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Student-Generated Videos: A Bibliometric Analysis and Systematic Review

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Abstract

This study aims to provide an overview and contribute to the related literature by examining the videos created by the students. In this context, a systematic literature review was conducted in addition to a bibliometric analysis that was performed using the bibliographic data from Web of Science directory to identify the common words. Afterwards, word clouds were formed based on the information gathered from titles, keywords, and abstracts of studies. The literature highlights the metacognition category, that is students' thinking about their own learning, with relation to the purpose of use for the student-generated videos. Further, it is observed that the sampling of studies was mostly carried out in the higher education level. In terms of theoretical background, unspecified studies outnumber; theories in which students actively engage such as collaborative learning, constructivist approach and experiential learning stand out.

Keywords: Student-generated videos, bibliometric analysis, systematic literature review.

Öğrenci Tarafından Oluşturulan Videolar: Bibliyometrik Bir Analiz ve Sistematik İnceleme

Öz

Bu araştırmanın amacı, öğrencilerin oluşturdukları video çalışmaları ile ilgili alanyazın incelenerek, alanyazına genel bir bakış sunmak ve bu alandaki uygulamaları aydınlatmaktır. Bu bağlamda sistematik literatür incelemesi yapılmıştır. Aynı zamanda sistematik literatür incelmesi için Web of Science dizininden elde edilen bibliyografik veriler kullanılarak ortak kelime analizi yapmaya yarayan bibliyometrik analiz yapılmıştır. Başlık, anahtar kelimeler ve özete göre kelime bulutları elde edilmiştir. Alanyazında öğrenciler tarafından üretilen videoların kullanım amaçlarında öğrencilerin kendi öğrenmesine yönelik düşünmesi anlamına gelen üst biliş kategorisi ön plana çıkmıştır. Yapılan çalışmaların örneklem kademesi olarak çoğunlukla yükseköğretimde yapıldığı görülmüştür. Kuramsal dayanak açısından, belirtilmemiş çalışmaların sayısı daha fazladır; işbirlikli öğrenme, yapılandırmacı yaklaşım ve deneyimsel öğrenme gibi öğrencilerin aktif olarak yer aldığı kuramlar öne çıkmaktadır.

Anahtar kelimeler: Öğrencinin oluşturduğu videolar, bibliyometrik analiz, sistematik alanyazın incelemesi, literatür incelemesi.

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INTRODUCTION

The creation of videos by students is considered as the videos created for learning purposes (Alqurashi, 2020, p. 220). Videos created by students is expressed in various ways, such as student-created video, student-authored, learner-authored, or learner-created video, student or learner-generated media, student or learner designed digital media, and student or learner generative video media. Analysis of all these studies reveal the active participation of the students in the process. Students involve in the processes dynamically; hence, their perception and the way they use information deserve attention (Campbell et al., 2019; Campbell et al., 2020).

By actively engaging in the process of creating a video, students experience a more independent learning route for their own learning needs compared to passively watching the videos prepared by the instructor (Annan et al., 2019; Snelson, 2018). Students not only synthesize numerous resources related to subject content, but also write a script, read it, rehearse it, and then take multiple shots and edit. These activities enable students to gain competences of cross-curricular and self-expression skills (Annan et al., 2019; Arruabarrena et al., 2021). Studies on these videos have reported improvement in students' higher-order thinking skills, levels of participation, satisfaction, and collaboration skills (Annan et al., 2019; Benedict & Pence, 2012; Gallardo-Williams et al., 2020).

A limited number of research have examined issues related to student-generated videos (Reyna & Meier, 2018; Snelson, 2018). For instance, Epps et al. (2021) analyzed the use and benefits of studies on student-generated videos through a systematic literature review using the databases of JSTOR, ScienceDirect, Google Scholar and EBSCO. A total of 39 studies were reviewed within the context of pre-defined inclusion and exclusion criteria. The findings indicate that the production of videos by students reduces cognitive load, promotes creativity, enhances student independence, increase cross-curricular competence, and enable students to gain the ability to apply knowledge in a meaningful way. It is recommended that learning objectives be clearly stated; the teacher guide the students to manage their time effectively during the video projects; the students be exposed to diverse video and media designs to discover their creativity. Furthermore, leading experimental research help to explore student achievement thoroughly.

From another perspective, Snelson's (2018) research surveyed student video production with reference to content area learning. Within the scope of the study, 61 selected studies from 2006 to 2017 were systematically investigated. According to the results, student-generated videos form an integral part of the instruction to meet the learning objectives of competence, performance, composition, literacy, or creativity. Moreover, educators from multiple disciplines considered video creation by students as a viable strategy for assessing student learning.

Reyna and Meier (2018) reviewed literature by limiting the criteria to subject area and target audience and digital media created by the learner. The research followed four stages: identification, screening, filtering, and selection of relevant studies. Video animation, screenshot, digital story, and podcast creation studies were considered as student-generated digital media. Lack of student-generated digital media studies negatively influences the decisions of the model to be applied, and theoretical structure. Hence, consistent methodology deficits to evaluate the learning experience of the students; the field needs to be further explored. Specifically, regardless of content type produced by students, science teaching seems advantageous. A framework of design, implementation, and evaluation of digital media assignments by students necessitate to guide the educators.

Gallardo-Williams et al. (2020) presented an analysis on the use of student-created videos in chemistry and chemistry education in the context of generative learning theory. It also covers information about videos created by chemistry education students and presents guidelines for future researchers planning to integrate videos into their studies. Reflections of student-generated videos in the curriculum focus on the use of videos in the chemistry laboratory and those demonstrating chemical concepts.

Literature on student-generated videos is limited and bounded by specific fields such as chemistry education or science education. Despite their use in different disciplines, these videos seem integral to the content area, and are used especially for evaluation purposes. This study demonstrates that student work can be used in multiple ways without being restricted to the field. This perspective is believed to guide scholars conducting disciplinary and interdisciplinary research and those willing to integrate and research the student-generated video works.

This study aims to provide an overview of the literature by examining student-generated videos and to illustrate its implications to this field. For this purpose, answers to the following questions were sought:

Research Questions

1. What are the results of common word analysis of student-generated videos?
2. How do student-generated videos show a distribution based on the following?
    a. Subject area
    b. Disciplines
    c. Research design
    d. Sample level
    e. Sample size
    f. Sample selection method
    g. Data collection tool
3. How are student-generated videos used in the literature?
    a. How are they distributed according to the theoretical background?

METHOD

The bibliometric analysis method was used to answer the first research question of this study by presenting an overview of student-generated videos. This method provides a quantitative summary of information about studies (Hung & Zhang, 2012). The analyses of citation, co-citation, bibliography match, co-author and common word can be performed with numerous software. Common word analysis as a type of bibliometric analysis examines the concepts used in the title, abstract and keywords of the selected studies and the relationship between these concepts (Bağış, 2021). Since the software for bibliometric analysis functions as complementary, the content analysis takes less time (Hung & Zhang, 2012). A word cloud visualized the common word analysis. Word cloud, also referred to as tag cloud, is a visual representation of text data collected from various keywords or any text material (Kulakli & Shubina, 2020). The second and third research questions were examined with the descriptive analysis method, a qualitative research method, aiming a systematic review. In descriptive analysis, after the data analysis and description in a systematic way, the cause-effect interrelationships are explored and conclusions are reached (Yıldırım & Şimşek, 2013).

Observation, interview, and document analysis are among the data collection tools in qualitative research (Yıldırım & Şimşek, 2013). Since related literature is examined in terms of certain variables, this study utilizes document analysis method. The following inclusion and exclusion criteria are applied to access the studies to be systematically reviewed by the document review.

- Inclusion criteria
    - Student-generated videos
    - Studies indexed in the Web of Science database and published in English
    - Keywords used in titles: “student-created video”, “student-generated video”, “student-produced video”, “learner-generated video”, “student-prepared video”, “peer-generated video”
- Exclusion criteria
    - Teacher/instructor generated videos and those outside the context of focus
    - Studies with limited access
    - Non-peer-reviewed studies

Data Collection

During data collection, the articles were accessed using the Web of Science database. The following search query was based on the article selection criteria given in the inclusion and exclusion criteria.

Student-created video (Title) or student-generated video (Title) or student-produced video (Title) or learner-generated video (Title) or student-prepared video (Title) or Peer-Generated Video (Title) and Articles or Review Articles or Early Access (Document Types) and Book Chapters (Exclude – Document Types)

Considering these criteria, 42 articles that fit the purpose of the study were included in the study. Research process is given in Figure 1 with the PRISMA flowchart. The PRISMA flowchart is followed in meta-analysis studies and systematic literature reviews to show the process of systematic application of specified inclusion and exclusion criteria (Stovold et al., 2014).

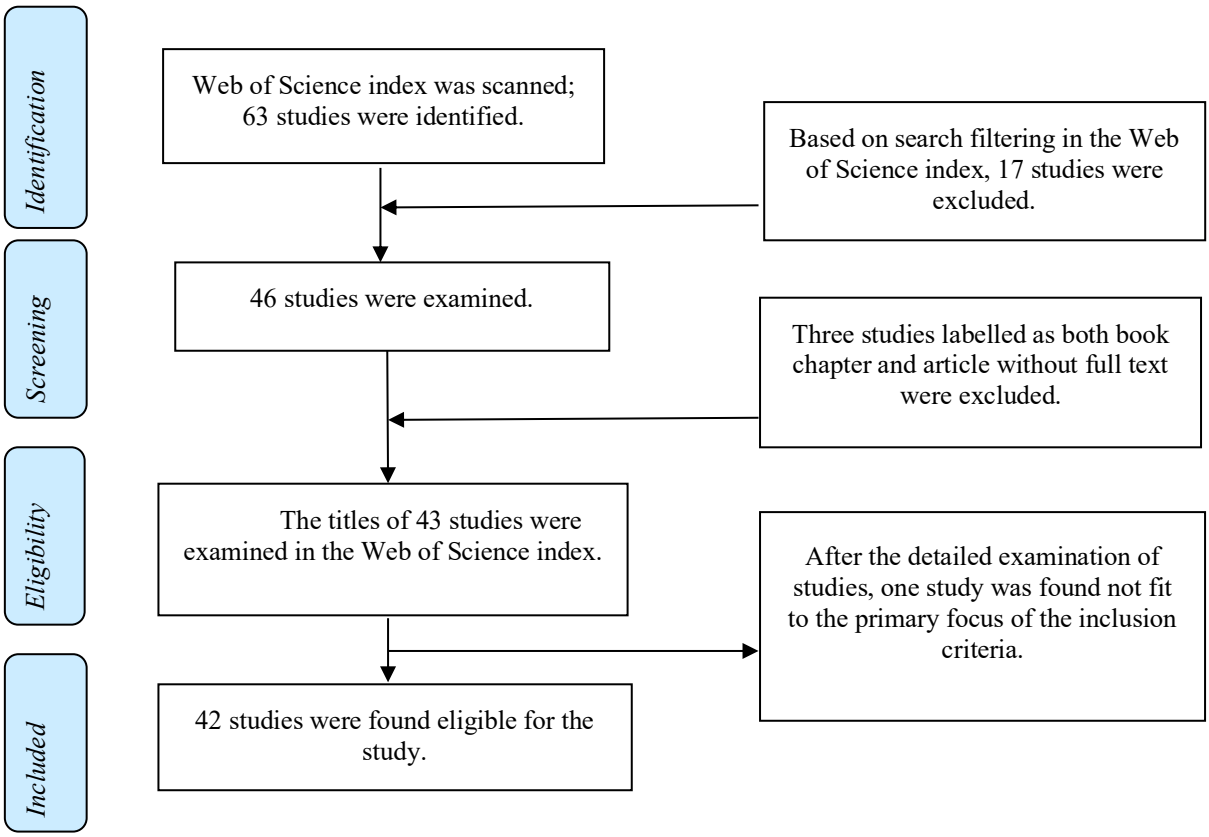

Figure 1. *PRISMA Literature Review Process Flowchart*

Source: Moher et al. (2009).

While coding the studies, the variable tables from the previous studies were referred. The studies were listed and saved to the MAXQDA software; coding was performed after the variable tables were transferred to this software. Kappa test was run to determine the level of agreement. Cohen Kappa measured the agreement between the two coders (Kılıç, 2015). In the first concordance study, the interrater reliability among the researchers was .62. Since this value was lower than the ideal value of .75 for Kappa, the researchers tried to come to an agreement. According to the fit test, the reliability coefficient was found as .85 and an ideal fit coefficient was reached.

Research Ethics

This study did not require ethical or legal consent since it was a bibliometric and systematic study.

FINDINGS

To address the first research question, the results of the common word analysis and the subject area, disciplines, research design, sample level, sample size, sample selection method, data collection tool, theoretical background, and the purpose of the video creation studies were examined in terms of the variables.

Common Word Analysis

In this type of bibliometric analysis, inquiry includes the title, summary, and keywords. A common word analysis was conducted using Web of Science's index title, author keywords, keywords plus and summary data. The bibliometrix online environment that uses the R infrastructure was chosen to study the common words. No coding knowledge is required to exploit this website (https://www.bibliometrix.org/); it can simultaneously combine the analysis and mapping of bibliographic data (Derviş, 2020).

Titles	Abstracts
	
Keywords Plus	**Author's Keywords**
	

Figure 2. Results of Common Word Analysis

Figure 2 presents the common word analysis results of titles, keywords, and abstracts in a word cloud. Depending on the frequency of the relevant words in the given categories, important words and texts are highlighted. Emphasis is usually signaled by font size or color. Accordingly, while the words "video" and "student-generated" prevail in the title, the concepts of "students", "learning" and "video" dominate in the abstract. As for the keywords, expressions like "education", "skills", "YouTube", "motivation", "organic chemistry" are seen extensively.

Classification of Studies by Topics

A systematic literature review was led using Yıldız et al.'s (2020) classification. As seen in Table 1, the topics of almost half of the studies (n=21) targeted Learner Outcomes covering performance outcomes, satisfaction, engagement, and motivation. It is followed by studies about Disposition code that includes students' perceptions, attitudes, preferences, and expectations. No comparative studies were identified.

Table 1. Distribution of Studies by Topics

Learner Outcomes	Performance outcomes, student satisfaction, engagement, effectiveness, motivation and effort, independence in learning and retention rates	21
Dispositions	Perceptions, attitudes, preferences, student expectations, and learning styles	9
Technology	Its use and role, effect, type, implementation, and familiarity	7
Instructional Design	Designs, strategies and best practices; design process; implementation; environment and course structure; and evaluation tools	3
Interaction	Student-to-instructor, general interaction, student-to-student, collaboration, community, and social presence	3
Professional development	Professional development	3
Comparison	Blended &face-to-face and blended & online	0
Demographics	Student and faculty	0
Other	Benefits and challenges, access and availability, support system, time efficiency, nature and role of blended learning, and international issues	4
Total		50

Source: Yıldız et al.'s (2020) adaptation from Drysdale et al. (2013)

Classification of Studies by Disciplines

A systematic literature review was conducted with reference to Yıldız et al.'s (2020) classification of learning domains. Studies that belong to other than the current classification were coded as 'other'. The distribution of the studies according to the disciplines are listed in Table 2.

Table 2. Distribution by Disciplines

Natural Sciences	Mathematics Computer and information science Physical sciences Chemical sciences Earth and environmental sciences Biological sciences Other disciplines in natural sciences	14
Social Sciences	Psychology Economics and business Educational Sciences Sociology Law Political Science Social and economic geography Media and communication Other disciplines in social sciences	8
Medicine & Health	Basic medicine Clinical medicine Health sciences Health biotechnology Other disciplines in medicine	6
Humanities	History and Archaeology Language and Literature Philosophy, ethics and religion Art (art, art history, performing arts, music) Other disciplines in humanities	5
Engineering & Technology	Engineering (Construction, electrical, electronics, information) Mechanics Chemical Materials Medical Environmental (Environmental Biotechnology) Industrial Biotechnology Nanotechnology Other disciplines in engineering and technologies	5
Agricultural Sciences	Agriculture, forestry and fishing Animal and dairy science Veterinary science Agricultural biotechnology	0
NA	The scope of the study does not fall into any disciplines.	1
Other	A learning area outside the classification	1
Unspecified	The discipline was not specified in the study.	2
Total		42

Source: Yıldız et al.'s (2020) adaptation from OECD (2007)

Table 2 demonstrates the status of Natural Sciences (n=14), followed by studies in Social Sciences (n=8). Further examination of these studies shows the popularity of chemistry within natural sciences. No study was detected from the field of agricultural sciences.

Research Design

The research design classification of Goktas et al. (2012) was referred and a systematic literature review was conducted. Studies that did not specify their research design were coded as "Not Specified".

Table 3. Distribution of Studies by Research Design

Qualitative	Case study Grounded theory Concept analysis Culture analysis Phenomenology	11
Quantitative	Comparative Descriptive Relational Quasi-experimental Survey Weak experimental Full experimental Ex post facto Single-subject (group)	8
Mixed	Triangulation Explanatory Exploratory	3
Literature Review	Literature review Meta analysis	3
Other	System development, design-based research	0
Unspecified	The research design was not specified in the study.	19
Total		44

Table 3 illustrates that almost half of the studies (n=19) were coded as "Unspecified" since the research design used was not stated in the studies. However, among the specified, most were conducted qualitatively (n=11).

Sample Level

This study referred to the sample level by Goktas et al. (2012) and completed a systematic literature review. If no sample level was mentioned in the studies, it was coded as "Unspecified". Studies unsuitable for the sample level were coded as "Not applicable". Table 4 presents the distribution of studies according to their sample level.

Table 4. Distribution of Studies by Sample Level

Higher education	31
K-12	9
Teacher/ Faculty	1
In-service/Employee	0
Preschool	0
Guardian	0
Unspecified	2
NA	1
Other	0
Total	44

As listed in Table 4, the majority of the studies (n=31) were carried out at the higher education level and the studies at the K-12 level remained at a lower level (n=9).

Sample Size

Goktas et al.'s (2012) sample size classification was referred, and a systematic literature review was conducted. Studies not suitable for sampling were coded as "Not suitable for sampling". However, the studies that did not provide any information about the sample size were coded as "Not Specified". The distribution of studies according to sample size is given in Table 5.

Table 5. Distribution of Studies by Sample Size

31-100	18
101-300	7
301-1000	4
11-30	4
1-10	3
1001 and above	0
Unspecified	5
NA	1
Total	42

Table 5 shows that the sample size (n=18) of the studies that showed a distribution size between 31-100. No study was found with a distribution size of 1001 and above.

Sample Selection Method

By referring to Goktas et al.'s (2012) sampling method classification, a systematic literature review was finalized. The studies without a specific sample selection method were coded as "Not Specified". The distribution of the studies according to the sample selection method is given in Table 6.

Table 6. Distribution of Studies by Sample Selection Method

Random	4
Purposive sampling	3
Convenience sampling	2
Total population sampling	0
Other	0
Unspecified	33
Total	42

As presented in Table 6, sample selection method was not indicated in many of the studies (n=33) and coded as Unspecified.

Classification of Data Collection Tools

Based on Yildiz et al.'s (2020) classification of data collection tools, a systematic literature review was performed. Studies without a data collection tool were coded as "Unspecified". Table 7 presents the distribution of the analyzed studies according to the data collection tool.

Table 7. Distribution of Studies by Data Collection Tool

Mixed	Combination of two or more data collection tools	23
Questionnaire	Question design, self-administered questionnaire, mail survey, questionnaire design, question types, question statement, questionnaire structure, preliminary survey, web-based questionnaire	8
Advanced technology	Computer-aided data collection, grid technology, audio and video, data mining, e-social science approaches to data collection	3
Interview	Question design, qualitative and quantitative, telephone, face-to-face, focus groups / group interview, computerized, standardized and non-standardized, interview practice, interviewer, interview procedure, interviewer training, respondents, response records	2
Measurement	Measurement of attitude, behavior, ability, etc.	2
Observation	Field observation, field experiment, participant observation, laboratory observation	0
Self-Administrative Questioning	Question design, mail survey, e-mail survey, web-based survey, opinion polls	0

Use of administrative resources		0
Sampling	Sampling and survey designs, sampling types (cluster sampling, multistage sampling, etc.)	0
Visual methods		0
NA	Data collection tool does not fit the classification or is not used for research method.	0
Unspecified	Data collection tools were not included in the studies.	4
	Total	42

Source: Yıldız et al.'s (2020) adaptation from Beissel-Durrant (2004).

Table 7 shows that more than half of the studies (n=23) used the mixed data collection tool that combine more than one data collection tool.

Uses of Student-Generated Videos in the Literature

Literature was systematically reviewed with reference to Schuck and Kearney's (2006) summary of the uses of student-created digital video. Studies of literature review were coded as "Other". Table 8 illustrates the distribution of the analyzed studies according to the uses of student-generated videos.

Table 8. Uses of Student-Generated Videos in the Literature

Communication tool	Activities for students to express and convey their thoughts, feelings, and knowledge	13
Observation and Analysis tool	Studies to develop students' observation, measurement, and analysis skills	10
Other	Works that do not fit into any of these categories. Literature review, meta-analysis etc.	3
Total		46

Source: Adapted from Schuck and Kearney (2006)

As listed in Table 8, almost half of the studies (n=20) aimed at facilitating students' own learning processes.

Theoretical Background

The codes in Table 9 reveal the results of examination for the theoretical background of the studies. Studies in which no theory was specified were coded as "Unspecified".

Table 9. Theoretical Background of the Studies

Collaborative learning	6
Constructivist approach	4
Experiential Learning	4
Constructionism (learning theory)	2
Theory of difference	1
Multimodal pedagogy	1
Sociocultural approach	1
Productive Learning Theory	1
Scaffolding	1
Project based inquiry	1
Learner video thumbnailing	1
Cognitive apprenticeship model	1
Role playing	1
Unspecified	20
Total	45

As seen in Table 9, the theoretical background of most studies (n=20) is unspecified; for those with theories stated, the most common theory (n=6) is based on collaborative learning.

DISCUSSION & CONCLUSION

This research aims to provide an overview of the research by examining the student-generated videos and to contribute to the practices in this field. Findings from the studies examined in the context of this purpose show that the majority of the studies in this field concentrate at the higher education level and that the studies in other fields are scarce. Similarly, Snelson (2018) points out the higher education students create more videos. This can

be practical and effective as university students access mobile devices easily and use them to capture videos (Epps et al., 2021; Gallardo-Williams et al., 2020).

In the study examining the disciplines in which student-generated videos are used, studies in the field of natural sciences are reported to be in the majority. Epps et al. (2021) state that in their systematic literature review approximately 70% of the studies are conducted in natural sciences such as biology, chemistry, and mathematics. As highlighted by Snelson (2018) study, educators from various disciplines see student-generated videos as a practical strategy forming a part of content area.

The distribution of the studies according to the subject area underscores the category of learner outcomes. Within this category, students' performance outputs, student satisfaction, participation, effectiveness, motivation, and effort are discussed. In the study by Reyna and Meier (2018), student-generated video activities are found to advance collaboration, project management, and experiential learning. Similarly, Snelson's (2018) literature review indicates that in the category of video production in the content area, projects generally focus on information and performance. Studies report learner outcomes for the development of students' knowledge and skills; however, theoretical frameworks for their measurement and studies in this field are methodologically do not suffice. Further, studies in this field are methodologically deficient (Reyna & Meier, 2018). In particular, the study design and sample selection processes were not expressed in many of the studies; hence they were coded as unspecified.

As for data collection tools used in the studies, the mixed data collection tool outnumbered due to the use of multiple data collection tools. In the studies, interview forms were used, as well as the video transcriptions. Despite the status of mixed data collection tool in the studies, Reyna and Meier (2018) state that a need for consistent methodologies to evaluate the learner outcomes rises due to emergence of studies in this field.

The metacognition category stands out in Schuck and Kearney's (2006) study analyzing the uses of student-generated videos. Most of these studies aim at facilitating students' thinking about their own learning. In this case, the most prevalent category in the coding for the subject area seems consistent. Correspondingly, Snelson (2018) highlights the position of studies on knowledge and performance.

In terms of theoretical background, unspecified studies outnumber; theories in which students actively engage such as collaborative learning, constructivist approach and experiential learning stand out. Similarly, Gallardo-Williams et al. (2020) echo the active processes during video creation processes in the field of chemistry within the productive learning theory. In this way, students have become media producers that create content for social media platforms such as YouTube, instead of being passive video consumers. As a result, approaches putting students in the center that lead to active participation guided by sound a theoretical basis contributes to student-generated video practices.

Suggestions

The following statements are recommended in the context of the studies reviewed to the researchers who will carry out studies based on student-generated video.

- Interdisciplinary studies can be carried out for studies in disciplines such as Agricultural Sciences where related studies lack; some best practices can be found in Natural Sciences, Social Sciences and Health.
- These studies can focus on different levels of education, such as K-12, preschool, or in-service education, instead of concentrating solely on higher education.
- Although the research designs are not clearly stated in many studies, most are qualitative studies. By increasing the number of experimental studies, the effects of student-generated videos can better be explored.
- Studies can be conducted on the use of student-generated videos for different purposes such as their advantages for peers, in addition to their use for metacognition, observation and analysis, and communication.
- Most of the studies are found to lack theoretical background. It is suggested that new studies be based on sound pedagogical theories.

Researchers' Contribution Rate

Researchers' Contribution Rate (You may modify this table according to your article)

Authors	Literature review	Method	Data Collection	Data Analysis	Results	Conclusion	(Other)
Author 1	☒	☒	☒	☒	☒	☒	☐
Author2	☒	☒	☒	☐	☐	☒	☐

Conflict of Interest

There is no conflict of interest.

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Appendix-1 List of Studies Examined

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