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Original Research

Unveiling the Landscape of ClassDojo in Education: A Systematic Review

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Abstract

In the backdrop of the evolving game-based educational platforms from online resources, language researchers have directed their attention toward the utilisation of ClassDojo due to its multifunctionality, which includes many features such as attendance tracking, messaging, portfolio management, games, and more. This qualitative systematic review examined the existing research on using ClassDojo in the classroom. The purposes were to provide evidence of ClassDojo for teachers, students, or parents and to identify the study characteristics, such as the publication trends, participant profiles, or the methodological approaches from the published research about ClassDojo. The initial database search used Publish and Perish (PoP) version 8 and identified as many as 174 published research. However, twenty-three journal articles were selected after conducting the screening process by applying inclusion and exclusion criteria. Results from the analysis of 23 articles found that articles released in 2021 (n = 6) were the most frequently used in this systematic review study. Then, for the education level of participants, the elementary education settings received the most attention (n = 6). Additionally, experimental design (n = 7) was the methodology most frequently employed by the study under investigation. Furthermore, the reviewed studies also show that ClassDojo is mainly used as a teaching and learning media (n = 8). Thus, the productive use of ClassDojo was recommended because it can effectively manage student behaviour, promote positive classroom management, and enhance parent engagement. Therefore, ClassDojo can potentially enhance online interaction in the class and provide a community to share classroom activities privately or publicly among teachers, students, and parents.

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1. Introduction

Nearly 24 hours a day, human life is intricately intertwined with internet usage. Hence, it is no longer unexpected that electronic media and internet usage are employed in several aspects of human existence, including in the education sector. Over the past several years, there has been an increasing number of integrated computer systems known as Learning Management Systems (LMS), often referred to as Course Management Systems (CMS) or Virtual Learning Environments (VLE) (Rhode et al., 2017). These systems are now having significant impacts on the field of education, and their influence is expected to continue growing in the future (Coates et al., 2005). Moreover, learning management systems have faced massive growth in usage, especially due to the emphasis on remote learning during the COVID-19 pandemic. According to Rezeki et al. (2020), the integration of technology in education holds significant potential for enhancing the learning process, serving as a valuable resource and a versatile instrument to improve the entire educational experience of learners. There was an evident promise in the study from Sulissusiawan and Salam (2017) that globally networked computers would bring about a new era of learning and sharing human knowledge and for that very reason, teachers must keep updated with the most recent developments in both teaching approaches and technological advancements (Salam et al., 2023).

Further, within the Indonesian junior and senior high school setting, there is a notable discovery that a significant number of students still view English as a challenging subject, resulting in a diminished enthusiasm for actively engaging with the English language during classroom activities (Riyanti, 2019). So, teachers need to explore excellent ideas that could enable their learners to comprehend the learning materials more easily and quickly while teaching and learning English in the classroom. Additionally, Supriati et al. (2023), in her study also mentioned that a learning resource is essential for facilitating effective learning experiences. English is mandated as a compulsory subject in Indonesian schools, regardless of students' willingness to learn it. This circumstance can potentially result in a decrease in learners' motivation since they may perceive themselves as being compelled to acquire knowledge. "Thus, they acquire English without a firm commitment" (Riyanti, 2019, p. 30). Therefore, the selection of suitable educational resources by teachers is also vital consideration in promoting a successful outcome of the teaching and learning process (Anugerah et al., 2019).

Traditionally, teachers have presented their learning materials through verbal-lecturing. This kind of teaching method places the teacher as the owner of knowledge or authority over knowledge while learners acts as a recipient of knowledge. If this occurs on a regular basis, learners will become drowsy and unwilling to pursue the lessons the teacher present. For that reason too, teachers needed to figure out the optimal approach for implementing learning, ensuring that learners not only engage in traditional ways but also have the opportunity to participate in creative teaching techniques that incorporate with technology (Prayudha, 2023) . But in order to implemented technology in teaching and learning process, nowadays, teachers have access to a variety of game-based instructional materials from online resources, including Duolingo, Kahoot, EduCandy, Wordwall, Quizziz, ClassDojo, Menti, Quizlet, FlipQuiz, Blooket, Gimkit, and others. It was in line with the study from Bunau (2020), the teaching and learning materials can simply choses or created by taking from various kinds of sources. Hence, given the evolving of educational media platforms, language researchers have redirected their attention towards the utilization of ClassDojo, because several features of ClassDojo may distinguish it from other educational platforms due to its multi-functinoality, which includes many features such as attendance and behaviour tracking, portfolio management, timer, group maker, games, and so on.

Moreover, based on the previous study investigated by Bahçeci (2019), the behaviour scores provided by teachers using the ClassDojo application facilitated learners' self-awareness of their own behaviours. Learners could enhance their academic performance by improving their ability to concentrate on school assignments and tasks. This increased focus could contribute to their overall success in their educational endeavours. Furthermore, when teachers assign positive scores through the point system, it serves as a form of reinforcement for learners, leading to an increase of positive attitude. Several learners even stated that they received acknowledgement from their parents at home upon receiving positive points. Another study also concluded that the utilization of gamification as an interactive methodology alongside with the use of ClassDojo as a digital educational tool yields benefits in promoting the improvement of desired behaviours and mitigating the development of undesirable behaviours of the learners (Mora, 2020).

Furthermore, according to Kaplan et al. (2021), ClassDojo could enhance positive behaviour in primary learners. Benhadj et al. (2019) examined the application of artificial intelligence in education through ClassDojo for behavioural management and Mashuri and Ahmad (2022) also said that ClassDojo could serve as a media for deliver the teaching materials by uploading the learning activity sheets through the portfolio section from ClassDojo application and learners could upload back the results from the learning activity sheet. The teacher could use this portfolio feature to upload files in the form of photographs, documents, and texts based on the needs of the learners during the teaching and learning process. It might also function as a social media platform. It might post a school notice or an important task that are visible to the learner, the teacher and any family members connected to the class. ClassDojo also an application that is user-friendly and easy to set up, making it an ideal application for teachers who are not tech-savvy. Collectively, these previous studies have substantiated the advantages of employing ClassDojo for language acquisition in educational setting. Unlike other platforms such as Moodle, Claroline, ATutor, Omeka, and Docebo, which require installation on an existing hosting site (or a web server) before they could be used, ClassDojo gives educators and students access to a fully functional web-based learning application (Mulyono, 2016). Teachers could also benefit from the system's online storage features, which make it easy to upload and access materials such as PowerPoint slides, PDFs, images, and videos. Moreover, teachers are able to keep track of their students' progress without being limited by time or location thanks to the storage provided by the web server. ClassDojo is free, but registration-required.

However, it is important to take into account that there is a lack of exhaustive research on the topic of ClassDojo within the scope of systematic review. Although existing studies already explored on the language learning, there is a research gap regarding the precise impact of ClassDojo on various language skills such as speaking, listening, and writing. An in-depth analysis of how the platform enhances the acquisition of particular language skills would yield a more nuanced comprehension of its significance in language learning. Additionally, the majority of research conducted on ClassDojo has specifically examined on its use with elementary school students. Further investigation is required to examine the value of ClassDojo when used with older students, such as middle school, high school students, or even the university students.

2. Literature Review

2.1 Learning Management System

A Learning Management System (LMS) or Learning Management Platform is a web-based application for the organization, documentation, monitoring, reporting, administration, and distribution of instructional material, technical documentation, online video lectures, and digital library materials (Universitas Medan Area, 2021). The first introduction of the LMS was introduced in the late 1990s. It was conceived and implemented in 1924 by Sidney Pressey, who developed a teaching machine resembling a typewriter equipped with a window capable of presenting multiple-choice questions. Furthermore, Alias and Zainuddin (2005) stated that a LMS often provides an instructor to design and deliver curriculum, monitor student involvement, and assess student performance online. Students might also be able to use interactive tools such as threaded conversations, video conferencing, and discussion forums through the LMS Bradley (2020). explained that using a LMS with online instructions has several benefits, including centralised location for learning resources, customised learning experiences, blended learning, time and cost savings, also the consistency and flexibility.

There are some aspects that are standard across most LMS applications, yet most of them have some things in common. For example, most of LMS let the teachers to make class rosters (a record of each student), manage registration, make waiting lists, upload and manage course-related documents, deliver course content through web-based interfaces that usually let the teacher or student participate from afar, make and share course calendars, and interact with other students and teachers (David, 2013). Hence, choosing the appropriate LMS could be challenging due to the numerous options available and in conclusion, the LMS is a game-changing tool in modern education that makes teaching and learning more active and open to everyone. LMS will continue to improve its features as technology changes, making it an important part of an education system that is always changing

2.2 Classroom Management Platform: ClassDojo

In light of this changing educational media landscape, language researchers have renewed their focus on ClassDojo, particularly those with classroom management towards the use of ClassDojo. For example, the previous study examined the effects of digital classroom management programs on learners-parents and teachers (Bahçeci, 2019); how to improve the positive behaviour of primary school learners with the gamification tool of ClassDojo (Kaplan et al., 2021); and how artificial intelligence in education by using ClassDojo technology for classroom behavioural management (Benhadj et al., 2019). Overall, these studies have confirmed the benefits of using ClassDojo for language learning in educational settings.

Some specific features in ClassDojo that could help teachers promote their learners' positive behaviour and positive reinforcement (Saeger, 2017; Watson, 2014) including (1) The teacher could award points to learners who demonstrate positive behaviours. For example, if a learner actively engages in a classroom discussion, the teacher could award them a point for their "participation"; (2) The teacher could utilise ClassDojo to display the points on a visible leader board within the classroom. This act of motivation could serve as a reminder for learners to continue their positive behaviour; (3) The teacher could review the accumulated points at the end of each week or month and acknowledge the learners by offering a prize or recognition; (4) The teacher could effectively communicate with parents regarding the transparent flow of information about their child's positive behaviour and share regular updates; (5) The teacher can establish a comprehensive list of positive behaviours that they aim to reinforce within the classroom environment. These behaviours would include active participation in class discussions, assisting peers, and completing assignment deadlines on time.

ClassDojo is simple to use and allows teachers to set up a class or classes with avatars assigned for each of their students. Once the class is set up, teachers have the ability to award points, affectionately known as *dojos* in the classroom, for positive or negative behaviour (Mims, 2013). ClassDojo automatically keeps track of the behaviour in the classroom by tracking the behaviours that were clicked. Teachers can set it up to create reports that are emailed to the parents, and parents can connect through printed or emailed invites. Once they connect, they receive an email reminding them to view their child's reports. Furthermore, Mora (2020) concluded that the utilization of gamification as an interactive methodology alongside with the use of ClassDojo as a digital educational tool yields benefits in promoting the improvement of desired behaviours and mitigating the development of undesirable behaviours of the learners.

2.3 Media for Teaching and Learning in English Language

Traditionally, teachers have presented their learning materials through verbal-lecturing. This kind of teaching method places the teacher as the owner of knowledge or authority over knowledge while learners acts as a recipient of knowledges. If this occurs on a regular basis, learners will become drowsy and unwilling to pursue the lessons the teacher present. However, using technology in education has already made a big difference, especially when it comes to English language learning. Technology-based learning materials are made in a way that could help all students learn effectively and reach their full potential. This is because they allow students to communicate better by creating a discussion place with enough time and space (Qori et al., 2017). For example, English teachers could easily send their learners the learning material about explaining 16 tenses through the media Google Classroom. Then, the learners could access it anytime and anywhere from any electronic media such as a handphone, tablet, or computer connected to the internet.

There are some studies that show the use of ClassDojo in educational settings. First, a case study conducted by Santos and Vélez Ruiz (2021) during the Covid-19 pandemic in Ecuador investigated the efficiency of ClassDojo in motivating sixth-grade learners' participation during online English classes. The study found that ClassDojo, with its gamification elements such as points and avatars, was effective in engaging learners and enhancing their learning and enjoyment. Then, another study in Indonesia investigated by Pratista (2023) explored learners' perceptions of using ClassDojo in the teaching and learning process. The results showed that ClassDojo, with its points and avatars, motivated learners to be more active in online classes, pushed healthy competitiveness, and enhanced learning and enjoyment. The last one, a study in Vietnam also used the ClassDojo application to enhance online interaction in English learning at lower secondary schools. The results showed that ClassDojo, with its features for communication, behavior tracking, and rewards, effectively enhanced online interaction and engagement in English learning (Minh & Ngan, 2022). Furthermore, Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Indonesia also encourages vigorously the development of e-learning platforms in Indonesia EFL classroom to provide services and opportunities to the broader community that were previously inaccessible via traditional face-to-face systems. Through the e-learning platform, it is possible to attain broader and more rapid teaching and learning objectives in Indonesia (Yunita & Elihami, 2021, as cited in Mashuri & Ahmad (2022)).

3. Method

In order to gain a concrete and comprehensive understanding of the ClassDojo application, researcher conducted a qualitative systematic review. This review used systematic and specific methods to discover, select, and compile all relevant research source materials that directly addressed and connected to specific research questions (Kitchenham et al., 2010). As highlighted by González-Fernández et al. (2022), a systematic literature review is considered as an essential tool for synthesising the available scientific information. They play a crucial role in enhancing the validity of conclusions drawn from individual studies and identifying areas of uncertainty that require further study. This systematic review starts by evaluating all databases from A to Z that were relevant to the research subject matter. The initial search involved the utilization of keywords "ClassDojo" and "EFL classroom" in the field of the advanced search for each database. Researcher followed a five set of steps of systematic review process from Khan et al. (2003), these steps include (1) Defining the research question: the first step is to precisely define the research question. In this case, the research question is "How studies have analysed the use of ClassDojo concept in the last 10 years?"; (2) Searching for studies: the next step is to search and find all the studies that have been published related to the subject matter. This step could be accomplished by exploring digital database, such as *Publish or Perish* or *Google Scholar*; (3) Screening the quality of studies: the quality of studies might be carefully identified after they have been identified. This step determines whether the studies fulfil the inclusion criteria, which are the precise criteria set for the review; (4) Data Extraction: the following step involves extracting

data including the methodologies, results, and limitation of the study from the studies that have been included in the review; (5) Data Synthesise: the final step is to synthesise the data acquired from the studies.

In the context of a systematic review, content analysis is used to summarise and analyse the key elements in a large amount of data, such as research articles, to gain insights into the research topic and the utilization of content analysis is beneficial for investigating the trends and patterns in documents (Stemler, 2000). So, in order to examine the existing research and identify areas that have not been sufficiently explored, explained, or resolved, the content analysis was applied and used to identify gaps in the literature during a systematic review. Moreover, in order to conduct this systematic review, the researcher then collects the journal articles as the technique of data collection by using academic search engine as the tool of data collection. Furthermore, after the researcher has defined the objective of the research and come up with a question that can be answered, the next step is to determine the study's inclusion and exclusion criteria (Harris et al., 2014). The criteria for determining which factors are included or excluded in the research on the use of ClassDojo for teaching and learning English in an EFL classroom can be seen in Table 1.

Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Studies that focused on the use of ClassDojo in educational settings.	Studies that do not focus on the use of ClassDojo in educational settings.
Studies that examined the methodology used in existing research related to ClassDojo in the classroom.	Studies that do not examine the methodology used in existing research related to ClassDojo in the classroom.
Studies published in English or Indonesian language.	Studies that not publish in English or Indonesian language.
The level of education included the various level of education.	Studies that not from any level of education
The studies published on the range of ten years (2013 to 2023).	Studies that not publish on the range of ten years.
The studies published in the form of journal articles.	Studies that not publish in the form of journal articles.

4. Results

The results section is presented by referring to the four-phase process of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) from Liberati et al. (2009) (Figure 1). Additionally, the four phases of PRISMA that were applied to seek findings from this systematic review consist of (1) Identification Phase; (2) Screening Phase; (3) Eligibility Phase; (4) Included Phase. Furthermore, Figure 1 summarise the overall findings in this systematic review. In the beginning stages of this systematic review, the procedure was centred around database searching, namely Google Scholar and the program known as Publish and Perish 8, the latest version of the software that was used released in November 2021. The researchers obtained 174 articles as the initial identification phase and it is illustrated in Figure 2.

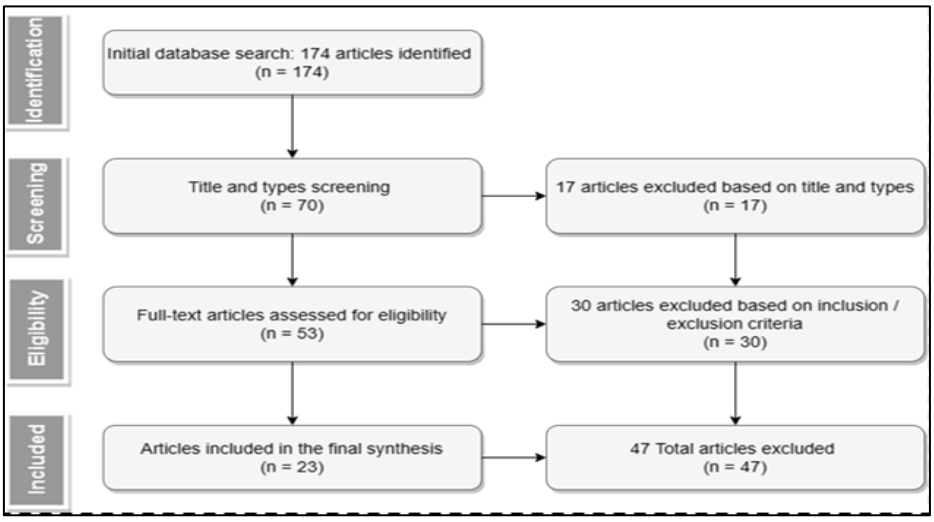

Figure 1. PRISMA Flowchart

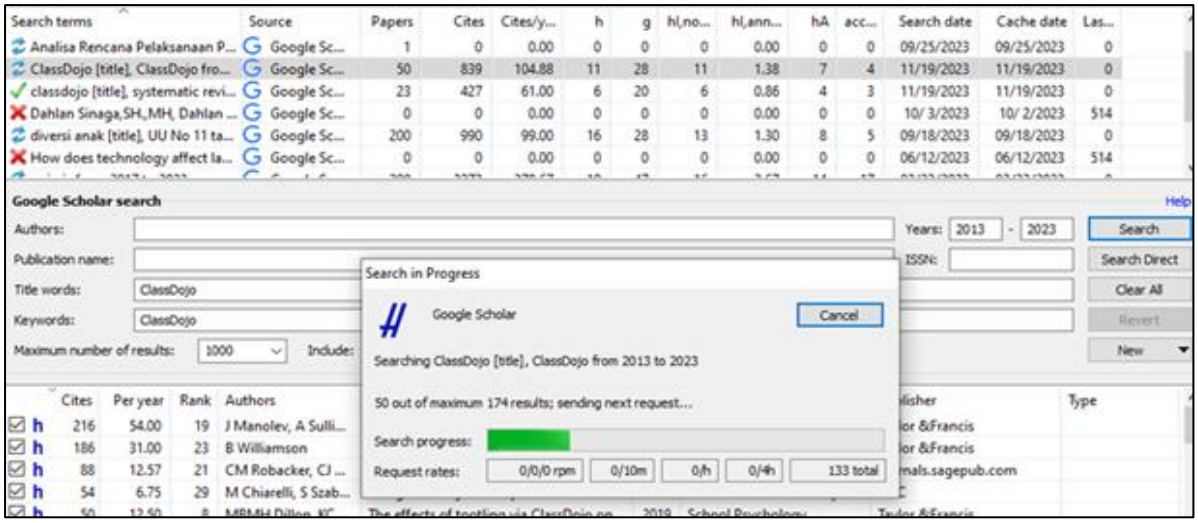

Figure 2. Initial Database Search

Then, the researcher typed "ClassDojo" as the keyword and the retrieval scope started from data published in 2013 up to 2023 from the maximum range of 10 years from the time this research process occurs. The publication year of articles related to ClassDojo is illustrated in Figure 3. As can be seen, this data indicated an increasing interest among academics in utilising ClassDojo to facilitate language learning and teaching in response to the COVID-19 pandemic. Furthermore, because of this situation of pandemic, teachers had an urgency to implement various of online educational tools in the teaching and learning process to assist their students (Christopoulos & Sprangers, 2021). Research has shown that incorporating educational gamification tools into teaching and learning has yielded positive outcomes during the global pandemic. Therefore, ClassDojo emerged as one of the game-based educational platforms that demonstrated its capacity to serve the goals of education. Additionally, according to the study from (Santos & Vélez Ruiz, 2021), ClassDojo has also demonstrated its ability to encourage children's engagement in online classes, promote healthy peer competition, and improve both learning and enjoyment.

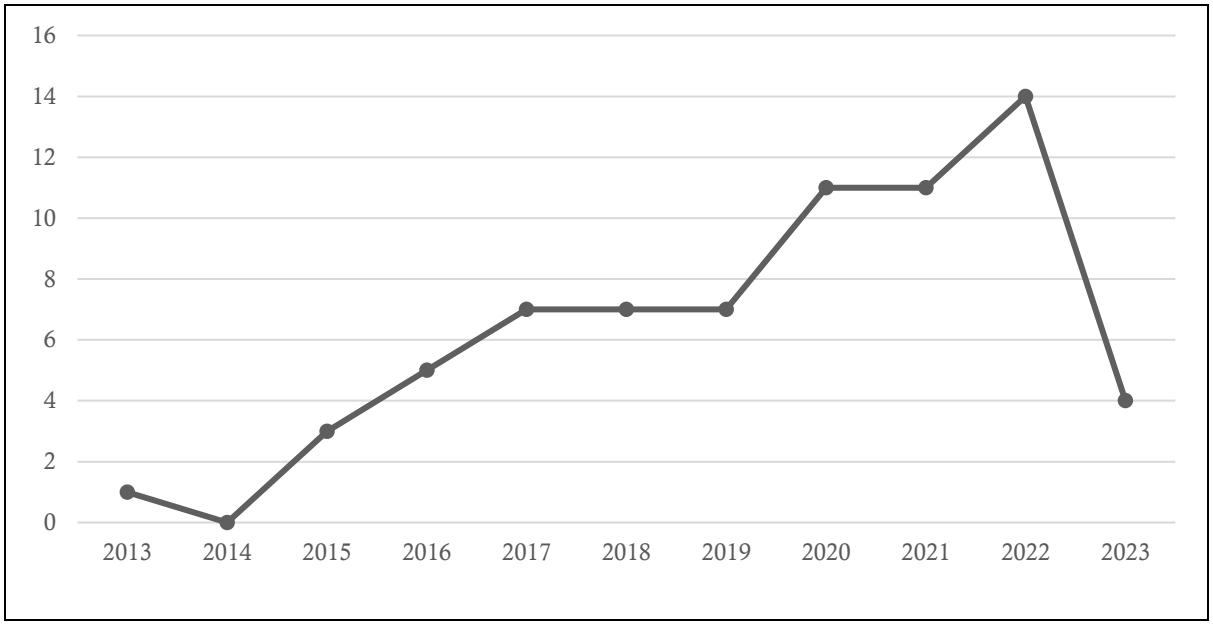

Figure 3. Publication Year of ClassDojo from 2013 to 2023

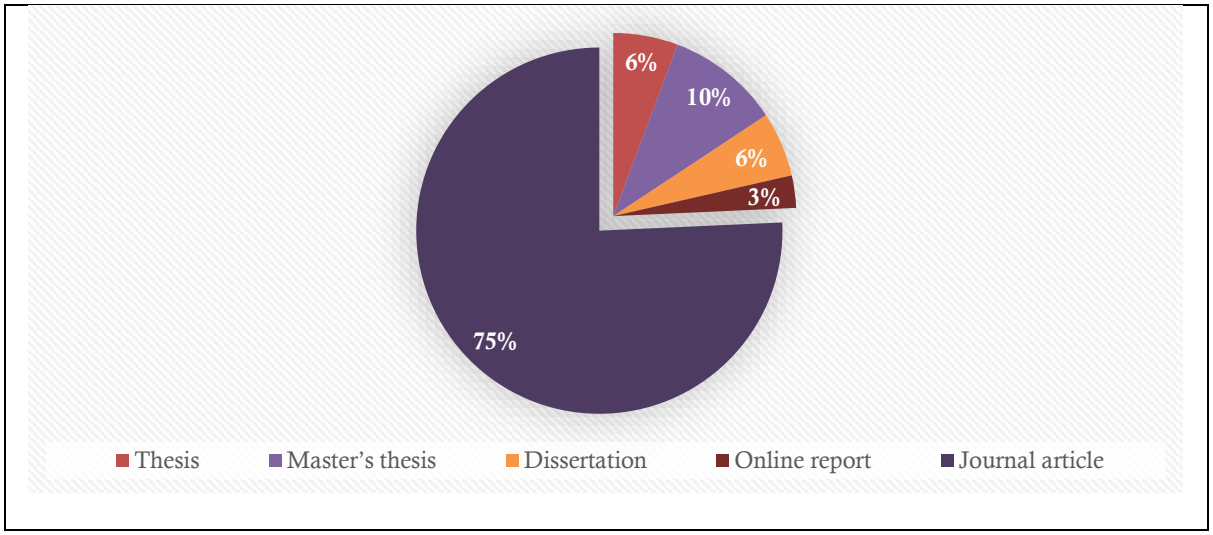

Figure 4. Publication Types

Next, for the screening phase is illustrated in Figure 4 and Appendix 3 and the majority of publication types related to ClassDojo was the journal articles with 75% which is equivalent to 53 publications that is eligible for eligibility phase from the total of 70 publications. Lastly, after applying the inclusion and exclusion criteria as can be seen in Table 1, there was a total of 23 articles that were used for the final included phase.

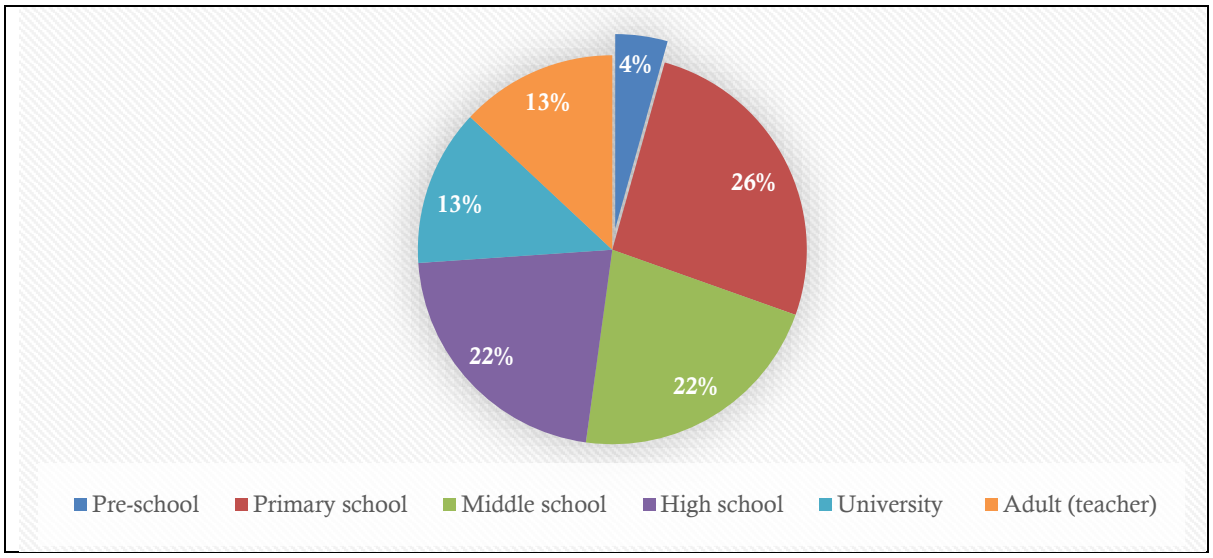

Figure 5. Education Level

Furthermore, from those 23 articles used for final synthesis, the data showed that education settings at the elementary level intrigued the most interest with 26% followed with high school and middle school with 22% and can be seen in Figure 5 and Appendix 9. This is due to the fact that the interface of the ClassDojo platform is highly user-friendly, especially for elementary school students. Children in this era have been introduced to digital technology from an early age, hence they are commonly referred to as the 'digital natives' generation. This term refers to their innate familiarity with digital devices and their constant engagement with digital culture throughout their lives (Tran et al., 2020).

Furthermore, there is a correlation with the study conducted by Chassiakos et al. (2016), which indicates a significant surge in the proportion of young children who possess and utilise digital technology devices in the past few years. In 2011, the percentage of young children (ages 0-8) with access to mobile technology devices was 52%, which rose to 75% in 2013. Moreover, studies also show that the usage patterns and frequencies of digital technology among older children and adolescents have consistently increased in the

last ten years, partially due to the recent surge in mobile phone usage among this age group. Hence, it may be inferred that ClassDojo is predominantly utilised in elementary schools, followed by middle and high school levels.

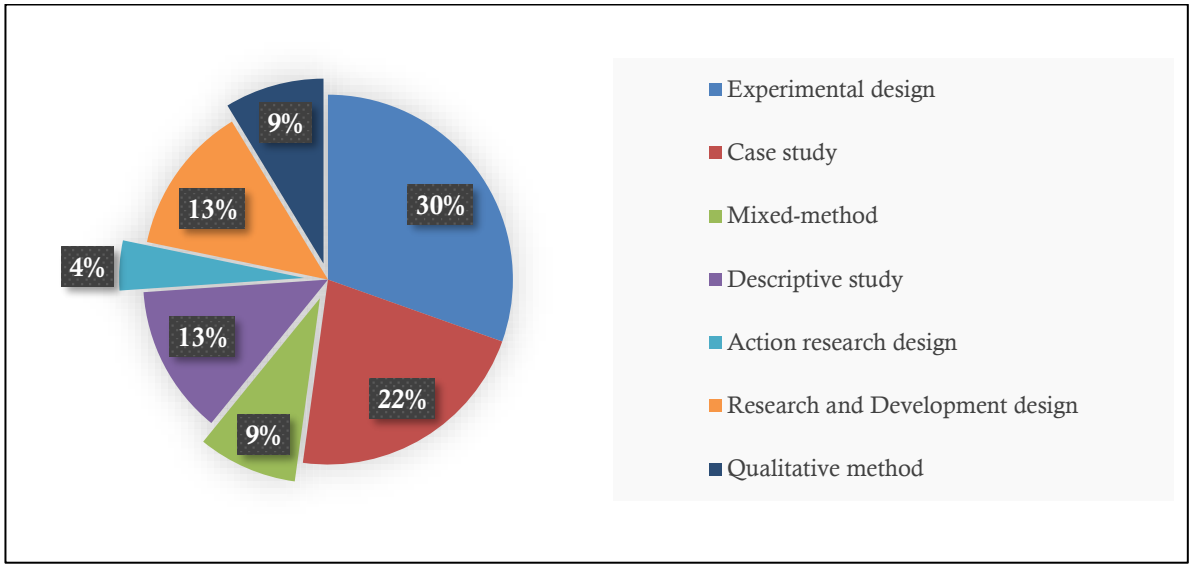

Figure 6. Study Design

Additionally, further data also showed that the majority of the examined studies employed experimental research design (30%) and it is illustrated in Figure 6 and Appendix 10. Bielska (2011) argued that numerous reliable and credible studies have already been conducted using well-designed experimental research design, both in and out of language classrooms. Moreover, in terms of determining cause-and-effect relationships and assessing educational innovations, "the primary strength of the experimental design is that it is the best method and some would argue the only compelling method" (Dörnyei, 2007, p. 120). The 'pre-test-post-test control-group design' provides an outstanding method of controlling for the numerous threats to the experiment's internal validity. This helps to ensure that the experiment is as accurate as possible.

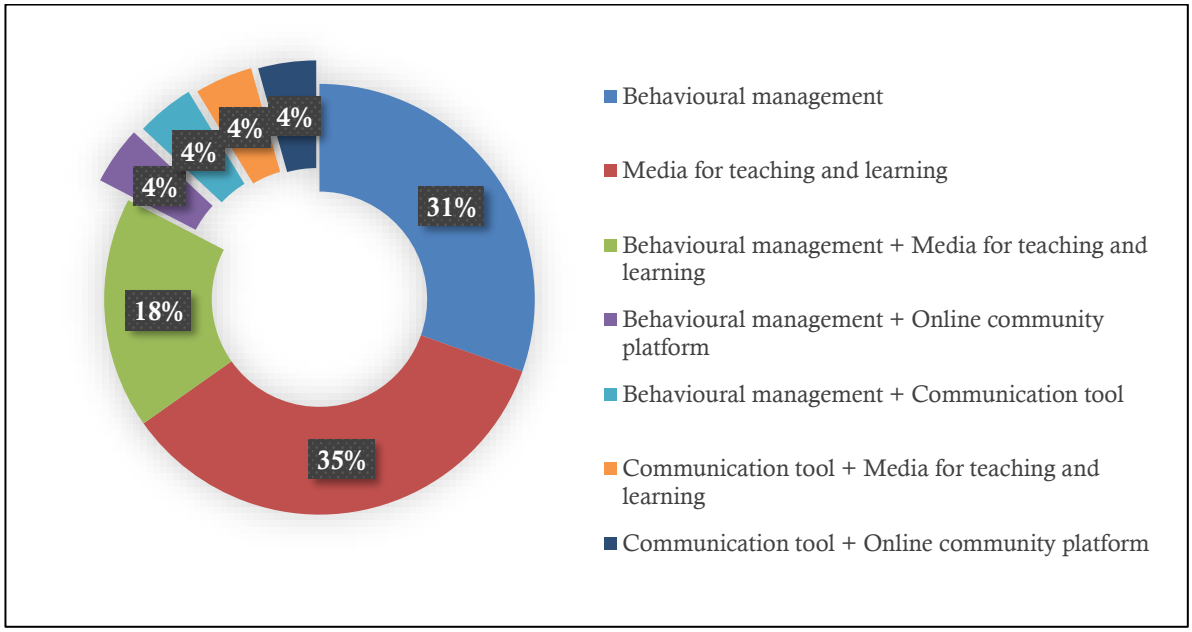

Figure 7. Research Focus

Furthermore, the data showed media for teaching and learning was identified as the most research focus used in the reviewed studies with 35% followed with ClassDojo role as behavioural management with 31% and all of this information can be seen in Figure 7 and Appendix 11. Most published studies that discussed ClassDojo were primarily focused on it as a media for teaching and learning due to its core functionalities and the perceptions of its users. The platform's features, such as a private messaging system for communication with parents, a feedback system for behaviour management, and a teacher toolkit for classroom management, have been highlighted in studies. These features are directly related to teaching and learning, making ClassDojo a tool that enhances these processes.

5. Discussion

This systematic review explored the utilisation of ClassDojo with a special focus on finding the covered topic concerning its landscape in educational settings including publication year, education level, study design and the research focus. Additionally, its objective was to provide insight to other teachers, students, and researchers who involve themselves in the LMS. Due to the constantly changing environment of this industry, which is marked by its fast-paced progress and growth, LMS has experienced significant and substantial advances. However, there are still many areas that have not been well explored and lack development. LMS are defined by their ability to facilitate a wide variety of teaching and learning activities. The inclusion of features such as access to learning resources, communication tools between staff and students, conference capabilities, interactive multimedia, personal storing, and note-taking can effectively support the engaging discussions that are essential for individual students' learning (Britain & Liber, 2004).

The majority of LMS for education contain resources that are easily adaptable and reusable. When it comes to the creation of a curriculum, there are more options available to them, including the manner of delivery, the design of materials, and the evaluation methodologies (David, 2013). This review centres around ClassDojo as a LMS, stands out in the educational landscape for its unique approach to enhancing classroom management and behaviour. Unlike traditional LMS platforms, which often focus on content delivery and assessment, ClassDojo is primarily designed to facilitate communication between teachers, parents, and students, with a strong emphasis on behaviour management (Bahçeci, 2019). This focus on communication and behaviour management has made ClassDojo a popular tool among educators for its ability to streamline these processes and improve student engagement and discipline. ClassDojo's impact on educational practices is multifaceted. It serves as a digital extension of established classroom practices, such as teacher-parent communication and behaviour management, providing a technologically mediated way to carry out these practices (Solano, 2022). This digital implementation has been recognised for its effectiveness in enhancing communication between teachers and parents, making it easier for parents to stay informed about their child's behaviour and progress in the classroom.

In comparison to other LMS platforms, ClassDojo's primary focus on communication and behaviour management sets it apart. While many LMS platforms offer a wide range of features for content delivery, assessment, and student engagement, ClassDojo's unique selling point lies in its ability to facilitate open and effective communication between educators and parents, and to manage student behaviour in a way that is both efficient and engaging for students. This focus on communication and behaviour management has made ClassDojo a valuable tool for educators looking to improve their classroom management practices without compromising on the quality of education (Maclean-Blevins, 2013). Additionally, ClassDojo's impact on educational practices is significant, particularly in the areas of communication and behaviour management. Its digital implementation of established classroom practices has been recognised for its benefits in enhancing teacher-parent communication and managing student behaviour. However, concerns have been raised regarding its potential impact on students' dignity and privacy (Williamson & Rutherford, 2017). As such, while ClassDojo offers unique advantages in these areas, its implementation should be approached with an awareness of its potential downsides.

Furthermore, the trends in the educational landscape suggest that ClassDojo is becoming increasingly popular in educational settings particularly in younger grades and in core content areas and also after the COVID-19 outbreak. It can be attributed to several factors, as highlighted by various studies and research findings. Firstly, the transition to online teaching was generally smooth for many teachers, indicating that ClassDojo, as a digital tool, facilitated this transition by providing a familiar platform for communication and behaviour management. This smooth transition suggests that ClassDojo was perceived as an effective tool for adapting to the new teaching environment, making it a preferred choice for educators during the pandemic. Secondly, the workload for teachers during online teaching was considered fair, which could be

attributed to the flexibility and adaptability of ClassDojo in managing classroom dynamics and communication. This perception of fair workload might have encouraged teachers to continue using ClassDojo, as it allowed them to maintain control over their classroom while managing the challenges of online teaching (DeCoito & Estaiteyeh, 2022).

Additionally, the adoption of technology in education has accelerated significantly, with a growing number of classrooms using the latest education technologies. As a result, teachers are now expected to be proficient in using a wide range of digital applications and platforms that support learning-focused programs (University of Kansas, 2021). Further, the requirements for teachers to enhance their academic qualifications and competencies while keeping up with technological advancements are also stated in Ministerial Regulation of Education, Culture, Research, and Technology Indonesia Regulation Number 16 of 2022, article 7, section (2), letter d and Pontianak City Regional Regulation Number 12 of 2009, article 15, section (1), letter c (Appendix 5). Moreover, as a tool that integrates behaviour management and communication features, it has been found that using technology in educational settings was effective in increasing positive behaviours and decreasing negative behaviours among students. Teachers also prefer it over traditional methods for classroom management (Pratista, 2023). This adaptability is crucial for its widespread adoption, as it allows educators to tailor the platform to their specific needs and teaching styles. However, the trends also highlight some limitations and areas for further exploration. Nearly 80% of students reported that only some of their teachers used ClassDojo, and 35.5% reported that different teachers used it in different ways. This suggests that while ClassDojo is being adopted, its implementation is not uniform across all classrooms, which could impact its overall effectiveness (DiGiacomo et al., 2022).

Then, in this systematic review, the researcher conducted a comprehensive search using Publish or Perish, yielding 23 total education-related overviews of publications for the final synthesis. The systematic review processed to find, select, and collect data from overviews from other researchers that met the eligibility criteria in this study (Polanin et al., 2017). Their analysis revealed that many commonly reported aspects, such as the effectiveness, the education level, coding procedures, study designs, parental engagement, and so on. This finding underscores the importance of transparency and rigor in the reporting of overviews, which is crucial for the validity and applicability of the synthesised findings. The systematic review of the landscape of ClassDojo in educational settings reveals the following insights: (1) Publication Year: the review includes studies published between 2013 and 2023, indicating a growing interest in the use of ClassDojo in educational settings over the years; (2) Education Level: some of the studies explicitly mention the education level, while others do not explicitly provide this information; (3) Study Design: the studies employ a variety of research design, including experimental designs, case studies, descriptive studies, and so on. This diversity in study design provides a comprehensive understanding of the platform's impact on educational practices; (4) Effectiveness: the review highlights the effectiveness of ClassDojo in increasing positive behaviours and decreasing negative behaviours among students, as well as its potential in motivating students in online classes. As stated before, the study also highlighted the need for overview authors to consider multiple study levels throughout the process and take steps to minimise bias and error at all levels. In conclusion, the systematic review provides a nuanced understanding of the landscape of ClassDojo in educational settings, while also acknowledging its effectiveness in behaviour management and communication.

While conducting a systematic review on the landscape of ClassDojo in educational settings, several areas, including (1) Privacy and Children's Rights: concerns have been raised about the potential implications of ClassDojo on children's rights to privacy, self-expression, and individuality. The systematic review did not address these concerns, which are increasingly important in the digital age and in the context of educational technology (Garlen, 2019); (2) Impact on actual learning outcomes: the review primarily focused on student behaviour, motivation, and engagement, but neglects to thoroughly explore how ClassDojo affects actual learning outcomes such as academic performance and cognitive development (Burger, 2015). In conclusion, while the systematic review provides valuable insights into specific aspects of ClassDojo in educational settings, there are areas that could benefit from further exploration.

For future researchers conducting a systematic literature review about ClassDojo, several areas of inquiry are recommended to address the gaps and enhance the understanding of ClassDojo's impact on educational settings. Based on the provided sources, future researchers could consider for investigating whether ClassDojo can be used as effectively with stationary technology as it can with mobile technology, exploring any differences in user experience and outcomes. Next, future researchers could consider for examining the necessary preparation needed before using ClassDojo in class, such as turning on a computer or signing into

an app, and evaluate the time required for this preparation. Lastly, they could consider for conducting long-term observations to gather rich new information about ClassDojo's impact over time and make adjustments to research questions based on pilot tests and experiences in the classroom (Yuen, 2021).

6. Conclusion

In conclusion, this systematic review has filled a significant research gap by providing a comprehensive analysis of the landscape of ClassDojo in educational settings. By synthesising and evaluating existing studies, this review has highlighted the novelty of ClassDojo as a tool for teaching and learning, its impact on student behaviour, and its potential for improving classroom management and communication. The review has provided valuable insights into the multifaceted ways in which ClassDojo is utilised by teachers, students, and parents to support instructional practices, enhance communication, and foster positive learning environments. It has also underscored the platform's unique features, such as the avatar system for behaviour tracking, the teacher toolkit for classroom management, and the cross-language support, which differentiate it from other digital platforms used for teaching and learning. These features have been instrumental in enhancing communication and behaviour management within educational settings. However, the review also identified areas that require further investigation. While ClassDojo has been recognised for its benefits in communication and behaviour management, there is a lack of empirical understanding into how it shapes learning or schooling experiences more broadly, or how it mediates teacher-student or parent-student relationships in and outside of the classroom. Additionally, concerns have been raised about the platform's potential impact on students' dignity and privacy through the commodification of their educational behaviour

Although the previous studies already explored on the prominent roles of ClassDojo for classroom management and behaviour tracking, however, the precise roles of ClassDojo in language learning on various language skills such as speaking, listening, and writing were not clearly defined in the majority of studies. Thus, an in-depth analysis of how the platform enhances the acquisition of particular language skills is needed to further investigate its significance in language learning further. Overall, the use of ClassDojo in teaching and learning English in the classroom has several benefits for students, teachers, and parents. ClassDojo can be used to build classroom culture, facilitate classroom activities, manage behaviour, and communicate with parents. The platform provides diverse functions, including home-school communication, strategies for positive behaviour interventions, and classroom management. However, teachers need to be mindful of the limitations of ClassDojo, such as the behaviour point system and privacy concerns, and use the platform thoughtfully to avoid creating a negative classroom environment.

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Appendices

Appendix 1. Article Code for Screening Phase

No	Title	Author(s)	Article Code
1.	The datafication of discipline: ClassDojo, surveillance and a performative classroom culture	Manolev, J., Sullivan, A., & Slee, R.	**A1**
2.	The effects of tootling via ClassDojo on student behavior in elementary classrooms	Dillon, M. B. M., Radley, K. C., Tingstrom, D. H., Dart, E. H., & Barry, C. T.	**A2**
3.	Comparing the effects of ClassDojo with and without tootling intervention in a postsecondary special education classroom setting	Lipscomb, A. H., Anderson, M., & Gadke, D. L.	**A3**
4.	Gamification for classroom management: An implementation using ClassDojo	Mora, B. A.	**A4**
5.	Pelatihan penggunaan aplikasi ClassDojo sebagai upaya peningkatan pembelajaran jarak jauh bagi guru SD IT Bina Bangsa di era kenormalan baru	Kusuma, J. W., Jefri, U., Surnani, E., Pratiwi, I., & Kurniawan, E.	**A5**
6.	Artificial intelligence in education: Integrating serious gaming into the language class ClassDojo technology for classroom behavioral management	Benhadj, Y., El Messaoudi, M., & Nfissi, A.	**A6**
7.	ClassDojo: The effects of digital classroom management program on students-parents and teachers	Bahçeci, F.	**A7**
8.	The ClassDojo app: Training in the art of dividuation	Robinson, B.	**A8**
9.	Using ClassDojo as a mechanism to engage and foster collaboration in university classrooms	Rivera, C. J.	**A9**
10.	Improving the positive behavior of primary school students with the gamification tool "ClassDojo"	Kaplan, G., Bolat, Y. İ., Göksu, İ., & Özdaş, F.	**A10**
11.	How students and principals understand ClassDojo: Emerging insights	DiGiacomo, D. K., Greenhalgh, S., & Barriage, S.	**A11**
12.	A review on the contribution of ClassDojo as point system gamification in education	Marouf, R., & Brown, J. A.	**A12**
13.	Studi komparasi penggunaan platform Socrative dan ClassDojo di kelas Google Classroom	Nuriyawan, A., & Wibawa, S. C.	**A13**
14.	Problems with data governance in UK schools: The cases of Google Classroom and ClassDojo	Hooper, L., Livingstone, S., & Pothong, K.	**A14**
15.	Implementation of Edmodo and ClassDojo on the activeness and achievements of students during Covid-19 pandemic in learning mathematics	Annisa, R., Wibowo, T., & Sapti, M.	**A15**
16.	ClassDojo as a token economy method	Cravalho, D. A.	**A16**
17.	Using ClassDojo to motivate kids' participation in the English as Foreign Language online classes during the Covid-19 pandemic: A case study	Santos, D. J. C., & Vélez Ruiz, M. C.	**A17**
18.	Evaluation of the good behavior game using ClassDojo in secondary classroom	Ford, W. B., Radley, K. C., Tingstrom, D. H., Dart, E. H., & Dufrene, B.	**A18**
19.	Implementasi aplikasi ClassDojo sebagai buku penghubung guru di Paud Rabbani Jakarta Selatan	Novita, D., & Wulandari, S.	**A19**
20.	Using ClassDojo to enhance online interaction in English learning at lower secondary schools	Minh, N. T. H., & Ngan, V. T.	**A20**
21.	Exploring Teachers' Experiences of using ClassDojo: A post phenomenological study	Yuen, C. L.	**A21**
22.	Developing teaching speaking media by using ClassDojo application for the tenth-grade students at SMA Negeri 3 Medan	Sari, N. F., Indra, H., & Saragih, F. N.	**A22**

No	Title	Author(s)	Article Code
23.	Pengembangan media pembelajaran online berbasis aplikasi ClassDojo dalam pembelajaran IPS Kelas VII A MTs Riyadlatul Fallah	Chusna, M.	**A23**
24.	Investigating the effect of ClassDojo application as an online assignment tool on EFL learners' English performance	Alkan, A.	**A24**
25.	The application of ClassDojo application in assessment of student attitude	Suharto, T., Farid, A. S., Ardiansyah, M., & Nasution, D. S.	**A25**
26.	Penggunaan aplikasi ClassDojo oleh tenaga pendidik asing dan tenaga pendidik Indonesia dan pengaruhnya terhadap hasil belajar siswa	Rosnawati, E.	**A26**
27.	Implementation of the ClassDojo platform as a e-learning media at the Khalifah Islamic Elementary School Palu	Mashuri, S., & Rosmayanti, D. A.	**A27**
28.	The Implementation of ClassDojo in teaching speaking at ninth grade of SMP Islam Diponegoro Surakarta in 2018/2019 academic year	Maimunah, H., & Kurniawan, F.	**A28**
29.	ClassDojo and the effects of gamification on student engagement within the third-grade art classroom: An action research study	Brown, A. W.	**A29**
30.	Effectiveness of ClassDojo program in modifying the behavior of the basic stage students in private schools	Al-salaymeh, H. S., & Altawalbeh, M.	**A30**
31.	Developing scramble game using ClassDojo as students' media in reading descriptive text for the seventh-grade students of SMP Dharma Pancasila Medan	Jamalin, N. P.	**A31**
32.	Mobile apps for home-school communication and parents' motivations for involvement in international schools	Thomas, M.	**A32**
33.	Utility of ClassDojo for real-time formative assessment of professionalism in pre-clerkship medical education	McAlister, J., Thomas, B., van de Ridder, J. M. M., Rajput, V., & Bauckman, K.	**A33**
34.	Developing ClassDojo as e-learning media of writing descriptive text for grade tenth students at MAN 2 Deli Serdang	Sari, D. W., & Husein, R.	**A34**
35.	ClassDojo solusi pembelajaran jarak jauh	Putri, R. F., Putri, R. F., & Asyah, N.	**A35**
36.	Penerapan aplikasi ClassDojo untuk meningkatkan kedisiplinan peserta didik dalam mengumpulkan tugas mata pelajaran tematik kelas III di MI Khadijah Malang	Ni'mah, N. A. I.	**A36**
37.	Pelatihan e-learning menggunakan ClassDojo di lingkungan lahan basah	Rusmansyah, R., Hamid, A., Misbah, M., Rahmawati, L., Sugianti, R., Baihaqi, A., Parida, E., Mahdah, M., & Kirana, G. F. A.	**A37**
38.	Penggunaan aplikasi ClassDojo sebagai upaya peningkatan pembelajaran bagi guru SMP YPK Merauke	Tarigan, D. M. B., & Sauhenda, A. F.	**A38**
39.	Pengaruh project-based learning berbantuan media ClassDojo terhadap kemampuan pemecahan masalah pada materi pencemaran lingkungan kelas VII SMP Al-amin Abung Surakarta	Dayu, K. P.	**A39**
40.	Efektifitas ClassDojo untuk mendukung keterampilan 4c dalam pembelajaran matematika secara virtual	Winarni, S., Kumalasari, A., Marlina, M., Rohati, R., & Hikmawati, H.	**A40**

No	Title	Author(s)	Article Code
41.	Integration of character education into English learning with the use of ClassDojo application at Nurul Azmi's school	Eliawati, T., & Rafika, M.	**A41**
42.	Students' perceptions of using ClassDojo in a teaching and learning process	Pratista, G. Y.	**A42**
43.	Using ClassDojo to help with classroom management during guided reading	Chiarelli, M., Szabo, S., & Williams, S.	**A43**
44.	Using ClassDojo to promote positive behaviors and decrease negative behaviors in the classroom	Saeger, A. M.	**A44**
45.	Decoding ClassDojo: Psycho-policy, social-emotional learning and persuasive educational technologies	Williamson, B.	**A45**
46.	Examining teachers' behavioral management charts: A comparison of Class Dojo and paper-pencil methods	Krach, S. K., McCreery, M. P., & Rimel, H.	**A46**
47.	Views of middle school students about ClassDojo education technology	Cetin, H., & Cetin, I.	**A47**
48.	ClassDojo poses data protection concerns for parents	Williamson, B., & Rutherford, A.	**A48**
49.	Behavior management strategies for the elementary school setting	Atkins, M.	**A49**
50.	Coding bias in the use of behavior management technologies: Uncovering socio-technical consequences of data-driven surveillance in classrooms	Lu, A. J., Marcu, G., Ackerman, M. S., & Dillahunt, T. R.	**A50**
51.	ClassDojo: Supporting the art of student self-regulation	MacLean-Blevins, A. O.	**A51**
52.	Systematic review of behavioral interventions using digital technology to reduce problem behavior in the classroom	Kirkpatrick, M., Rivera, G., & Akers, J.	**A52**
53.	Technology-supported implementation of an interdependent group contingency intervention for classroom behavior management	Yu, R., Haddock, A., & Sims, W. A.	**A53**
54.	Increasing student perceptions of teacher caring using ClassDojo	Elliott, C.	**A54**
55.	The effect of ClassDojo and Go Noodle on the behavioral and off-task disruptions of third grade students	Ward, J. J.	**A55**
56.	Comparing digital badges-and-points with classroom token systems: Effects on elementary school ESL students' classroom behavior and English learning	Homer, R., Hew, K. F., & Tan, C. Y.	**A56**
57.	Using gamification to motivate students with dyslexia	Gooch, D., Vasalou, A., Benton, L., & Khaled, R.	**A57**
58.	Positive behavior supports: Using ClassDojo as a token economy point system to encourage and maintain good behaviors	Garcia, E., & Hoang, D.	**A58**
59.	Use of gamification applications in science education	Hursen, C., & Bas, C.	**A59**
60.	The effect of gamification on Jordanian EFL sixth grade students' reading comprehension	Abusa'aleek, R. A., & Baniabdelrahman, A. A.	**A60**
61.	Use of a technology-enhanced version of the good behavior game in an elementary school setting	Lynne, S., Radley, K. C., Dart, E. H., Tingstrom, D. H., Barry, C. T., & Lum, J. D.	**A61**
62.	Determination of university students' most preferred mobile application for gamification	Bicen, H., & Kocakoyun, S.	**A62**
63.	The importance of parental involvement in relation to student success	Torres, S. V.	**A63**
64.	Parental involvement after the implementation of effective communication practices in a low income	Sanchez, C.	**A64**

No	Title	Author(s)	Article Code
65.	Communicating digitally: Building preschool teacher-parent partnerships via digital technologies during Covid-19	Chen, J. J., & Rivera-Vernazza, D. E.	**A65**
66.	Keeping parents involved using 360-class monitoring application	Razak, S. F. A., Abdurahim, B., & Mashhod, F.	**A66**
67.	The impacts of parent-teacher communication on English learners' academic achievement	Lucero, T.	**A67**
68.	Design guidelines for parent-school technologies to support the ecology of parental engagement	Wong-Villacres, M., Ehsan, U., Solomon, A., Pozo Buil, M., & DiSalvo, B.	**A68**
69.	A token economy made easy through ClassDojo	Robacker, C. M., Rivera, C. J., & Warren, S. H.	**A69**
70.	Effectiveness of gamification in the engagement of students	da Rocha Seixas, L., Gomes, A. S., & de Melo Filho, I. J.	**A70**
Total = 70			

Note: The data above are articles that were chosen after the identification phase by applying title and type screening (n = 70)

Appendix 2. Screening Phase Information

No	Article Code	Types	Years
1.	**A1**	Journal Article	2018
2.	**A2**	Journal Article	2019
3.	**A3**	Journal Article	2018
4.	**A4**	Journal Article	2020
5.	**A5**	Journal Article	2020
6.	**A6**	Journal Article	2019
7.	**A7**	Journal Article	2019
8.	**A8**	Journal Article	2020
9.	**A9**	Journal Article	2018
10.	**A10**	Journal Article	2021
11.	**A11**	Journal Article	2022
12.	**A12**	Journal Article	2021
13.	**A13**	Journal Article	2020
14.	A14	*Excluded* - online report	2022
15.	**A15**	Journal Article	2022
16.	A16	*Excluded* - master's thesis	2019
17.	**A17**	Journal Article	2021
18.	**A18**	Journal Article	2022
19.	**A19**	Journal Article	2020
20.	**A20**	Journal Article	2022
21.	A21	*Excluded* - dissertation	2021
22.	**A22**	Journal Article	2020
23.	A23	*Excluded* - thesis	2020
24.	A24	*Excluded* - master's thesis	2022
25.	**A25**	Journal Article	2021
26.	**A26**	Journal Article	2022
27.	**A27**	Journal Article	2022

No	Article Code	Types	Years
28.	A28	*Excluded* - thesis	2019
29.	A29	*Excluded* - dissertation	2021
30.	**A30**	Journal Article	2023
31.	**A31**	Journal Article	2021
32.	A32	*Excluded* - dissertation	2019
33.	**A33**	Journal Article	2022
34.	**A34**	Journal Article	2021
35.	**A35**	Journal Article	2022
36.	A36	*Excluded* - thesis	2022
37.	**A37**	Journal Article	2021
38.	**A38**	Journal Article	2022
39.	A39	*Excluded* - thesis	2022
40.	**A40**	Journal Article	2022
41.	**A41**	Journal Article	2021
42.	**A42**	Journal Article	2023
43.	**A43**	Journal Article	2015
44.	A44	*Excluded* - master's thesis	2017
45.	**A45**	Journal Article	2017
46.	**A46**	Journal Article	2016
47.	**A47**	Journal Article	2018
48.	A48	*Excluded* - online report	2017
49.	A49	*Excluded* – master's thesis	2018
50.	**A50**	Journal Article	2021
51.	**A51**	Journal Article	2013
52.	**A52**	Journal Article	2020
53.	**A53**	Journal Article	2023
54.	A54	*Excluded* – master's thesis	2017
55.	**A55**	Journal Article	2015
56.	**A56**	Journal Article	2018
57.	**A57**	Journal Article	2016
58.	**A58**	Journal Article	2015
59.	**A59**	Journal Article	2019
60.	**A60**	Journal Article	2020
61.	**A61**	Journal Article	2017
62.	**A62**	Journal Article	2017
63.	A63	*Excluded* - dissertation	2020
64.	A64	*Excluded* - master's thesis	2018
65.	**A65**	Journal Article	2023
66.	**A66**	Journal Article	2016
67.	A67	*Excluded* – master's thesis	2021
68.	**A68**	Journal Article	2017
69.	**A69**	Journal Article	2016
70.	**A70**	Journal Article	2016
Total = 53 articles			

Note: Color-blocked tables are articles which are chosen after the title and types screening phase (n = 53)

Appendix 3. Publication Types

Publication Types	*n*	Article Code
Thesis	4	A23, A28, A36, and A39
Master's thesis	7	A16, A24, A44, A49, A54, A64, and A67
Dissertation	4	A21, A29, A32, and A63
Online report	2	A14 and A48
Journal article	53	the rest aside from the article code above
Total = 70 ***(screening)***		

Appendix 4. Eligibility Phase Information

No	Article Code	Excluded Reason in Eligibility Phase
1.	A1	Do not provide study design
2.	A2	Do not provide study design
3.	**A3**	*Included*
4.	**A4**	*Included*
5.	A5	Do not provide study design
6.	**A6**	*Included*
7.	**A7**	*Included*
8.	A8	Do not provide study design
9.	A9	Do not provide study design
10.	**A10**	*Included*
11.	**A11**	*Included*
12.	A12	Do not provide study design
13.	A13	Do not focus on ClassDojo
14.	A15	Do not focus on ClassDojo
15.	**A17**	*Included*
16.	**A18**	*Included*
17.	A19	Do not provide study design
18.	**A20**	*Included*
19.	**A22**	*Included*
20.	**A25**	*Included*
21.	A26	Do not for English learning (ClassDojo for mathematic)
22.	**A27**	*Included*
23.	**A30**	*Included*
24.	**A31**	*Included*
25.	A33	Do not for English learning (ClassDojo for medical education)
26.	**A34**	*Included*
27.	A35	Do not provide study design
28.	A37	Do not for English learning (ClassDojo for chemistry subject)
29.	**A38**	*Included*
30.	A40	Do not for English learning (ClassDojo for mathematic)
31.	**A41**	*Included*
32.	**A42**	*Included*
33.	A43	Do not provide study design
34.	A45	Do not provide study design
35.	A46	Do not provide study design

No	Article Code	Excluded Reason in Eligibility Phase
36.	A47	Do not for English learning (ClassDojo for mathematic)
37.	A50	Do not focus on ClassDojo
38.	**A51**	*Included*
39.	A52	Do not focus on ClassDojo
40.	A53	Do not provide study design
41.	A55	Do not focus on ClassDojo
42.	**A56**	*Included*
43.	**A57**	*Included*
44.	A58	Do not provide study design
45.	A59	Do not for English learning (ClassDojo for science education)
46.	**A60**	*Included*
47.	A61	Do not focus on ClassDojo
48.	A62	Do not focus on ClassDojo
49.	**A65**	*Included*
50.	A66	Do not focus on ClassDojo
51.	A68	Do not focus on ClassDojo
52.	A69	Do not provide study design
53.	A70	Do not focus on ClassDojo
Total = 23 articles		

Note: Color-blocked tables are articles which are chosen for final synthesis. In this phase, the researcher applied inclusion and exclusion criteria (n = 23)

Appendix 5. Included And Excluded Information

Publication Types	*n*	Article Code
Included	23	A3, A4, A6, A7, A10, A11, A17, A18, A11, A20, A22, A25, A27, A30, A31, A34, A38, A41, A42, A51, A56, A57, and A65
Excluded	30	A1, A2, A5, A8, A9, A12, A13, A15, A19, A26, A33, A35, A37, A40, A43, A45, A46, A47, A50, A52, A53, A55, A58, A59, A61, A62, A66, A68, A69, and A70
Total = 53 *(eligibility)*		

Appendix 6. Excluded Reasons

Reasons	*n*	Article Code
Do not provide study design	14	A1, A2, A5, A8, A9, A12, A19, A35, A43, A45, A46, A53, A58, and A69
Do not focus on ClassDojo	10	A13, A15, A50, A52, A55, A61, A62, A66, A68, and A70
Do not for English learning	6	A26, A33, A37, A40, A47, and A59
Total = 30 *(excluded)*		

Appendix 7. Included Phase Information

No	Article Code	Year	Grade Level	Study Design	Research Focus
1.	**A3**	2018	High school	Experimental design	Behavioural management
2.	**A4**	2020	Middle school	Experimental design	Behavioural management
3.	**A6**	2019	High school	Case study	Behavioural management + Media for teaching & learning
4.	**A7**	2019	High school	Mixed-method	Behavioural management + Online community platform
5.	**A10**	2021	Primary school	Experimental design	Behavioural management
6.	**A11**	2022	University	Descriptive study	Behavioural management + Communication tool
7.	**A17**	2021	Primary school	Case study	Media for teaching & learning
8.	**A18**	2022	Middle school	Experimental design	Behavioural management
9.	**A20**	2022	Middle school	Action research design	Communication tool + Media for teaching & Learning
10.	**A22**	2020	High school	Research & Development	Media for teaching & learning
11.	**A25**	2021	University	Case study	Behavioural management
12.	**A27**	2022	Primary school	Case study	Media for teaching & learning
13.	**A30**	2023	Middle school	Experimental design	Behavioural management
14.	**A31**	2021	Middle school	Research & Development	Media for teaching & learning
15.	**A34**	2021	High school	Research & Development	Media for teaching & learning
16.	**A38**	2022	Adult	Descriptive study	Media for teaching & learning
17.	**A41**	2021	Adult	Descriptive study	Behavioural management + Media for teaching & learning
18.	**A42**	2023	University	Qualitative method	Media for teaching & learning
19.	**A51**	2013	Primary school	Mixed-method	Behavioural management
20.	**A56**	2018	Primary school	Experimental design	Behavioural management + Media for teaching & learning
21.	**A57**	2016	Adult	Case study	Behavioural management + Media for teaching & learning
22.	**A60**	2020	Primary school	Experimental design	Media for teaching & learning
23.	**A65**	2023	Pre-school	Qualitative method	Communication tool + Online community platform
TOTAL = 23 articles					

Note: All the 23 studies above were used in the included phase for the final synthesis process (n = 23).

Appendix 8. Publication Year (included phase)

Publication Year	*n*	Article Code
2013	1	A51
2016	1	A57
2018	2	A3 and A56
2019	2	A6 and A7
2020	3	A4, A22, and A60
2021	6	A10, A17, A25, A31, A34, and A41
2022	5	A11, A18, A20, A27, and A38
2023	3	A30, A42, and A65
Total = 23 ***(included)***		

Appendix 9. Education Level (included phase)

Education Level	*n*	Article Code
Pre-school	1	A65
Primary school	6	A10, A17, A27, A51, A56, and A60
Middle school	5	A4, A18, A20, A30, and A31
High school	5	A3, A6, A7, A22, and A34
University	3	A11, A25, and A42
Adult (teacher)	3	A38, A41, and A57
Total = 23 ***(included)***		

Appendix 10. Study Design (included phase)

Study Design	*n*	Article Code
Experimental design	7	A3, A4, A10, A18, A30, A56, and A60
Case study	5	A6, A17, A25, A27, and A57
Mixed-method	2	A7 and A51
Descriptive study	3	A11, A38 and A41
Action research design	1	A20
Research and Development design	3	A22, A31, and A34
Qualitative method	2	A42 and A65
Total = 23 ***(included)***		

Appendix 11. Research Focus (included phase)

Research Focus	*n*	Article Code
Behavioural management	7	A3, A4, A10, A18, A25, A30, and A51
Media for teaching and learning	8	A17, A22, A27, A31, A34, A38, A42, A60
Behavioural management + Media for teaching and learning	4	A6, A41, A56, and A57
Behavioural management + Online community platform	1	A7
Behavioural management + Communication tool	1	A11
Communication tool + Media for teaching and learning	1	A20
Communication tool + Online community platform	1	A65
Total = 23 ***(included)***		

Appendix 12. Laws and Regulation

1) Ministerial Regulation of Education, Culture, Research, and Technology Indonesia Number 16 of 2022, article 7, section (2), letter d states:

   "Learning strategies designed to provide quality learning experiences as refereed in section (1) is implemented by: using information and communication technology devices."

2) In Indonesia language: Pasal 7, Peraturan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Nomor 16 Tahun 2022 tentang Standar Pada Anak Usia Dini, Jenjang Pendidikan Dasar, dan Jenjang Pendidikan Menengah, Ayat (2) Huruf d berbunyi:

   "Strategi pembelajaran yang dirancang untuk memberi pengalaman belajar yang berkualitas sebagaimana dimaksud pada ayat (1) dilaksanakan dengan: menggunakan perangkat teknologi informasi dan komunikasi."

3) Pontianak City Regional Regulation Number 12 of 2009, article 15, section (1), letter c states:

   "Educators in carrying out their duties are obliged to: improve and develop academic qualifications and competencies on an ongoing basis in line with the development of science, technology and art."

4) In Indonesia Language: Pasal 15 Ayat (1) Huruf c, Peraturan Daerah (PERDA) Kota Pontianak Nomor 12 Tahun 2009 tentang Penyelenggaraan Pendidikan di Kota Pontianak berbunyi:

   "Pendidik dalam melaksanakan tugasnya berkewajiban: meningkatkan dan mengembangkan kualifikasi akademik dan kompetensi secara berkelanjutan sejalan dengan pengembangan ilmu pengetahuan, teknologi, dan seni."