



CONTENT ANALYSIS OF ARTICLES THAT RELATED TO THE USE OF GOOGLE CLASSROOM AND GAMIFICATION IN EDUCATION FROM 2016 TO 2020

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Abstract

Today's learning and teaching process differ from the past, as the student becomes the focus of the educational process. Therefore, teachers need to be able to use technology incorrectly, technology integration into education is helpful, meaningful, and necessary. This study purposes to perform a content analysis to define the general framework of studies related to the use of google classroom and gamification in education. The sample of the research consists of articles published on google classroom and gamification in education between 2016 - 2020, the data obtained were analyzed using descriptive statistical methods, namely percentage and frequency. The findings indicated that the number of studies that discuss the use of google classroom and gamification in education should be increased, and this will lead to shedding light on future studies.

Keywords: Google classroom, gamification, education.

1. Introduction

Advances in technology in education open up several opportunities to create creative thinking and innovative learning as well as new relationships between students and their teachers, and the effective learning tool must be appropriate to the needs of learners and be designed to develop minds, improve the activity of learners (Pritasari & Jumadi, 2018).

Integrating technology in the classroom through innovative teaching strategies is significant, as it enables students to achieve the required learning objectives, as well as increase their engagement, it works to enhance the teaching and learning process, helps students to learn modern technology skills that make them more excited to learn, thus improving student's performance (Raja & Nagasubramani, 2018). And well preparation is one of the major factors in the success of teaching and learning that based on technology, to get the best results in the education process (Lestari & Chasanatun, 2018).

Distance education is defined as education in which educational materials are implemented through technology and communication systems, where educators and learners are separated, it has been used by schools and universities around the world, and have had successful experiences and positive trends, and teachers must be fully prepared to work with technology, like using google classroom and gamification into education (Buselic, 2017).

Google classroom is one of the applications that integrate the usage of technology with internet-based development (Pardeshi & Alliwadi, 2015), is a learning management system that offers to teach, creates and delivers content, supervises the participation of students, also

evaluates their achievement (Nair, Patil & Mertova 2011), is a free web-based platform, and it was integrated with education, one of the best advantages is that classroom is completely integrated with all other Google applications, consequently, students and teachers can share information instantaneously (Thanavathi, 2019).

Google classroom is to offer a platform of blended learning, to simplify the assignments, there are many advantages provided by google classroom, make easier for teachers to implement learning activities inside and outside the classroom, provide students with accessibility, increases student's interaction (Sukmawati & Nensia, 2019).

The objective of google classroom is to simplify paperless communication between educators and learners, and facilitate the educational process, allow teachers to be able to conduct classes, organize seminars, post assignments, create the folder and submit activities at a specific time. In addition to saving paper and time, making it easy to conduct classes, distribute assignments, communicate, and stay organized (Azhar & Iqbal, 2018).

Gamification is the application of the elements of the game to learning activities, that is, it is a mix between playing and learning, which encourages students to play an active role in learning, thus enhancing significant skills in education, such as problem-solving, cooperation and communication, and increasing students participation in projects and learning activities. Many teachers that gamification will not only increase students' stimulation to learn but also make involvement in the work of school more efficient and meaningful (de Marcos, 2017).

Cakıroglu, Basıbüyük, Güler, Atabay and Memis (2017) examined the impacts of gamification on student participation, also the relationship between gamification and academic achievement of 37 students in an information and communication course, the findings showed that there improved student attitude, participation, and their achievement.

Based on these findings, it is observed that the use of google classroom and gamification in education supports the learning approaches, and the appropriate use of technology in the classroom helps to motivate students towards learning in all disciplines, and access information easily. The study aims to analyze the studies using google classroom and gamification in education according to specific variables and to shed light on future studies and researchers.

1.1. The aim of the study

The rapid advancements in knowledge and information technologies were led to new tendencies in learning and teaching process, so, the purpose of this study is to accumulate and analyze articles related to using google classroom and gamification in education, and that has been carried out from 2016 to 2020, to identify the similar objectives and topics.

1.2. The aim of the study

The following study questions have been determined:

- How have the studies related to the using of google classroom in education been distributed according to the year of publication?
- How have the studies related to the using of google classroom in education been distributed according to the number of authors?
- Which methodologies were adopted in the studies related to google classroom in education?
- Which disciplines were adopted in the studies related to google classroom in education?

- How have the studies related to the using of gamification in education been distributed according to the year of publication?
- How have the studies related to the using of gamification in education been distributed according to the number of authors?
- Which methodologies were adopted in the studies related to using gamification in education?
- Which disciplines were adopted in the studies related to using gamification in education?

2. Method

This study utilizes the content analysis method, which is a set of procedures for examining trends, patterns in documents for collecting and organizing information in a standardized format (Majhi, Jal & Maharana, 2016). It is considered a reference source includes description and explanation related to the articles that use google classroom and gamification in education, content analysis refers to analyzing articles that contain similar themes about using google classroom and gamification in education from where methodology, disciplines, number of authors, besides, the year of publication.

2.1. Scanning Criteria

The main criteria used to identify which articles were analyzed are: studies that discussed the use of google classroom and gamification in education, and only studies performed from 2016 to 2020, the keywords of studies were google classroom and gamification, to find the relevant articles, there were some articles excluded from the scope of this study, were found 50 articles. The articles were examined in terms of publication years, disciplines, methodologies, and the number of authors.

2.2. Sample

The sample of the study has consisted of published articles that discuss using google classroom and gamification in education, performed between 2016 and 2020, and 50 articles were found. 30 articles related to using google classroom and 20 articles related to gamification in education were evaluated, are appropriate for the determined criteria.

2.2. Data collection and analysis

The data obtained that related to the study were collected, analyzed, interpreted using descriptive statistical methods, in an organized way, the data was calculated by percentages depending on the frequencies.

Tables were prepared to present the themes concerning each research question, where 8 tables were created on 4topics, and these topics are according to the year of publication, number of authors, disciplines, and methodologies.

3. Findings

3.1. The findings of studies related to using google classroom in education

The data presents the results and discussions according to study questions, there were 50 articles about using google classroom and gamification in education from 2016 to 2020.

The first study question was answered by showing the frequency and percentage of the studies related to using google classroom in education according to the year of publication by table (1).

Table 1. Studies related to the year of publication

Related to the year of publication	Frequency	Percentage
2016	3	10%
2017	4	13%
2018	8	27%
2019	9	30%
2020	6	20%
Total	30	100%

Concerning analyze the studies according to the year of publication, it can be seen that 30% of them are in 2019, 20% of them are in 2020, 27% in 2018, 13% in 2017, and 10% of them are in 2016. The highest number of publications was in 2019. The number of publications related to using gamification in education appears to have decreased in 2020 due to the Coronavirus which spread during this period. As can be seen in figure (1).

Year of Publication

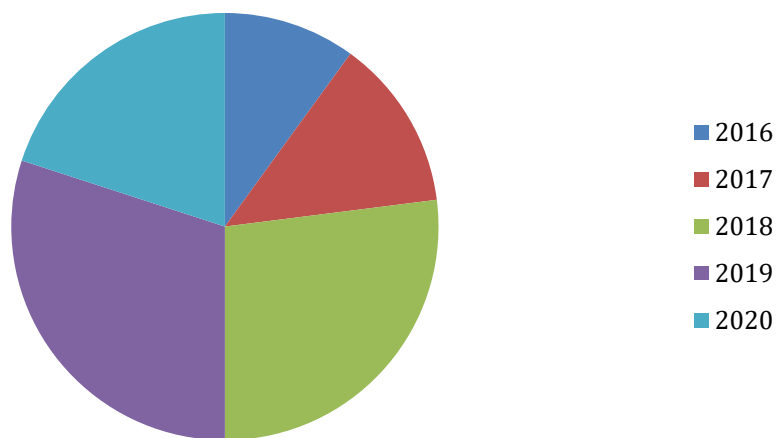


Figure 1. Year of Publication

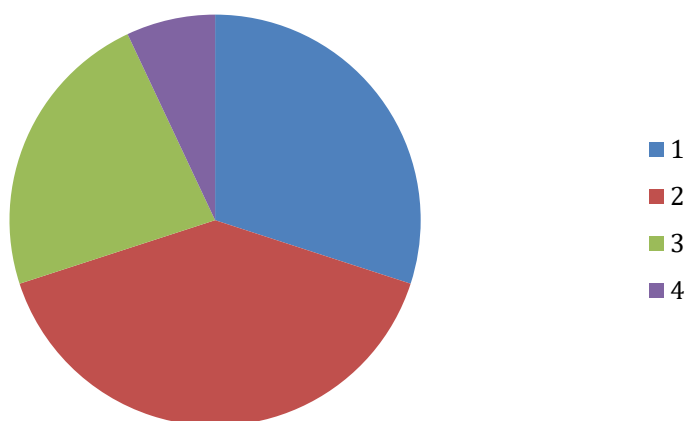
The second study question was answered by showing the frequency and percentage of the studies related to using google classroom in education according to the number of authors by table (2).

Table 2. Studies related to the number of authors

Related to the number of authors	Frequency	Percentage
1	9	30%
2	12	40%
3	7	23%
4	2	7%
Total	30	100%

Concerning analyze the studies according to the number of authors, it can be seen that the percentage of articles that have two authors was 40%, it was the highest percentage, followed by articles that have a single author, with 30%. The articles that have three authors, was their percentage 23%, and finally, the articles that have four authors, was their percentage %7, it was the lowest percentage. As can be seen in figure (2).

Number of Authors

**Figure 2.** Number of Authors

The third study question was answered by showing the frequency and percentage of the studies related to using google classroom in education according to the methodologies by table (3).

Table 3. Related to the methodologies

Related to the methodologies	Frequency	Percentage
Quantitative	18	60%
Qualitative	8	27%
Mixed	4	13%
Total	30	100%

As can be seen in the table (3), the quantitative research approach was used in the most often in studies, and the mixed research was less used, it was observed that quantitative research design was used more than the qualitative research design, also the mixed, this means that the quantitative and qualitative approach was used together. The research methodologies followed in the studies that related to using google classroom in education, demonstrates that the majority of them are quantitative, was 60%, and the qualitative approach percentage was 27%, while the percentage of them was 13% mixed-method studies. As can be seen in figure (3).

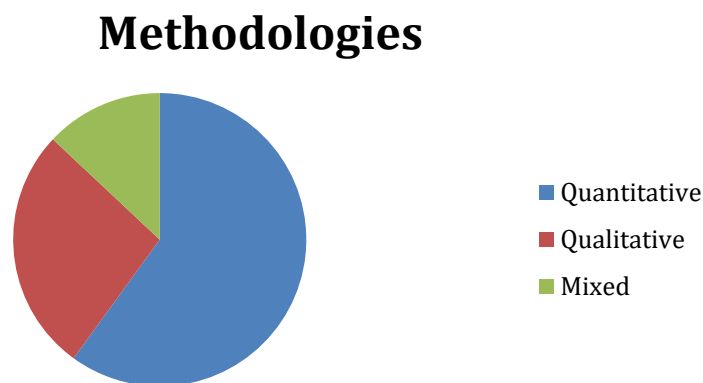


Figure 3. Methodologies

The fourth study question was answered by showing the frequency and percentage of the studies related to using google classroom in education according to the disciplines by table (4).

Table 4. Studies related to the disciplines

Related to the disciplines	Frequency	Percentage
Sciences	5	17%
Language	10	33%
Educational Sciences	10	33%
Information Technologies	3	10%
Informatics Engineering Education	1	3%
Geography	1	3%
Total	30	100%

As for using google classroom in education, the studies include 6 different disciplines, the majority of disciplines were in two fields: educational sciences and language, with 33%, followed by science with 17%. As for studies containing the following disciplines: information technology with 10%, and geography, informatics engineering education, the percentage of each discipline was 3%. As can be seen in figure (4).

Disciplines

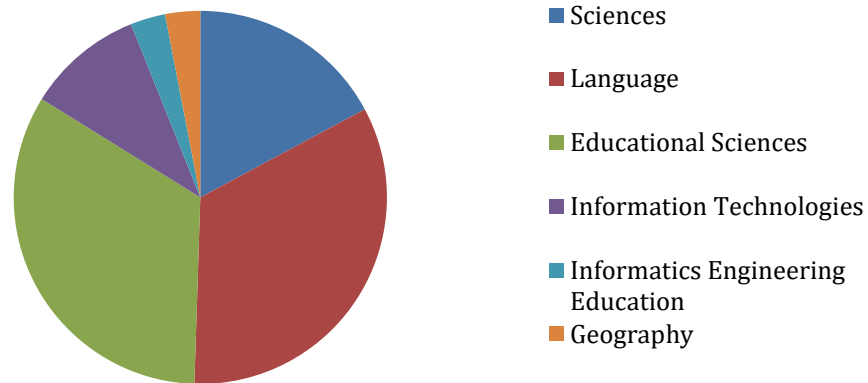


Figure 4. Disciplines

The fifth study question was answered by showing the frequency and percentage of the studies related to using gamification in education according to the year of publication by table (5).

Table 5. Studies related to the year of publication

Related to the year of publication	Frequency	Percentage
2016	2	10%
2017	2	10%
2018	5	25%
2019	7	35%
2020	4	20%
Total	20	100%

About analyzing the studies according to the year of publication, it is obvious that 35% of them are in 2019, 25% of them are in 2018, 20% in 2020, 10% in 2017, and 10% of them are in 2016. The highest number of publications was in 2019, the lowest number of publications was in 2016 and 2017. As can be seen in figure (5).

Year of Publication

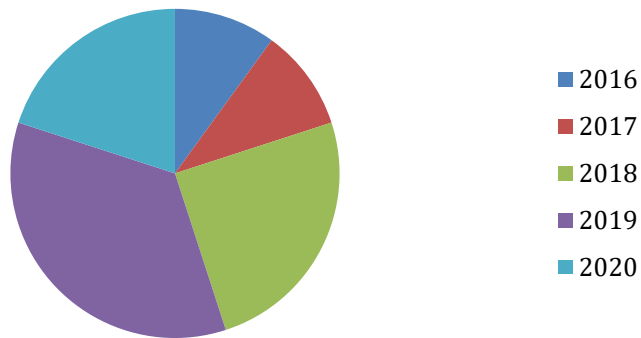


Figure 5. Year of Publication

The sixth study question was answered by showing the frequency and percentage of the studies related to using gamification in education according to the year of publication by table (6).

Table 6. Studies related to the number of authors

Related to the number of authors	Frequency	Percentage
1	6	30%
2	4	20%
3	10	50%
4	0	0%
Total	20	100%

Concerning analyze the studies according to the number of authors, it is clear that the percentage of articles that have three authors was 50%, it was the highest percentage, followed by articles that have a single author with 30% and two authors with 20%. As can be seen in figure (6).

Number of Authors

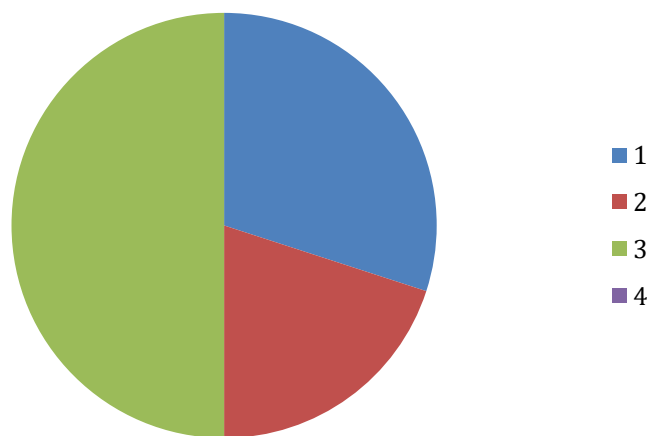


Figure 6. Number of Authors

The seventh study question was answered by showing the frequency and percentage of the studies related to using gamification in education according to the methodologies by table (7).

Table 7. Studies related to the methodologies

Related to the methodologies	Frequency	Percentage
Quantitative	5	25%
Qualitative	12	60%
Mixed	3	15%
Total	20	100%

As can be seen in the table (7), the qualitative research approach was used in the most often in studies, and the mixed research was less used, it was observed that qualitative research design was used more than the quantitative research design, also the mixed, this means that the quantitative and qualitative approach was used together. The research methodologies followed in the studies that related to using gamification in education, demonstrate that the majority of them are qualitative, was 60%, and the quantitative approach percentage was 25%, while the percentage of them was 15% mixed-method studies. As can be seen in figure (7).

Methodologies

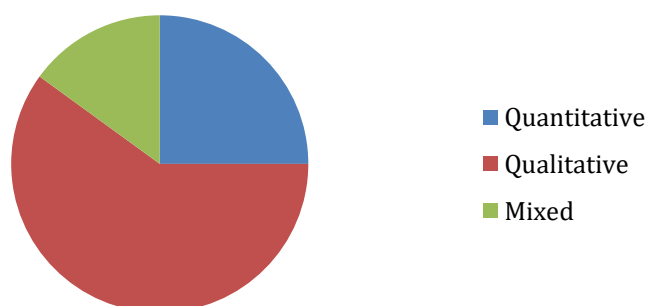


Figure 7. Methodologies

The eighth study question was answered by showing the frequency and percentage of the studies related to using gamification in education according to the disciplines by table (8).

Table 8. Studies related to the disciplines

Related to the disciplines	Frequency	Percentage
Information Technologies	4	20%
Educational Sciences	12	60%
Language	2	10%
Psychology	2	10%
Total	20	100%

As for using gamification in education, the studies include 4 different disciplines, the majority of disciplines were in the field of education science, with 60%, followed by information technologies with 20%, and language, psychology the percentage of each discipline was 10%. As can be seen in figure (8).

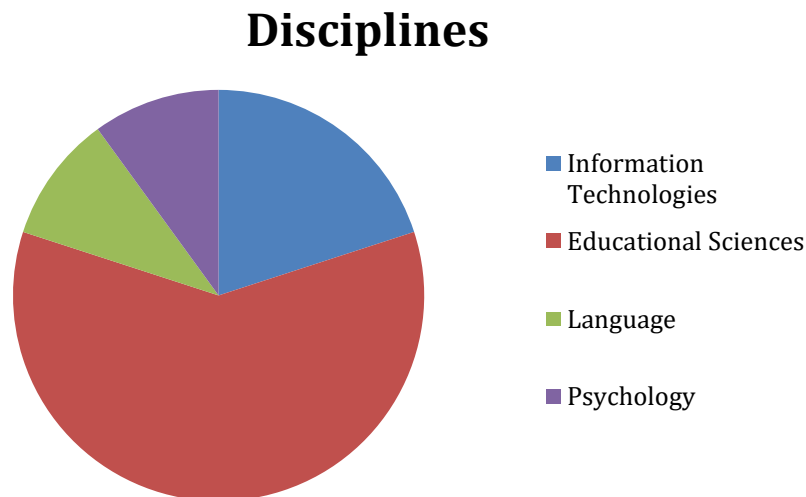


Figure 8. Disciplines

4. Results and Discussion

The integration of technology into education offers an effective educational environment that stimulated the deep discussions, also teachers to rethink their pedagogical strategies (Cloete, 2017).

When the distribution of studies using google classroom in education was analyzed from 2016 to 2020, the highest rate of the study was seen as 30% in 2019. The content analysis was consistent with the results of previous studies, as a study by Azhar and Iqbal (2018) that showed that using google classroom in education will increase over the years. When the distribution of studies using gamification in education was analyzed, it is seen that the highest number of studies was conducted in 2019 with 35%, Bozkurt and Durak (2018) confirms that the use of gamification in education started to increase since 2010 and keep increasing, so the articles related to using gamification in education showed a significant increase. As well as the study of Thiebes, Lins, and Basten (2014) that revealed that 29 articles were published between 2010 and 2013 related to the use of gamification in education, as well as Dicheva, Dichev, Agre and Angelova (2015) that showed that 34 articles were published between 2011 and 2014 related to the use of gamification in education. Besides, the study of Subhash and Cudney (2018) that showed that there is an increase in the use of gamification in learning.

The findings obtained from the articles related to the use of google classroom and gamification in education are different, according to the number of authors, it is clear that the percentage of articles that related to using google classroom in education that has 2 authors was 40% and it was the maximum percentage. When percentage the number of authors was examined in the articles related to using of gamification in education, that have 3 authors,

was 50% and it was the maximum percentage, which is consistent with the study of Subhash and Cudney (2018) that showed that the highest percentage of articles, that have 3 authors.

The quantitative research approach was used in the most often in studies that related to the use of google classroom in education and has been generally preferred, the quantitative approach percentage was 60% and it was the maximum percentage and the qualitative approach with 27%. While in the articles related to the use the gamification in education demonstrates that the majority of them are qualitative approach with 60%, and the quantitative approach with 25%, which is consistent with the study of Surendeleg (2014) that said the most used of methodologies were qualitative and is contrary to study of Hamari, Koivisto, and Sarsa (2014) that mentioned that the most employed methodologies were quantitative, and as well as the study of Schlagenhauser and Amberg (2015). As for the articles related to the use of google classroom in education, the studies include 6 different disciplines, the majority of disciplines were in two fields: educational sciences and language, with 33%, it was the maximum percentage. While the articles related to the use gamification in education, the studies include 4 different disciplines, the majority of disciplines were in the field of educational Sciences, with 60%, it was the maximum percentage, which is consistent with the study of Darejeh and Salim (2016) that mentioned that most of the studies focused on educational and social software, and is contrary to study of Ortiz, Chiluzza, and Valcke (2016) that said that the studies focused on computer science, while math, chemistry, and science had a minor presence. In addition, the study of Seaborn and Fels (2015) confirmed that gamification is a multidisciplinary field, that is related to many fields such as education, health, sustainability, computer science and engineering, marketing.

5. Conclusion

This study revealed that how the studies related to the use of google classroom and gamification in education were distributed according to the year of publication and number of authors from 2016 to 2020. It is showed the highest number of the publications were in 2019 and 2018, as well as the maximum number of authors, were 2 and 3. The most used methodologies are quantitative in the studies related to the use of google classroom in education and qualitative in the studies related to the use of gamification in education. It is revealed disciplines were adopted in the studies related to using google classroom and gamification in education, where were the most in the field of educational sciences.

Recommendations

According to content analysis, this research recommended the following:

1. The number of studies that discuss the use of google classroom and gamification in education should be increased.
2. The title of the study that was used in the content analysis should be clear, include enough information about the research.
3. The researchers who employ content analysis should be attentive to the reliability and validity of the data collection tools.
4. The methodology that was used in the content analysis should be a mixed-method to produce accurate data.
5. The research question that was used in the content analysis should be researchable, understandable and measurable.

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