RESEARCH ARTICLE

Bibliometric Study: Identifying The Most Effective Medium for Indonesian Gen Z in Historical and Cultural Learning

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ARTICLE INFO	ABSTRACT
	The globalization allowed foreign and pop culture to freely pass through Indonesia, which captivating Indonesian Generation Z. This led them to neglecting origin culture. Gen Z's ignorance of their fellow countrymen's origins is a laten risk that will result in lack of empathy/unity, thus contributing to the Indonesia's multicultural society disintegration. As a nation made up of hundreds of ethnic groups who consented to live together while respecting their different traditions and ways of life, knowing history and culture is critical to the integrity of the Unitary State of the Republic of Indonesia. The dissemination of cultural and historical knowledge is significant, especially in basic formal education for Indonesian Generation Z. They are known as digital natives, possesses outstanding intelligence but has short attention span when it comes to studying. Learning the nation's history and culture through face-to-face lectures is not appealing to Gen Z that will take over the nation's leadership, therefore transferring knowledge need a creative technique that stimulates engagement. The literature review methodology employs bibliometric analysis to generate a graphical map using Scopus research data over the previous five years. The visualization map is examined for density and trend. The data is compared to that from the open knowledge map. The findings reveal that the game implementation method has been widely employed in Indonesian study for elementary and secondary school students to promote attention and engagement, with positive outcomes. The findings of this study suggest that in order to boost engagement, generation Z's approach to learning culture and history should be character-driven and creative. Good participation will have a direct impact on students' knowledge retention, as well as boosting their multi-cultural awareness of their fellow citizens. Gamification is a long-term solution with the ability to strengthen national identity and avoid fragmentation.

BACKGROUND

Globalization and information accessibility have become increasingly inevitable as internet technology has advanced. Pop-cultural items from outside Indonesia, such as K-Pop, anime, and various ideologies, freely flood social media and become more embraced by Indonesian Generation Z than native culture. Generation Z, born between 1997 and 2012, grew up in the digital era, are quite accustomed to using gadgets and interacting digitally, are very proficient, and are aware of trends

that occur outside of Indonesia (Putra, 2017). Professionally managed pop culture is more appealing to Indonesian generation Z than indigenous culture, which appears to be out of date.

Local culture is incredibly vital in the existence of a diverse Indonesian community. This country was founded after a long conflict among hundreds of ethnic groups with diverse histories and cultures. They struggled together to create this Unitary State and consented to coexist while preserving the individuality of each ethnic group. If the youthful generation in this heterogeneous society is unaware of their own culture, it will contribute to a lack of understanding and empathy amongst ethnic groups, potentially leading to social conflict. Given that Indonesian Generation Z will rule the nation in the future, this phenomena is categorized as a latent threat to the Unitary State of the Republic of Indonesia, with the potential to trigger national disintegration if not addressed. Chalimi (2023) asserted that having an understanding history and culture will not only increase mutual respect amongst ethnic groups, but will also make Indonesian Gen Z aware of how difficult their predecessors' effort was in founding this Republic, preventing them from being apathetic about the nation's future. Generation Z inherits cultural knowledge and a grasp of national history. Unfortunately, learning these two subjects in the formal curriculum generally takes place in class employing a one-way lecture method in which students sit passively listening to the teacher and memorizing information, resulting in an unappealing and even boring learning experience, as Novayani (2019) stated.

Learning methods must be designed with student characteristics in consideration, as generation Z differs from previous generations. Although generation Z is considered educated and digitally technologically advanced, they dislike being constrained by responsibilities (obliged to study) and prefer to indulge in fun rather than commitments. Generation Z is a group of independent people accustomed to being connected to social media and technology, thus they favor visual and interactive content. With their characteristic as independent learner youngsters and having short attention span (Lopez & Abadiano, 2023), putting the delivery of culture and history through dictation learning in formal education classes irrelevant to them.

Education plays an indispensable role for tackling a variety of societal issues. Nur (2022) pointed out multicultural education as one solution to Indonesia's diverse society concerns. Multicultural education teaches understanding of identity, tolerance, and unity. When learning is combined with history, it becomes extremely relevant. The fundamental issue in history learning, particularly Indonesian Gen Z's perception of this topic, is highlighted by (Novia 2023), who explicitly mentions the poor performance of history professors in terms of content presentation. They are less likely to improvise and prefer that students memorize a set of facts. The lack of human resources and ability of history experts in Indonesia worsens the situation, resulting in the delivery of uninteresting information and a loss of students' excitement for the subject of cultural history.

The idea about student boredom with history lessons is in line with the claims made of Arta (2020), Setyaningsih (2024), and Hilmawan & Yuniati (2024). Disinterest has now become an unpleasant experience. In her study, Setyaningsih (2024) discovered that "bored" is the first thought that comes to mind when students hear the word "History." As a result, teachers must implement learning innovations to improve motivation, as this is correlates directly to the result of the learning outcomes (Arta et al., 2020; Syaifuddin & Prastyo, 2022).

Indonesian experts have extensively studied the use of alternative media as a learning approach. According to Wulandari & Sari (2022) alternative media and creativity in learning activities are essential to establishing an enjoyable learning experience for students. that alternative media and creativity in learning activities are very necessary to create a fun learning process for students. As an educator, a teacher must be able to identify various alternative platforms as transferring knowledge medium, to utilize them. The same idea is also stated in Shidqiyah's (2024) note that states alternative media is very helpful in the learning process. Educators must be proficient to operate

gadgets and maximize digital and electronic media while developing and implementing learning resources. Utomo (2023) shares his findings on the effectiveness of interactive media against traditional face-to-face teacher-centered learning. Interactive media visualizes information, allowing it to explain complex occurrences and challenging concepts that cannot be represented verbally.

Technology's exponential growth is inextricably linked to the fields of entertainment. Globalization has not only introduced popular culture into the cultures of young people, but also video games via gadgets. Arta (2020) believes that video game-based dissemination of information makes learning activities more enjoyable while also increasing motivation and memory. Learning through video games has a high potential for utilization as an alternative media, particularly considering Indonesia's rising number of gamers. According to Hilmawan & Yuniati (2024), data from multiple sources show that Indonesian spending in the video gaming market hit 1.3 billion USD, making it the largest in Southeast Asia. He said that the use of gamification features to promote motivation and engagement has been used in a variety of sectors, including health education, reading/writing/arithmetic training, language, and character education. As (Christian et al., 2024)noted, gamification, the process of incorporating game design aspects into non-gaming products or services, necessitates adapting game elements to suit technological advancements and their applications. The findings emphasize the importance of consistently designing instructional features and content to maintain student attention, particularly among Generation Z learners who tend to become bored easily (Kartikasari et al., 2024). Additionally, (Haryanti & Purbojo, 2024)emphasized that transformational leadership and digital literacy significantly contribute to pedagogical competence in integrating technology, highlighting the need for teacher adaptability in leveraging digital tools for effective learning experiences.

Research on alternative and interactive learning media, such as games, can be a great solution to introduce Indonesian history and culture. Hayya (2023) conducting a quantitative study at a boarding school in Central Java, Indonesia and after comparing traditional and interactive learning, she found that learning outcomes using interactive media were more engaging, academically successful, and effective. Of course, 95 students from a private boarding school cannot represent the desires of Indonesia's generation Z, which totals around 75.5 million people. This study will employ the bibliometric analysis method to evaluate learning trends in Indonesia and measure the outcomes so that teachers can use them as a reference in developing teaching strategies.

LITERATURE REVIEW

According to Dwidienawati & Gandasari (2018), generation Z who is born in the digital era, favors interactive and technology-based methods of learning over traditional learning. In other condition, Bencsik (2016) through his study investigated the characteristics of generation Z, which is apathetic and has a poor commitment to education. Apart from those situations, teachers and curriculum designers also must realize that Indonesian Gen Z as a student are lacking reading enthusiasm. The finding concerning Generation Z Indonesia's inadequate literacy rate is based on an OECD statement from a Program for International Student Assessment (PISA) survey (Tensa Novela & Widyastono, 2022).

Bencsik's (2016) described generation Z as stubborn people, lack of thinking ability, group of people that lack of responsibility and can't distinguished working time with leisure. This study of Generation Z's behavior, characteristics, and view for the world should be taken as the basis idea to develop learning curriculum, particularly in less popular disciplines such as history and culture.

Table 1. Comparison of Generations' Traits.

	Baby Boomers (1946-1964)	X Generation (1965-1980)	Y Generation (1981-1994)	Z Generation (1995-2012)

View	Sharing and position themselves as part of the community.	Considering advantage during making decision.	Selfish, Short-term.	No sense of commitment, already content with current condition.
Knowledge Sharing	Willing to share.	Mutuality-based and cooperation.	Reluctant, if advantageous	On virtual level, apathetic.
Relationship	Up-close and personal.	Personal and virtual.	Virtually preferred.	Virtual and depthless.
Aim	Solid existence.	Secure position	In race for leadership.	Live for present, *carpe diem*.
Behaviour/Characteristic	Responsible, hard-working.	Self-reliant thinkers, competent.	Skilful and proficient, insecure, less independent.	Poor communication skills and technology dependant.

Source: Bencsik's (2016) study.

METHODOLOGY

According to Rojas-Sánchez (2022), bibliometrics are quantitative tools for analyzing literature metadata obtained from databases. This strategy is utilized when there is an enormous quantities of unstructured intellectual material in a research issue in order to conduct an empirical investigation of the relationship between previous research Donthu (2021). The bibliometric method can be used to analyze publications and categorize them by author, journal, topic, methodology, and conclusions. Biblioshiny generates visual maps for themed studies, network occurrence, authors, titles, and so on to assist researchers in identifying study themes and gaps in the literature, as well as designing learning strategies based on Indonesian Gen Z preferences and problems.

Creative efforts to find the most appropriate media to increase engagement in learning History and culture must be done. In the research gap, researchers and curriculum designers have reached the utilization of video games to achieve learning outcomes. This study intends to inspire junior school's teachers and curriculum designer by considering Generation Z traits before designing learning strategies. The generation Z are described as secluded group of people who loves entertainment, oblique to study, and loves indulging themselves in fun activities. Therefore, video games as an alternative interactive medium deemed suitable for replacing traditional learning, and this study will use "Game and Media" as the keyword for this bibliometric study. To begin this study, the researcher put "Game and Media" into scopus.com to get the data from the last 5 years of research published in English-language journals. The data was then extracted in RIS format and put into a visualization map so that it could be analyzed.

FINDINGS

Summary Statistics

The keyword "game and media" inputted into scopus.com to retrieved list of studies from around the world. This search that limited during 2019–2024 generated 10,113 studies then extracted in CSV format. To make the article more focused and detailed, the search also set inclusions criteria in the fields of 'Art & Humanities' and 'Social Sciences', as well as the English language. In contrast to previous years, 2019 was a turning point, with the keyword "Game and Media" appearing in 636

connected studies and rapidly expanding to 833 by 2023. According to Biblioshiny data, the number of studies on "games and media" increased by 2.83% between 1967 and 2025, with 17,356 authors (3,726 as single authors) and an average citation rate of 17.4 documents per year.

Performance Analysis

Figure 1 serves as the basis for performance analysis. The interesting point is that the number of studies on "Game and Media" was only about 20 per year before 2002, then it doubled to 47 in 2004. According to a historical record search, Nick Pelling popularized the term "*gamification*" in 2002, and since then, research on "Game and Media" has grown dramatically (Sharma & Sharma, 2023), with 608 documents published in 2013. Studies on "Game and Media" reached a low point before rising again in 2019 (surpassing the previous record set in 2013) with 636 studies till 2024.

The Covid-19 pandemic caused governments over the world to implement social distancing restrictions, and formal learning activities were disrupted, resulting in an enormous rise in research on alternative media between 2019 and 2023. As the pandemic officially declared over and social distancing regulations loosen, research on "Game and Media" has begun to diminish, with 654 studies per year. This finding indicates that as internet technology advances, studies on games and media become increasingly popular.
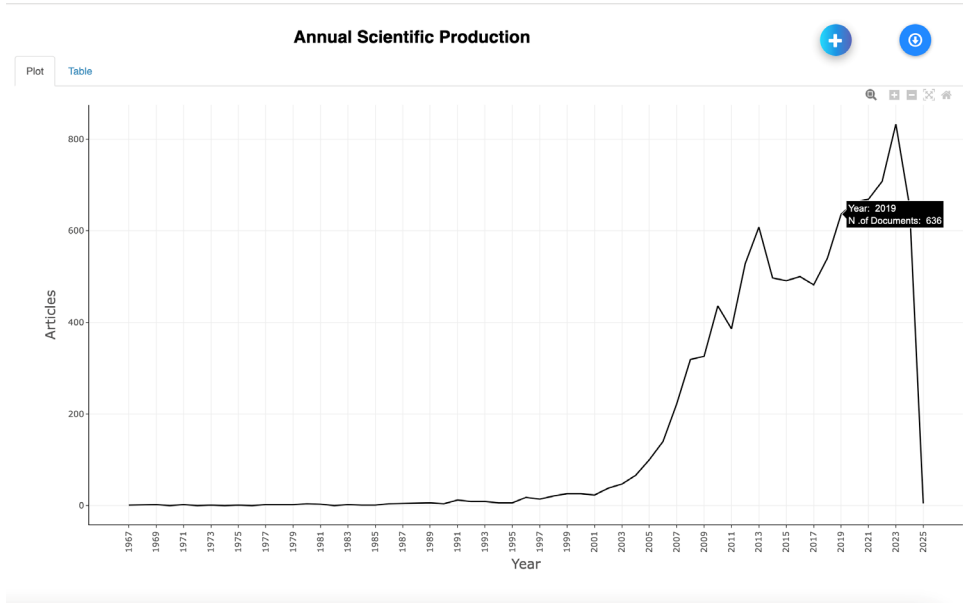

Figure 1. Performance Analysis

Source: Biblioshiny

Relationship between Titles, Countries, and Keywords

With the aim of examining the potential of utilizing video games as an alternative learning media in Indonesia, data processing using a three-field plot on Biblioshiny with the format Title (Left Field), Countries (Mid field), and Keywords (Right Field) was carried out. Of the 10,113 Scopus documents found in a 5-year interval (2019-2024), Indonesia is ranked in the top 4, after the USA, United Kingdom, and China, respectively. Figure 3 explains that studies on games that have been conducted in Indonesia are mostly related to learning purposes and students, with the top 5 keywords in sequence being video games, social media, games, game-based learning, and gamification.
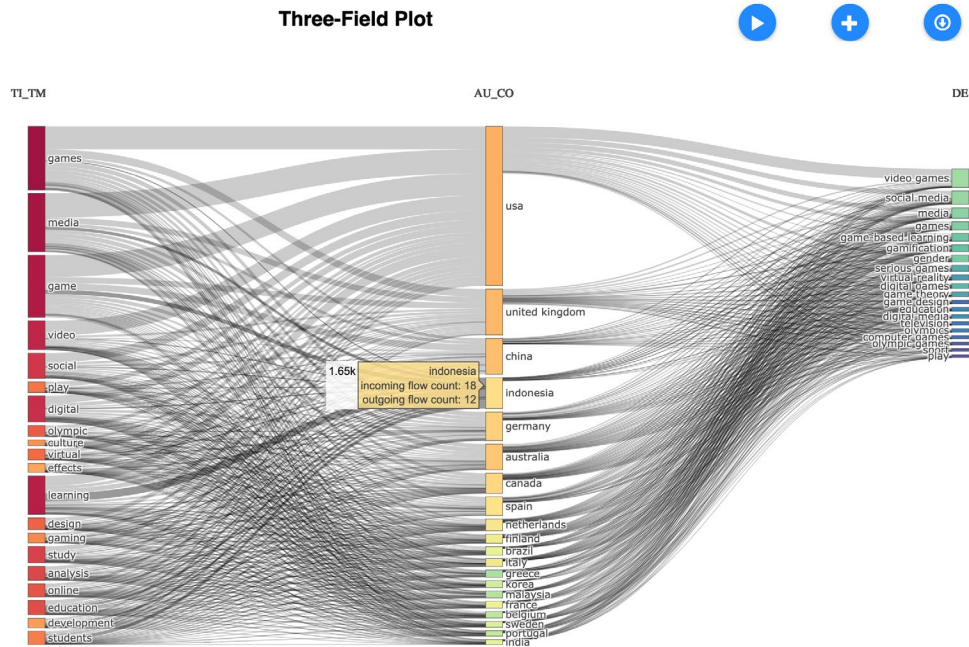
Figure 2. Relationship between titles, countries, and keywords.

Source: Biblioshiny

Visualization Three-Field Plot Biblioshiny also shows that studies on the theme of "Games and Media" related to culture are still few and dominated by the USA. Studies on games and media related to cultural studies are still not popular in Indonesia and have the potential to be developed.

Country Production Over Time and Countries' Scientific Production

In terms of "Country Production Over Time", Indonesia has a dramatic increase in study production. In 2019, Indonesia had 191 documents, ranked in the top 10 related to Game and Media and in 2024 it increased to 729 documents, surpassing Spain, the Netherlands, and Italy.
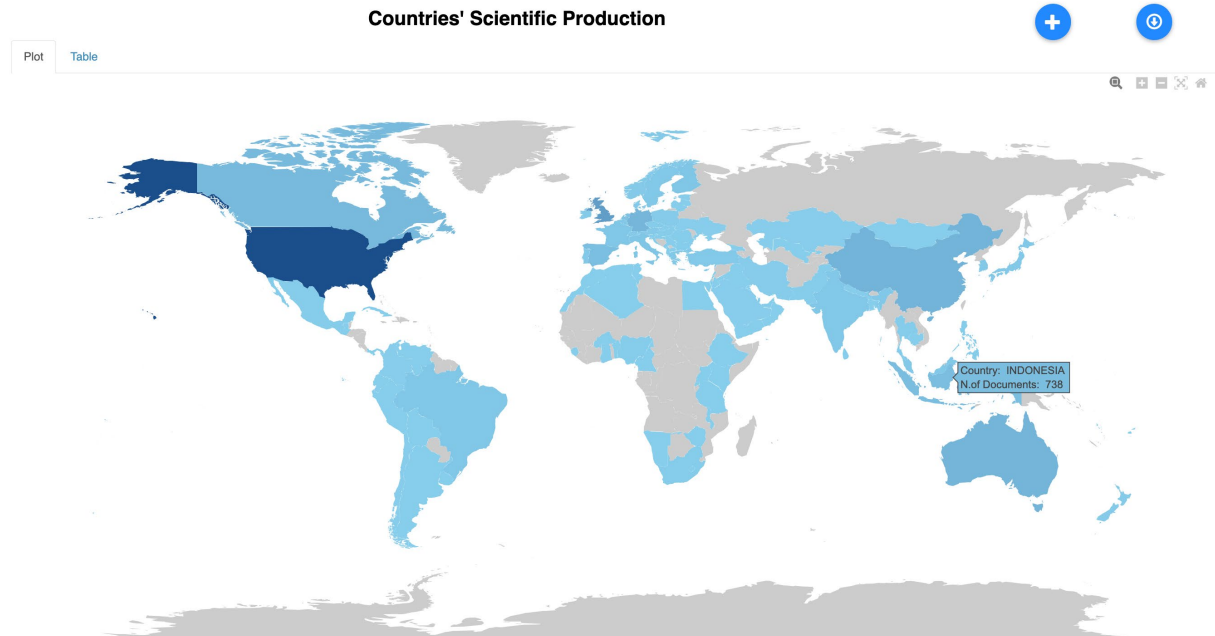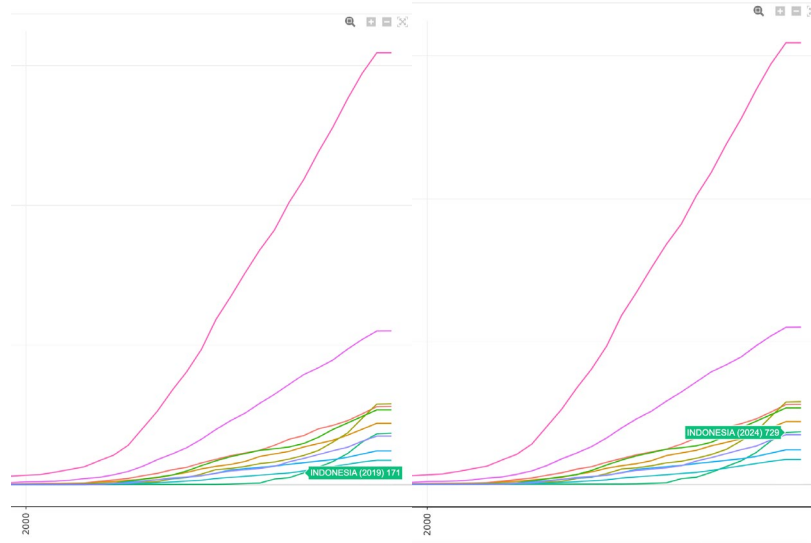
Figure 3. Country production over time

Source: Biblioshiny

Corresponding Authors' Countries

Despite an increase of three positions between 2019 and 2024, research on "Game and Media" in Indonesia are dominated by Single Country Publication (SCP) at a ratio of 95:15 to Multiple Country Publication. Although Indonesia is "only" ranked ninth in countries contributing to game and media studies, in terms of MCP ratio to total publications, Indonesia, which has experienced a rapid increase in the 2019-2024 period, has been in a position to remain competitive with the UK and Australia, and even surpass the USA and Germany. The People's Republic of China has the highest ratio in terms of research collaboration to total number of publications, with an MCP Ratio of 0.20. The MCP ratio demonstrates that researchers in Indonesia are heavily involved in international projects when compared to the top five countries producing publications related to games and media, but it still needs to be improved because Hong Kong, ranked 19th in the world, has similar publications with an MCP ratio of 0.35 (21 MCPs out of 60 total publications).
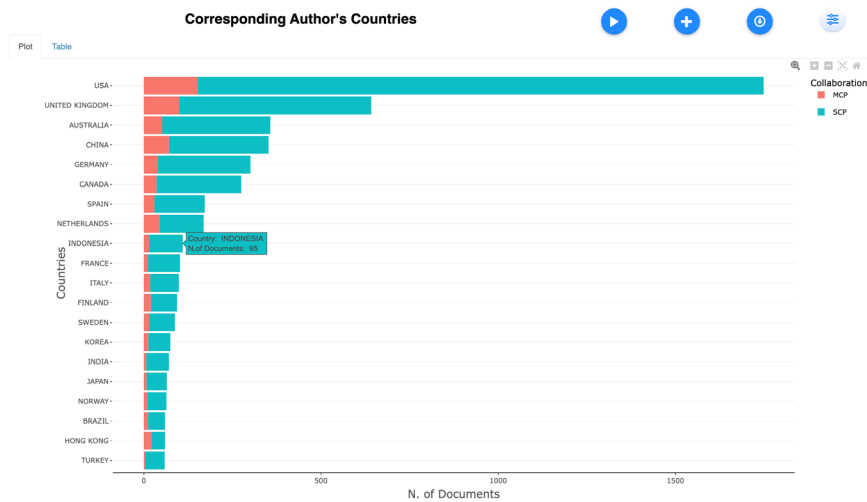

Figure 4. Corresponding authors' countries

Source: Biblioshiny

Table 2. Ratio of top 5 countries' SCP and MCP in study related to "Game and Media" to Indonesia's.

Country	SCP	MCP	Total	MCP Ratio
USA	1597	152	1749	0.09
United Kingdom	542	100	642	0.15
Australia	305	52	357	0.15
China	281	71	352	0.20
Germany	261	40	301	0.13
Indonesia	95	15	110	0.15

Collaboration Network

The Countries' Collaboration Network visualization generated by Biblioshiny shows that the United States of America performs the most joint research with other countries in across the globe. Indonesia, although having a higher MCP ratio than the United States, has fewer joint research activities. Indonesian scholars primarily collaborate with countries from Austria, Belgium, India, Japan, Malaysia, Mexico, the Netherlands, the Philippines, Spain, Tanzania, Thailand, and Turkey. Malaysia dominates Indonesia's research partnership network with 7 studies, followed by Japan (4 studies) and the Philippines (3 studies).
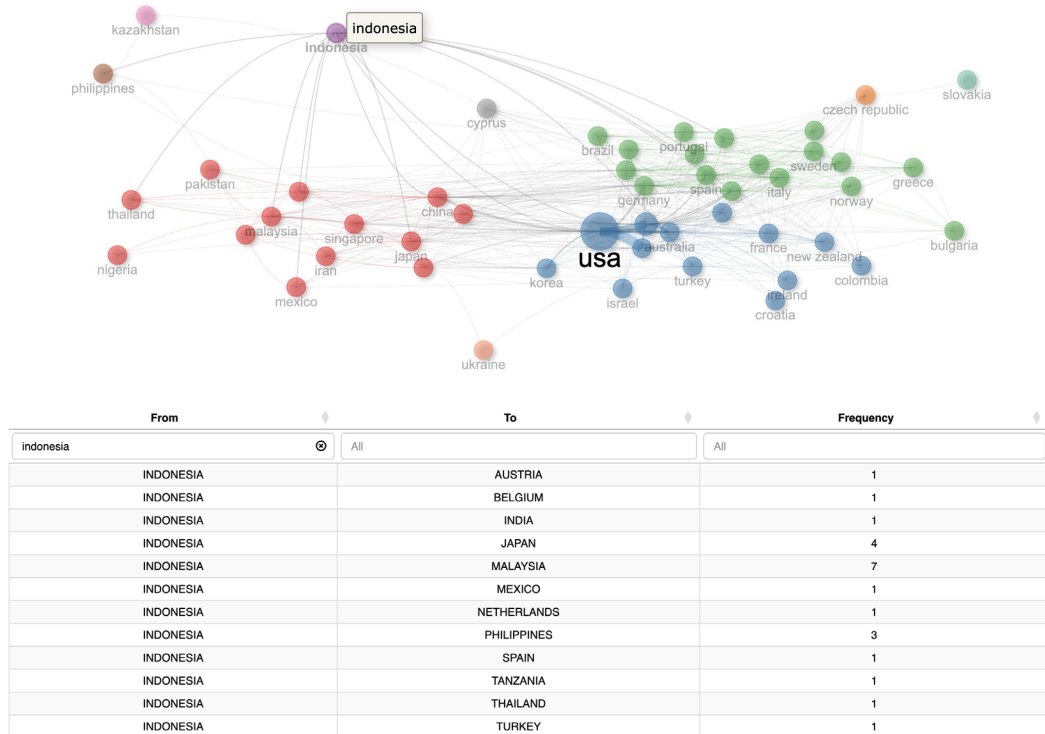

From	To	Frequency
indonesia	All	All
INDONESIA	AUSTRIA	1
INDONESIA	BELGIUM	1
INDONESIA	INDIA	1
INDONESIA	JAPAN	4
INDONESIA	MALAYSIA	7
INDONESIA	MEXICO	1
INDONESIA	NETHERLANDS	1
INDONESIA	PHILIPPINES	3
INDONESIA	SPAIN	1
INDONESIA	TANZANIA	1
INDONESIA	THAILAND	1
INDONESIA	TURKEY	1

Figure 5. Countries' collaboration network

Source: Biblioshiny

Word' Frequency over time based on studies' title

Biblioshiny collects data on the most frequently used words in studies about games and media from across the world and visualizes it in a word cloud. The most central and largest keywords represent

the study's issues relating to Games and Media, which are currently trending and the focus of research. The top ten keywords in the word cloud visualization are listed in the table 3 below.

Table 3. Most frequent words appeared on study related to game and media.

Rank	Words	Frequency	Percentage
1.	Male	555	6%
2.	Human	548	6%
3.	Female	526	6%
4.	Adult	364	4%
5.	Article	364	4%
6.	Humans	344	4%
7.	Students	342	4%
8.	Social media	338	4%
9.	Adolescent	287	3%
10.	Game theory	232	3%

Source: Biblioshiny.

In the Treemap table 3 generated by Biblioshiny, the frequency of the word "Male" also shows that it dominates this study, appearing 555 times. Followed by the words human, female, adult, article, humans, students, social media, adolescent, and game theory. The treemap results are in line with the wordcloud in figure 6 below. The top 10 keywords from the study search results with the theme of games and media which are inclusively limited to the fields of Social Science and Art & Humanities in the 2019-2024 time interval can be divided into 3 study clusters. The first cluster focuses on social constructs, sociology, and demography such as male, human/humans, female, adult, and adolescent. The second cluster consists of students and game theory, a study cluster that leads to learning activities. The third cluster is social media, indicating nowadays social media has a role as a communication tool or digital platform for playing games.

Figure 6. Documents' word cloud

Source: Biblioshiny

Research related to Games and Media always develops along with trending topics in the world or based on an event in a country. To find out the evolution of research related to Games and Media based on the 2019–2024 timeline, biblioshiny is used to track words that often appear in research titles able to identify a picture of the ongoing study trend in that period.

In addition to the keywords "Game and Media" itself, the first words that appear in this study are "Learning", followed by video, digital, social, **study**, analysis, and education. Seeing the words learning, study, and education are in the top 10 words that often appear in research titles, it is not an exaggeration to conclude that studies on games developed as learning media are a popular topic among academics.

Table 4. Most frequent words on studies' titles appeared on study related to game and media.

Year	Games/ Game	Media	Learning	Video	Digital	Social	Study	Analysis	Education
2019	1273/1024	1107	500	520	420	365	223	188	214
2020	1389/1148	1225	556	576	482	414	252	218	231
2021	1491/1271	1335	608	635	542	459	290	246	257
2022	1611/1394	1446	678	698	601	520	322	284	303
2023	1753/1532	1588	765	760	694	594	370	337	337
2024	1861/1705	1705	816	812	759	643	395	368	367

Source: Biblioshiny.

Studies' title related to Game and Media study

Open Knowledge Map is an artificial intelligence platform that increases the exposure of research. This tool assists researchers in organizing publications into clusters based on related subjects, titles, concepts, and/or keywords by finding important themes entered by the researchers. Open Knowledge Map collects quantitative literature data using algorithms and text similarity metrics, as well as qualitative studies on relevant topics (Kraker, 2025). This method identifies influential research or underrepresented areas that require more investigation, making it an excellent adjunct to bibliometric studies. With AI capable of tracking multidisciplinary research connected to key themes supplied by researchers, this tool is also particularly beneficial in exploratory studies.
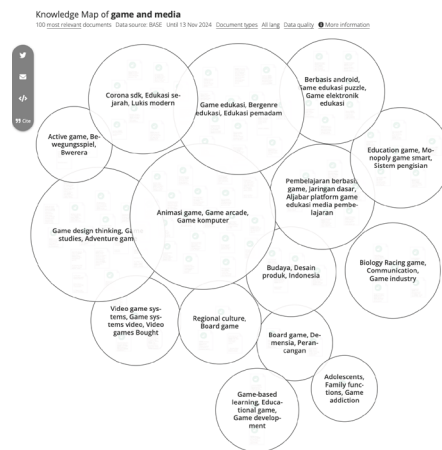

Figure 7. Open Knowledge Map' Visualization on Game and Media study related to Game and Media until Nov 13th 2024.

Source: Open Knowledge Map

Thematic Map based on Network

Based on the processing of Thematic map data, studies related to "Game and Media" are grouped into 2 colors, namely Blue (left) and Red (Right). Blue clusters indicate topics related to keywords that are now less-central but still well-developed. Based on the Biblioshiny thematic map, studies with the theme "Game and Media" included in the blue cluster are related to human, social media, video game, male, learning, decision making, major clinical study, child, human experiment, and United States.

The red cluster represents a study theme that is both trending and active in the network, has a high level of relationship, and is critical to the current research field. Currently, the study theme "Game and Media" connected to students, education, teaching, human-computer interaction, computer games, e-Learning, and social networking is among the top ten keywords, with a red cluster.

The blue cluster contains prior study trends on games and media affecting human behavior and focuses on the psychological influence of gaming. Keywords like decision-making and learning are frequently used in cognitive learning research, such as intervention studies (human experiments). Keywords connected to demographics, such as male and child, suggest that certain social groups are frequently the focus of research/measurement in a population, with studies dominated or conducted in the United States. Anderson & Dill (2000), for example, conducted a study on male perspectives and aggression toward the world. Using the theoretical approach General Affective Aggression Model (GAAM) and connecting it to various theories such as Bandura's social learning theory, Berkowitzh's Cognitive Neoassociationist Model, Dodge's social information processing model, Huesmann's social-cognitive model of media violence, and Zillmann's excitation transfer model. Anderson & Dill discovered that long-term exposure to violent video games can generate aggression, while short-term exposure to violent video games promotes aggressive behavior. Anderson and Dill predicted that the higher the players' scores, the more aggressive their behavior when stimulated. Anderson and Dill's work is significantly related to studies on human, male, video game, and decision making, as illustrated by the blue cluster in figure 8 below.
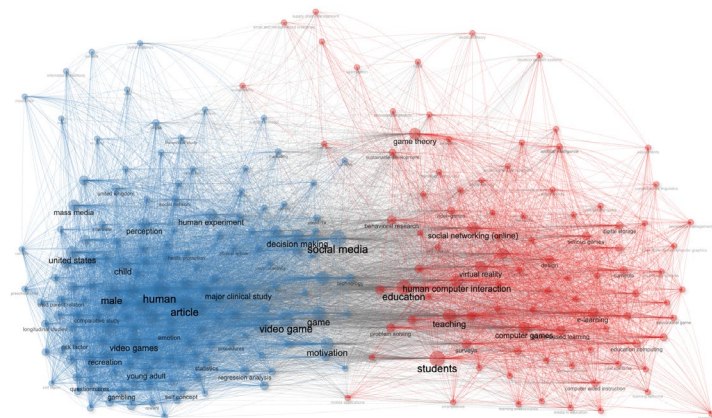

Figure 8. Thematic map based on network.

Source: Biblioshiny

The shift from research trends studying the negative effects of video games to exploring the benefits of games began in the early 21st century. After Nick Peeling popularized the terminology "Gamification" in 2002, various researchers began to follow and develop games as a learning medium. Gee (2005) through his study revealed the important role of game designers as practical learning theorists who design meaningful experiences for their users (gamers). He wrote that through the storyline in the game we can learn many things such as the game Star Wars: Knight of The Old

Republic which teaches responsibility and issues of identity, the game Deus Ex: Invisible War which teaches role's choice and equality in a society, etc. At the end of his study, Gee (2005) stated that games are more than just fun activities but are able to trigger deep learning within the gamers. The study of games as a learning medium is an idea that must be explored because it is able to foster collaboration and communication among its users.

Although both cluster studies have the same object of study about games and media, when compared they have different focuses. Studies in the red cluster are more into application-oriented, focusing on how games as a media (for learning purposes). Popular themes in this red cluster are e-learning and human-computer interaction. While the blue cluster has a focus on decision-making and major clinical studies, showing reports of studies on the influence and effects of games on health, character formation, behavior, etc. through therapeutic studies and experimental domains. We can see here, thematic studies related to games and media show versatility in the topic of gaming. Games and media have 2 sides starting from the topic of human behavior in clinical context (blue cluster) into user-centered design as educational medium (red cluster). These two clusters illustrate how the topic of gaming has succeeded in becoming a rich interdisciplinary topic, emphasizing the challenges and opportunities for integrating gaming into broader society.

Co-occurrence Network based on keyword

Visualization of co-occurrence network study on Game and Media generated by biblioshiny shows that from 2019-2024 the most studies are related to human, male, female, adult, and articles. Shown through thicker links that connect to these 5 keywords. This is also in accordance with the word cloud visualization that has been displayed in figure 6 above. Biblioshiny clustered studies on Game and Media into 3 groups, namely studies related to humans (blue), studies related to teaching and learning (red), and those that do not include both consisting of social media, motivation, learning, games, and decision making (green).
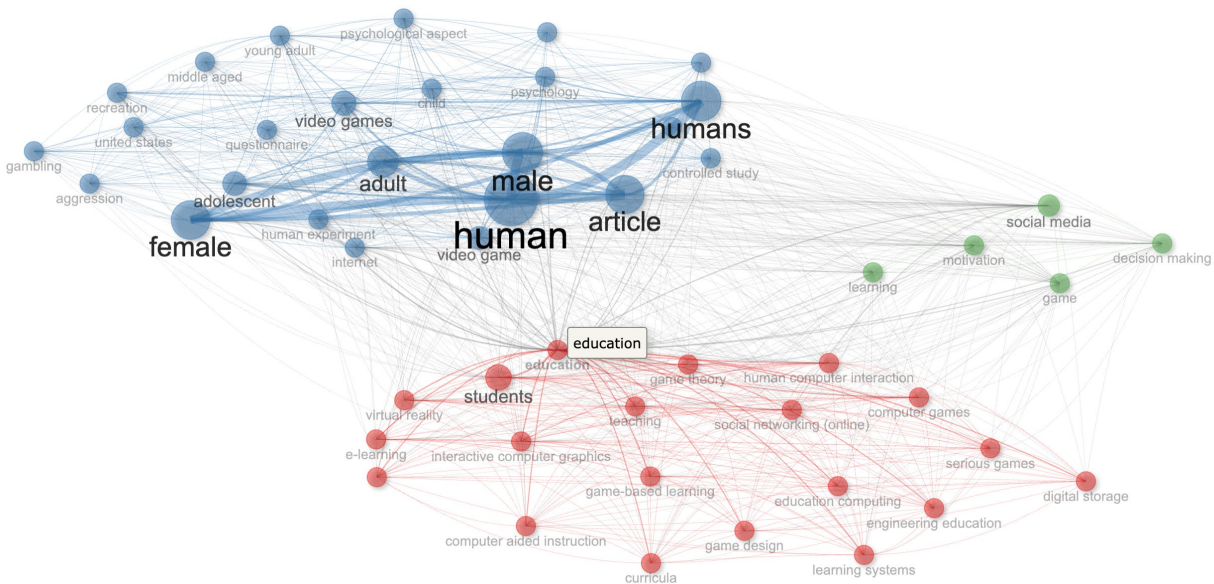

Figure 9. Co-occurrence network based on keyword.

Source: Biblioshiny.

This representation is the same as the interpretation from study clusters based on keywords plus in table 2 above, but the co-occurrence network map generated by biblioshiny features one more cluster, Green, which includes social media, motivation, learning, games, and decision-making. The

red cluster on the co-occurrence network overlaps with the blue cluster on the thematic map, where the study of "Game and Media" focuses on students, education, and human-computer interaction. The red cluster on both the thematic map and the co-occurrence network consistently shows the development of game studies as media for educational purposes. The same goes for the blue cluster. The co-occurrence network's green cluster contains game and media studies with the keywords learning (overlapping with the red cluster on the thematic map), motivation, social media, game, and decision-making (overlapping with the blue cluster on the thematic map), indicating a new dimension in game and media research.

These three clusters demonstrate a dynamic interaction of game design, human behavior, and education/learning, with the thematic map visualizing broad research trends and the co-occurrence network categorizing game and media study themes in greater depth and specificity. For example, human-computer interaction (red cluster) is linked to motivation and learning (both from the green cluster), and there may be a new trend in which game studies are designed to be not just interesting but also educationally beneficial. Similarly, studies on human experiments in the blue cluster emphasize the significance of doing empirical research to assess the efficacy of game-based learning and decision-making tools.

RESULT AND DISCUSSION

Research topics on video games in the scope of social sciences and art humanities can be related to many things. Based on bibliometric tracking, the first study related to the topic of games was conducted in 1960 with the aim of laying the basic theory of interactive computer design by J.C.R Licklider in his study entitled "Man-Computer Symbiosis".

Specifically, the study referring to the theme of video games was conducted by D.C. Anderson and S.J. Ford in 1977 in their research entitled "The Effects of Video Game Play on Young Children's Aggression" in the United States of America. This study is preliminary because the study methods and gaming technology are still not as advanced as in 2000 and above. The study that analyzes young children's exposure to violent video game content is also the main reference for Anderson and Dill's (2000) study on the correlation of video games to aggressive behavior in adolescents.

When connected with the results of tracking the thematic map generated from bibliometric studies in Figure 8, the trending topic of research on the influence of video games on human development (especially adolescents and males) has persisted for more than 20 years, until Gee (2005) became a pioneer of a new trend in studies related to games as educational media.

Comparison with the development of game studies in Indonesia

When comparing the two clusters of game study developments conducted worldwide with related studies on Indonesia, the first cluster study (gaming activities and their impact on human behavior) was first conducted by Indonesian researchers in 2013 by Jap (2013) in his study entitled "The Development of Indonesian Online Game Addiction Questionnaire" based on data from scopus.com. This search was conducted based on the keyword search "Game AND Human AND Indonesia" on scopus.com without filters on the search with the results of 146 documents found. For the second cluster study (game and media related to study and education), the data search was taken based on the keyword "Game AND Media AND Indonesia" entered on scopus.com without applying any filters to the subject area. This keyword successfully generated 274 documents related to game study and among the 206 documents sorted by year of publication, the oldest study with this keyword was traced in 1978 with the title "Traditional Patterns of Communication and Modern Mass Media in Afghanistan" by Rawan, S.M (1996), but this thematic study discusses the differences in communication patterns with a comparison of Iran, Pakistan, and Indonesia using ground theory particularly the concepts of media ecology and the diffusion of innovations.

The topic of utilizing games as educational media in Indonesia was only started in 2013 by Kurniawan (2012) with a study entitled "The Design and Analysis of The Space Exploration 3D Simulation Game". When comparing the two thematic clusters from worldwide with those conducted by Indonesian researchers, it is indeed quite far behind. For the study on games related to human behaviour (blue cluster), the distance from the first worldwide publication conducted by DC Anderson (1977) with Jap (2013) is 36 years (blue cluster), while games as educational media for learning (red cluster) worldwide, the first conducted by Gee (2005) with Kurniawan (2012) the first in Indonesia is 7 years apart.

Although studies related to Game and Media in Indonesia lag behind worldwide, its development can be said to be significantly increasing by years. In the last 5 years, researchers from Indonesia have begun to explore games as a learning medium. It is recorded that searches with the keywords "Game AND Media AND Indonesia" on scopus.com have 21 studies (2024), 31 studies (2023), 22 studies (2022), 32 studies (2021), and 23 studies (2020).

CONCLUSION

The biblioshiny study of data retrieved from scopus.com shows that the development of studies on games in the disciplines of social science and art humanities has expanded dramatically year after year. This theme analysis is divided into two clusters based on the phrase "Game and Media": before 2005 and after. The blue cluster represents the preceding study trend, which focuses on the consequences of games on psychological effect and gaming behavior. This cluster study examines video games, social media, social interaction, and decision making, with a focus on how video game play affects human cognition and behavior. Anderson & Dill (2000) conducted a study that found a link between video games and violent behavior in the psychological development of teenagers (gamers). This cluster investigation is highly significant since it serves as the foundation for the concept of game design studies as a learning medium, specifically the trend study after 2005 (red cluster).

Since 2005, the trend of research related to games and media has begun to shift towards education. This trend was pioneered by Gee (2005) and followed by various game researchers worldwide. This cluster study highlights keywords such as students, education, teaching, human-computer interaction, and e-learning. The trend of game studies that migrated from behavioural studies to pedagogical tools emphasizes the potential of games as an effective medium for disseminating knowledge.

In relation to learning methods for Indonesia's young population with low reading interest (Tensa Novela & Widyastono, 2022), alternative learning media like as games offer enormous potential as a learning medium that enhances the regulated learning curriculum. Fundamental studies on the role of video games in obtaining knowledge may be used as a basis for developing narrative-based games. Students who engage as gamers find themselves engaged with the story storyline, raising their level of interest in learning, which is ideal for subjects that are regarded boring, such as history and culture. In this situation, the biblioshiny study demonstrates the importance of combining blue and red cluster game studies when building games as a learning tool.

From this biblioshiny reports, there are two possibilities for next research trends. First, future studies to explore the integration of pop culture elements into game-based learning as a means to engage Indonesian Gen Z in historical and cultural education. Pop culture, encompassing music, films, social media trends, and contemporary art, resonates deeply with this digitally native generation, offering an effective medium to bridge the gap between traditional educational content and modern preferences. Second, studies to enhance games and intervention assessments for measuring the effectiveness/efficiency of learning through video game media may be the next academic trend. This

enhancement necessitates collaboration among stakeholders in the education sector and associated fields of study, ensuring that the learning design is not only effective but also immersive.

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