

The effectiveness of Google Forms in assessing and evaluating online learning outcomes: Meta-analysis study

Andi Abdurrahman Manggaberani^{1*}, Andi Muhammad Darlis²

Universitas Negeri Yogyakarta, Indonesia¹, IAIN Syaikh Abdurrahman Siddik Bangka Belitung, Indonesia²

Email: andiabdurrahman.2021@student.uny.ac.id

*Correspondence

ABSTRACT

Keywords: effectiveness
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The use of Google Forms as a learning tool in certain subjects is massively used in several schools because of its efficiency. This research aims to identify, classify, and observe literature, synthesize several studies that have been carried out, analyze the contributions that have been made, and propose related research updates. This study uses a methodology supported by a research approach, documentation, and procedural models from systematic literature review and data analysis using quantitative and qualitative descriptive analysis techniques. The results of this study show the effectiveness of Google Forms on the assessment and evaluation of student learning outcomes, which from the table has proven that there are 36 studies (90%) that agree that the use of Google Forms has a positive or effective influence on success in assessing and evaluating learning outcomes. This conclusion underscores the importance of digital marketing in the modern technology era. Digital marketing allows businesses to effectively reach global audiences through social media, SEO, and content. In this study, it was seen that a good digital strategy can increase brand awareness and customer loyalty. By utilizing proper data analysis, companies can optimize their digital marketing campaigns for better results. In conclusion, digital marketing is the key to winning the competition in an increasingly competitive market.



Introduction

The development of technology is something that is often discussed by the academic and scientific community in its combination with education, the combination of the two has an important role in developing the knowledge, skills, and attitudes of students. One of the uses of technology or Information, Technology, and Communication (ITC) in the world of education is Google Forms. ITC provides facilities that are easy and accessible to students of various levels of education (Mawardi & Budiningsih, 2023).

There are a small number of studies or studies investigating the effectiveness of Google Forms as a tool in assessing and evaluating learning outcomes, but the average

results of these studies have a small effect because they have a small sample size, according to (Setiawan & Phillipson, 2019) a small research sample size cannot be used to generalize the effects of variables (Google Forms), to address this problem, there is a need for a further research effort investigating the effectiveness of Google Forms as a tool for assessing and evaluating learning outcomes. Meta-analysis studies to develop a better estimate of the magnitude of the Google Forms effect. This meta-analysis study was taken because this study is a type of retrospective observational study where the researcher makes a recapitulation of the data without manipulating it.

(Nurfadillah, 2023) PT. Mulia Karya Inovasi said that Google Forms is a product of many Google products. It is an application for creating web-based forms and collecting answers online. Google Forms allows users to create online forms to enter data, such as surveys, questionnaires, questionnaires, or sign-up form sheets. Google Forms can create and send surveys or questionnaires to students or others, and can also collect such information easily and efficiently. Google Forms also has an auto-correction feature that can score the answers to questions in the questionnaire. This feature makes the questionnaire in Google Forms a supporting tool for learning process activities.

During the COVID-19 pandemic, learning and teaching activities can only be carried out online. The use of Google Forms as a learning tool in certain subjects is massively used in several schools because of its efficiency. The use of Google Forms in learning activities provides impact and benefits in terms of effectiveness, efficiency, attractiveness, and display design. For teachers, it is very helpful to have a Google Form in terms of cost, time, and energy. The students themselves, become more interested, enthusiastic, and active and do not become negative.

It is undeniable that Google Forms itself has its drawbacks, according to (Karaman, 2011) the lack of supervision from the instructor indicates that students can easily cheat in answering quiz questions, there are several ways to minimize this action by giving time limits to students in answering each question item. Another thing that must be taken into account by the test maker is that the availability of a stable internet connection also needs to be taken into account.

In recent years there has been a considerable increase in various research related to the competencies that future teachers must achieve to utilize ICT in teaching There is no doubt that technology is changing the purpose and direction of education (Van de Oudeweetering & Voogt, 2018). However, it should be noted that this study aims to identify, classify, and observe the literature, to be able to synthesize some of the research that has been carried out, analyze the contributions that have been made, and propose related research updates. In this sense, this systematic review study has the main objective of identifying the main themes and contributions that have been reported in scientific articles on the use of Google Forms in the period 2017-2022. This research focuses on the assessment and evaluation of learning outcomes using Google Forms.

Method

The study uses a methodology supported by a documentation research approach and a procedural model of a systematic literature review with topics that are appropriate to the effectiveness of Google Forms in the assessment and evaluation of learning outcomes. In this study, we will examine the effectiveness of Google Forms in learning outcome assessment and evaluation of learning outcomes. Article eligibility criteria. Data analysis uses quantitative and qualitative descriptive analysis techniques. After the focus of the research becomes clear, a simple research instrument will be developed, which is expected to complement the data and compare the data that has been found previously.

The data collection technique will use documentation techniques. The population in this study is all written documents regarding research that examines the use of Google Forms in the assessment and evaluation of learning outcomes in journals published by Garba Rujukan Digital (GARUDA). The written documents are in the form of 177 journal articles and after being selected only 40 articles meet the criteria. The research sample was taken using the Purposive Sampling technique. This is because the data or information to be obtained from the sample is determined based on its suitability to the theme of this research. The data analysis used is quantitative data analysis with percentages and qualitative data analysis for the data from the narrative study of the research encountered. Articles that will be involved in research are articles from research that have the following criteria: 1) Articles published in the last 5 years; 2) Publication of articles indexed in Garuda journals; 3) The research variable is cognitive. Affective and psychomotor domains; 4) The research population is elementary, junior high school, and high school, students and educators. There were 177 articles found initially related to Assessment and evaluation using Google Forms. The articles were filtered and finally, 40 articles were selected that were eligible for analysis.

Table 1
The background information of reviewed articles

It	Authors	Publication Language	Country
1	(Agustin Anggi et al., 2017)	Indonesian	Indonesian
2	(D. Setiawan & Hasymi Somaída, 2021)	Indonesian	Indonesian
3	(Badi'atul Azmina et al., 2017)	English	Indonesian
4	(Nugroho, 2018)	Indonesian	Indonesian
5	(Radyuli et al., 2019)	Indonesian	Indonesian
6	(Amalia, 2019)	Indonesian	Indonesian
7	(Prabaningtias, 2018)	Indonesian	Indonesian
8	(Maulidiansyah, 2018)	Indonesian	Indonesian
9	(Kholis et al., 2020)	Arabic	Indonesian
10	(Thohir & Muslimah, 2020)	English	Indonesian
11	(Azis & Shalihah, 2020)	Indonesian	Indonesian
12	(Hadianti et al., 2021)	English	Indonesian

13	(Gusvita et al., 2020)	Indonesian	Indonesian
14	(Munawaroh et al., 2021)	Indonesian	Indonesian
15	(Hakim's & Safi'i, 2021)	Indonesian	Indonesian
16	(Rahmadi, 2021)	English	Indonesian
17	(Hanafiah et al., 2020)	English	Indonesian
18	(Hariono et al., 2021)	Indonesian	Indonesian
19	(Nashrullah, 2021)	Indonesian	Indonesian
20	(Bafadal & Triansyah, 2020)	Indonesian	Indonesian
21	(Abdin et al., 2021)	Indonesian	Indonesian
22	(Masrur, 2020)	Indonesian	Indonesian
23	(Aryanti, 2021)	Indonesian	Indonesian
24	(Rohimat, 2021)	Indonesian	Indonesian
25	(Nainggolan & Rohman, 2021)	Indonesian	Indonesian
26	(Tausih & Marno, 2021)	Indonesian	Indonesian
27	(Utami, 2021)	Indonesian	Indonesian
28	(Nofitasari & Ahsani, 2020)	Indonesian	Indonesian
29	(Marifa et al., 2021)	Indonesian	Indonesian
30	(Ngafifah, 2020)	Indonesian	Indonesian
31	(Sibua & Amiroh, 2021)	Indonesian	Indonesian
32	(Nst et al., 2021)	Indonesian	Indonesian
33	(Krisnawati, 2018)	Indonesian	Indonesian
34	(Sahlani & Agung, 2020)	Indonesian	Indonesian
35	(Karollina et al., 2021)	Indonesian	Indonesian
36	(Sumbawa et al., 2022)	Indonesian	Indonesian
37	(Anggraeni, 2022)	Indonesian	Indonesian
38	(Rinaldi et al., 2022)	English	Indonesian
39	(Homework et al., 2021)	English	Indonesian
40	(Ardiansyah, 2020)	Indonesian	Indonesian

A total of 177 journals that published about the use of Google Forms as a tool in assessing and evaluating learning outcomes at GARUDA were taken. After being selected for the suitability for this research, 40 previous research journals apply Google Forms. According to the data in the research journal, almost all research journal publications use Indonesian, although 7 studies use English and 1 study uses Arabic as the publication language of the research journal. And the entirety of the research journals are carried out in Indonesia.

Results and Discussion

The study found that publications about the use of Google Forms in research have increased in recent years. This systematic review was carried out during the period between 2017 and 2022. The highest number of publications was found between 2020 and 2021. In this sense, the possibility of using Google Forms that year increased due to the Covid 19 pandemic which implemented learning and teaching activities have to be online.

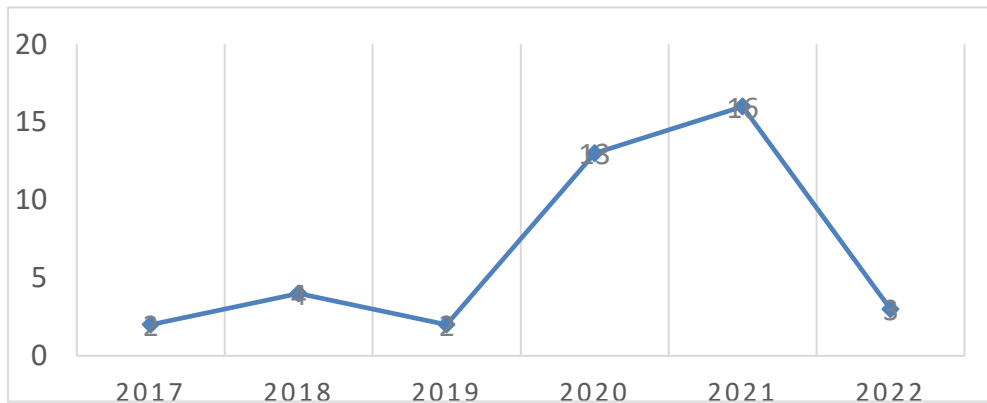


Figure 1 Number of publications on the effectiveness of using Google Forms in assessment and evaluation

The following is an analysis and search of several bibliometrics from GARUDA that researches Google forms and categories that are generally related followed by Online Learning Assessment, Evaluation, and Assessment Instruments.

Table 2
Bibliometrik berdasarkan kata kunci

No	Keyword	Frequency	Presented
1	Online learning assessment	12	30%
2	Evaluation	10	25%
3	Assessment instruments	4	10%
4	Effectiveness	3	8%
5	Application	2	5%
6	Development of Four Tier Diagnostic Test	2	5%
7	Efficiency of Daily Test	1	3%
8	E-Learning	1	3%
9	Learning independence	1	3%
10	Mobile Based Assessment	1	3%
11	Inquiry Learning Model	1	3%
12	Daily repetition development	1	3%
13	Self-assessment	1	3%
	sum	40	100%

Meta-Analysis Based on Research Objectives

The objectives of the assessment and evaluation of learning outcomes using Google Forms include: investigating, describing, and developing and improving. Based on a study of 40 E-journal articles, the following data can be produced in the following table 3:

Table 3
Research objectives in the assessment and evaluation of learning outcomes using Google Forms

No	Research objectives	Frequency	Presented
1	investigation	18	45%
2	Describe	16	40%
3	Develop & improve	6	5%
	sum	40	100%

Meta-analysis by population/sample

The population/sample used in the research on the assessment and evaluation of learning outcomes using Google Forms which is the subject of the research is from various circles from elementary education to higher education from several schools and universities, but some do not take samples because the journals published are only in the form of literature analysis. Based on a study of 40 E-journals on the assessment and evaluation of learning outcomes using Google Forms, the people who were used as a population/sample can be seen in Table 4.

Table 4
Population / Sample in the assessment and evaluation of learning outcomes using Google Forms

No	Population / Sample	Frequency	Presented
1	SMP	12	30%
2	Student	7	18%
3	SMA	6	15%
4	SD	5	13%
5	Guru	4	10%
6	Teachers & Students	3	8%
7	None	3	8%
	sum	40	100%

Based on Table 4, the population/sample in this reviewed article mostly uses junior high school children (SMP) in literature study research, there are 12 studies (30%). The application of research using research subjects at the junior high school level is widely applied because of the ease of controlling research subjects. In the research subjects at the junior high school level, respondents can easily follow instructions.

Meta-analysis based on research methodology and design.

Table 5
Methodology/Design in assessment and evaluation of learning outcomes using Google Forms

No	Methodologies/Design	Frequency	Presentable
1	Qualitative Descriptive	21	52,5%
2	R&D	7	17,5%
3	Quantitative Descriptive	2	5%
4	Quasi Experimental	2	5%
5	survey	2	5%
6	Kuantitatif (Experiment)	1	2,5%

7	Evaluative	1	2,5%
8	Classroom Action Research (PTK)	1	2,5%
9	Pre Eksperimental (one-shot case study)	1	2,5%
10	Quantitative	1	2,5%
11	Mix Method	1	2,5%
	sum	40	100%

Analyzing the methodology and design of the research that has been used, Table 5 provides information about the use of methodology and design in a very formative article. From the initial review, it can be seen that 52.5% of the articles used qualitative descriptive research, this indicates that half of the articles used qualitative descriptive research. Then followed by Research & Development (R&D) 17.5%.

Meta-analysis of assessment and evaluation research results using Google Forms

Table 6
Hasil penelitian dalam penelitian penilaian dan evaluasi hasil belajar menggunakan Google Forms

N	The results of assessment and evaluation research using Google forms	Frequency	Presented
Positive			
1	Effective	17	42,5%
2	Usable	6	15%
3	Recommended	6	15%
4	Effective & High Interest	1	2,5%
5	Effective & smooth	1	2,5%
6	Positive influence	1	2,5%
7	Highly effective	1	2,5%
8	Very practical	1	2,5%
9	There is a significant influence	1	2,5%
10	useful	1	2,5%
Negative			
11	enough	1	2,5%
12	Not effective enough	1	2,5%
13	Not yet maximum	1	2,5%
14	Less effective	1	2,5%
	sum	40	100%

Tabel 6 has answered this research question about whether there is an influence of the application of Google Forms in assessment and evaluation activities. The results of this study can be seen in the effectiveness of Google Forms on the assessment and evaluation of student learning outcomes, which from the table has proven that there are 36 studies (90%) that agree that the use of Google Forms has a positive or effective influence on success in assessing and evaluating learning outcomes. Meanwhile, 4 other studies (10%) stated that the use of Google Forms is still less effective.

Conclusion

The use of Google Forms as a learning medium has been well designed, and this media will play an effective role in analyzing the results of student grades and also an educational tool for students and educators (audiences). Then it makes it easier for educators to carry out learning and assessment activities. With its appearance and use that is quite simple and flexible, it can make students interested so that it helps students understand the learning material presented. The flexibility is that it can be opened anywhere they want, of course by using their gadgets. So that it can improve learning outcomes for students. However, there are still often weaknesses in the use of this tool, namely difficulties in accessing the internet and other problems that are often experienced by students. It's a good idea before using the Google form tool, educators must ensure that their students can use this tool in terms of its use and access to minimize students who cannot use and run this Google form tool. The results of this meta-analysis research like the results of other meta-analysis research have several limitations. First, the article is only sourced from GARUDA which is a scientific paper based in Indonesia that replicates if this meta-analytical study uses articles that are only relevant in Indonesia. Secondly, this meta-analysis study is a synthesis of various kinds of nature research and is not systematically the same as other studies, therefore, it cannot guarantee strong conclusions. Third, the overall findings of the meta-analysis are often limited by the quality of the main studies. Third, cultural influences, including various ethnic backgrounds, are neglected.

Regarding the recommendations for research, from a perspective to advance the development of new studies with a mixed methodological approach that provides scientific knowledge, it is necessary to understand more holistically, the reality, limitations, challenges, and trends regarding the evolution of the use of ITC i.e. Google Forms in the process of learning and teaching activities in the context of assessment and evaluation of learning outcomes and, at the same time, investigated studies related to ITC and Google Forms, based on the context in which they were found. Other factors relevant for the development of future studies include the opportunity to strategically analyze the strengths, weaknesses, setbacks, and opportunities that higher education institutions present in their educational models, with their pedagogical and technological innovation processes, in the face of contemporary challenges of teacher training. Curriculum management, technological facilities, and educational innovation strategies in social technology education.

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