorial, foreword, presentation

4. RESULT

The result/output whether the journal is published in Scientific Citation Indexes (SCI) Q1 or Q2, cite score, and % cited. Table 6 describes the results/outputs of a literature review search based on journals, author names, including the Journal of Applied Research in Higher Education, author[91], with SCI Q1, Cite Score 1.6 and %

Cited 56. This makes it easier to determine the articles that are really needed and used for citations as reference material and references/literature reviews clearly.

Table 6. Result of the journal and author publish

Journal	Author	SCI	Cite Score	% Cited
Journal of Applied Research in Higher Education	[91] [64] [68]	Q1	1.6	56
Information and Learning Science	[35]	Q1	1.8	62
Kybernetes	[73]	Q1	3	65
Journal of Documentation	[34] [59]	Q1	2.8	65
Interactive Technology and Smart Education	[92] [42] [87] [49] [52] [58] [66]	Q1	3	78
Journal Of Enabling Technologies	[85]	Q1	1.3	37
Aslib Journal of Information Management	[93]	Q1	3.3	62
Journal of Engineering, Design and Technology	[47]	Q1	1.8	54
Education & Training	[69]	Q1	3.8	66

5. CONCLUSION

1. The literature review is very necessary as supporting material in conducting research that can be used as a reference;
2. To determine the literature review according to research needs, it is done by using sorting either by search keywords, using search strings, using search criteria (inclusion or exclusion).

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