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# Multimedia-based dance learning in elementary school

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**ABSTRACT**

The development of technology affects the use of learning media in primary schools. This research applies the method of a systematic review literature with the favored revealing things for orderly audits and meta-examination (preferred reporting items for systematic reviews and meta-analyses (PRISMA)) protocol. The research stages include identification, screening, eligibility, inclusion, and presentation of analysis utilizing the help of the Mendeley application, Publish or Perish 7, VOSviewer, and NVIVO 12 Plus. The main topic findings of the articles are multimedia in dance learning and applications in dance learning. Other themes that have a somewhat distant relevance are digital tools, design, computational thinking, elementary school dance learning, kinesthetic learning, dance art, digital literacy skills, children, creativity, dance, and choreography software. The 20 articles were analyzed using NVIVO 12 Plus, then the results were narrated by the research questions. The findings of the analysis state that multimedia-based dance learning in elementary schools uses digital media, social media, films, computer programs, digital dance choreography, and the support of various parties. Multimedia-based dance learning in elementary schools has an impact on competence, and physical and spiritual health in elementary school children. Future researchers need to explore multimedia-based dance learning in elementary schools according to the times.



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## 1. INTRODUCTION

Several studies have explored multimedia-based dance learning in primary schools [1], [2]. But there are still few who study it systematically [3], [4]. Various kinds of multimedia utilization in dance learning have been carried out in basic education, such as through Youtube [5], and integrated into various subjects [6]. Multimedia-based learning is learning by utilizing many media such as video, animation, pictures, photos, tables, charts, maps, and others to support the success of learning [7], including the use of video, sound, and image-based Powerpoints [8], [9]. Multimedia in learning is essentially the integration of hardware and software in computers and the internet to facilitate learning [7]. This confirms that multimedia is a necessity in learning dance in elementary schools. Multimedia-based dance learning must be combined

with several aspects, namely dance genres through recordings and videos, dance vocabulary through manual and digital annotations, requirements through similarity, and multimedia feature extraction [10].

The development of art in elementary schools has developed along with the times and technology. The development of art learning itself also affects the aspects of models, methods, and media used in learning. That is the need for teachers today to continue to learn and use multimedia-based media [11], [12]. The rapid development of technology also affects learning media that are more practical, seem simple, and more contemporary. Examples of cellphones, laptops, netbooks, and tablets multi gadgets get that are now used by educators. That is why, especially teachers with basic education qualifications who are not graduates of art education are appointed to teach or teach the field of art, usually they only play videos and only explain. Many educators in elementary schools are known to teach more than one subject, especially in the fields of Indonesian, Mathematics, Science, Social Studies, and Civics. Moreover, a lot of data or research on educators who graduated from art education in elementary schools is still minimal or even non-existent, even only in extracurricular activities, schools bring in art teachers or trainers. Cultural arts and skills education is an art education that consists of various aspects, including music, visual arts, and dance [13], [14].

The significance of craftsmanship schooling can be perceived from the way that the entire of mankind's set of experiences as far as we might be concerned today has been passed on to us through different works of art like writing, music, visual expressions, dance, and show. Art can bring imagination to life and give life to humans. Art also carries implied noble values where those who study it will have values such as the spirit of discipline, tolerance, and politeness [15], [16]. The development of digital technology requires changes in dance learning in schools. So learning must also migrate using digital technology through multimedia platforms [17]. The development of fast-paced digital technology requires dance learning to apply 3D computer-aided technology (3DCA). This technology in computer-aided dance learning is to popularize changes in dance creations (DC) and dance learning in elementary schools [18].

The above background tries to explore multimedia-based dance learning in elementary schools which is a necessity. This research will focus on multimedia-based dance learning in elementary schools through a systematic literature review (SLR). Dance learning is still called ancient and undeveloped teaching, especially at the elementary school level. Researchers conducted a SLR to find out the extent of multimedia-based dance learning in elementary schools. Two research questions arise, namely i) how is multimedia-based dance learning in elementary schools? and ii) how is the application and impact of multimedia in dance learning in elementary schools?

## 2. METHOD

Making sense of exploration sequential, including research configuration, research technique (as calculations, Pseudocode or other), how to test and information obtaining [19]. The depiction of the course of examination ought to be upheld references, so the clarification can be acknowledged logically [20], [21] Figures 1 and 2, and Table 1 are introduced focus, as displayed beneath and refered to in the composition [22]. The SLR method in this article is applied to explore multimedia-based dance learning in elementary schools [23]. The exploration directed started with the recognizable proof of articles applicable to media-based dance learning in primary school on the Scopus data set. SLR in this article alludes to the favored revealing things for orderly audits and meta-examination (preferred reporting items for systematic reviews and meta-analyses (PRISMA)) technique [24]. This review recognizes sight and sound-based dance learning in primary schools in late articles contained in the Scopus data set. The four phases completed by scientists are recognizable proof, screening, qualification, and consideration [25], [26].

At the data inclusion and exclusion stage, the researchers developed criteria. First, the article is indexed in the Scopus database. Second, the article search used the Publish or Perish 7 application on the Scopus database [27]. Third, articles are only in English. Fourth, the articles searched were published from 2015 to 2022. At the screening and eligibility assessment stage for data analysis, researchers screened articles according to title, abstract, and keywords. Article findings according to keywords are multimedia in dance learning 28 articles, dance learning 200 articles, and dance learning in elementary school 25 articles with a total of 253 articles. In the next step, the same articles were discarded and 20 relevant articles were selected. Then entered into the Mendeley application in RIS format. Next, it was entered into the VOSviewer application and analyzed according to the initial thematic association according to the keywords entered [28]. The results of the analysis in VOSviewer can be seen in the figure below. The distribution of articles based on keywords is presented in Figure 2.

The visualization of Figures 1 and 2 shows that studies relevant to multimedia-based dance learning in elementary schools are close to several studies such as multimedia in dance learning, and application in dance learning. Other themes that have a somewhat distant relevance such as digital tools, design, computational thinking, elementary school dance education, kinesthetic learning, dance, digital literacy skills,

children, creativity, dancing, choreography software, and others. During the stages of screening and eligibility assessment for data analysis, several articles were selected. The articles were read comprehensively from the title, abstract, introduction, methods, results and discussion, and conclusions. Then the articles were entered into the NVIVO 12 Plus application and analyzed and the results were presented according to the two research questions above. The details of the process are summarized from the search process through the PRISMA flowchart in Figure 3.

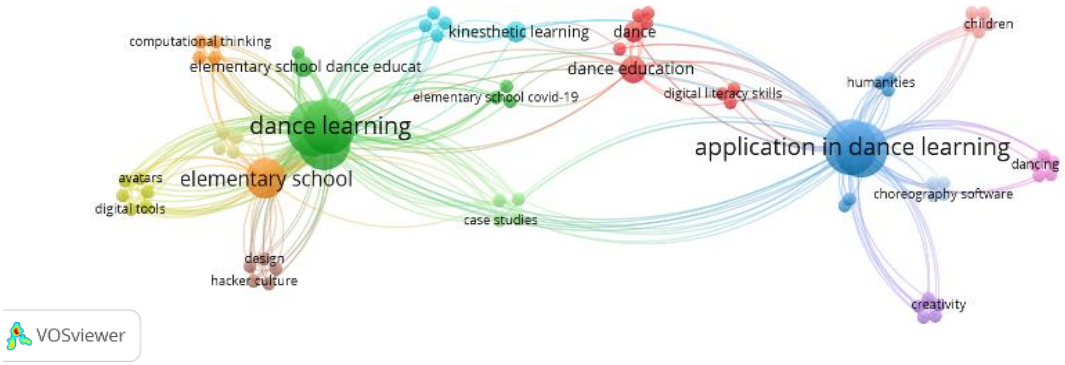


Figure 1. Initial network visualization

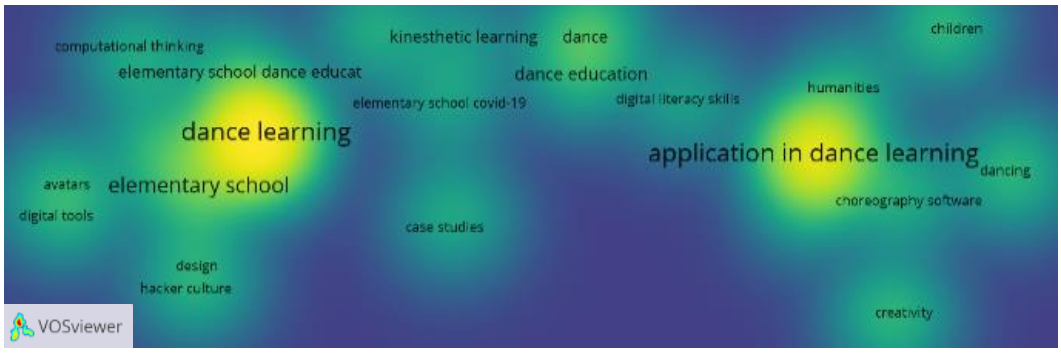


Figure 2. Visualization of article distribution based on keywords

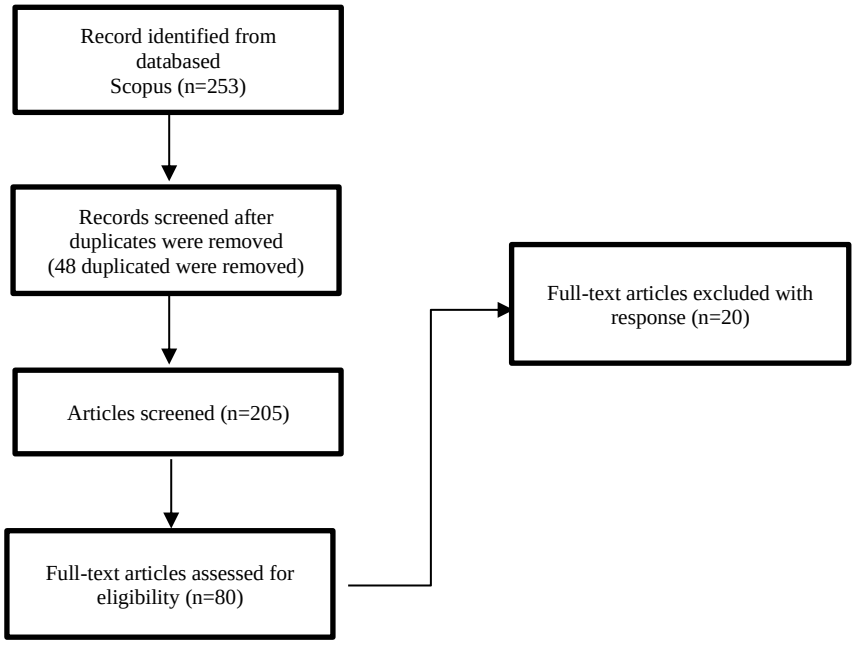


Figure 3. Flowchart of search and screening process [29], [30]

## 3. RESULTS AND DISCUSSION

Before being analyzed and presented narratively, here it is necessary to present the findings of 20 articles based on two research questions, namely i) how is multimedia-based dance learning in elementary school? and ii) how is the application and impact of multimedia in dance learning in elementary school? Presentation of article findings based on author, journal name and year of publication, country, and relevance to research questions can be seen in the Table 1.

Table 1. Mapping results of 20 articles based on links to research questions

| No | Author | Journal | Country | Relevance to research |
|---|---|---|---|---|
| 1 | [31] | European Journal of Educational Research 2021 | Netherlands | 1 |
| 2 | [32] | International Journal of Education and the Arts 2015 | Canada | 1 |
| 3 | [33] | The Gerontologist 2015 | America | 2 |
| 4 | [34] | International Journal of Emerging Technologies in Learning (iJET) 2016 | China | 2 |
| 5 | [31] | Digital Creativity, 2017 | Denmark | 1 |
| 6 | [35] | Inventions 2018 | Czech Republic | 1 |
| 7 | [36] | International Studies Perspectives 2018 | Britania Raya | 2 |
| 8 | [37] | Sensors 2019 | Gemarny | 2 |
| 9 | [38] | Research in Dance Education 2019 | England | 1 |
| 10 | [39] | PLOS ONE 2020 | Spain | 2 |
| 11 | [40] | Journal of Research on Technology in Education 2020 | USA | 1 and 2 |
| 12 | [41] | Journal of Experiential Education 2020 | Northern Ireland | 1 |
| 13 | [42] | Research in Dance Education 2020 | Southern Brazil | 1 |
| 14 | [43] | Research in Dance Education | China | 1 |
| 15 | [44] | Athens Journal of Education 2020 | USA | 2 |
| 16 | [2] | Journal of Physics: Conference Series 2021 | China | 2 |
| 17 | [45] | Journal Cakrawala Pendidikan 2021 | Indonesia | 2 |
| 18 | [46] | Harmonia: Journal of Arts Research and Education 2021 | India | 2 |
| 19 | [47] | Harmonia: Journal of Arts Research and Education 2021 | Indonesia | 1 |
| 20 | [48] | Arts Education Policy Review 2022 | USA | 1 |
| 21 | [49] | International Journal of Child-Computer Interaction 2022 | Several Country | 1 |

### 3.1. Multimedia-based dance learning in elementary school

Dance teachers and prospective dance teachers must get out of their comfort zone. They are required to apply multimedia in dance learning such as the use of project move, digital media, and social media, to improve the professionalism of teaching dance [32]. Dance learning in Denmark utilizes the Nordic panorama (NP) film festival which is an innovative form of multimedia-based dance learning by integrating industry, film, media, and education [31]. As a cultural heritage that has been given space by UNESCO, a traditional dance in several countries is integrated into visualization-based learning. The learning of folk dance is digitized by utilizing visualization of folk dances that are adapted to learning according to their level, including in elementary school [35]. The WhoLoDancE EU Horizon 2020 project develops technology for dance education through the application of Avatar and dance learning in dance studios. The dance studio, equipped with digital technology tools, assisted dance teachers and choreographers in learning dance [38].

Dance learning in elementary schools in the USA has been developed for over seven years through the integration of computer programming, dance choreography, digital environments, and computational thinking. They conduct dance rehearsals and performances for virtual characters [40]. In Northern Ireland, dance learning and physical education are integrated through the national curriculum for early childhood and primary school age. This national curriculum on dance reinforces creative dance education in physical, cognitive, and socio-emotional aspects, which are very central in the curriculum [41]. The study in Southern Brazil mentions that dance learning is implemented through somatic education. Dance learning here is integrated through the integration of artistic behavior, technological modeling, and dance creation from elementary school [42]. During the pandemic, dance learning requires implementing multimedia. Through a dance-based website, students are invited to be digitally literate about dance. Dance learning is carried out online supported by calm dance material/content, access, and interesting features [47]. Studies in the United States, online-based dance learning is supported by the role of dance organizations such as the National Dance Education Organization (NDEO). NDEO has a major role as an organizer for dance educators across the US to develop, deliver, and innovate multimedia-based dance learning [48]. The multimedia-based dance learning platform is integrated through a digital curriculum. The integration of dance subject areas includes art, science, music, movement, literacy, and math. The multimedia also develops storytelling skills as a support for the dance illustrations taught to children [49].

### 3.2. The application and impact of multimedia in learning dance in elementary school

The application of multimedia in learning dance in elementary school in the American study is done through the combination of dance, theater, music, literature, and visual arts. The material content is not only pure dance but also folklore and literature visualized through multimedia [33]. The multimedia in the Chinese study incorporated audio and video dance elements. This development focuses on virtual technology-based choreography luna devices for dance and also for gymnastics [34]. The application of multimedia in dance learning is more practical, active, and inclusive through digital teaching modules, fictional television, fictional films, dance learning, and social media [36]. Studies in Germany suggest that dance learning has a favorable impact on emotional refinement, speaking style, mood, and physical health. The application of multimedia in dance learning and Salsa dance also has an impact on good movement, regular body coordination, and the direction of dance improvement in the digital era [37]. Dance learning through the utilization of exergame has an impact on dancers' motor skills and digital motor skills. This integration of games, dance, and motorsports applied to 417 students has an impact on building positive attitudes, fun, and optimism in applying digital technology [39]. The impact of a multimedia program in dance learning in several elementary schools in the USA on the mental shift of computer use in dance, student engagement in a virtual platform for dance, and improvement in students' computational thinking skills [40].

Dance learning in China research, implemented through professional learning through multimedia that integrates dance and choreography. They are trained through online dance training programs by maximizing dance education masters. They use internet-based multimedia, digital technology, social media, and other digital platforms [43]. A study at Creekside Elementary School, Sammamish, USA, applied Wolf Trap dance to math learning. Through Wolf Trap dance, students were introduced to geometry and math connection skills. This innovation had an impact on confidence and participation in the classroom [44]. The impact of the COVID-19 pandemic has necessitated online-based dance learning in China, utilizing multimedia and digital technology. Through multimedia and modern electronic applications, students are introduced to dance substance and expression, dance appreciation, dance styles, and dance skills [2]. Dance learning for 205 students in the Indonesian study used Youtube. The impact of this digital-based media gives students the spirit to be aware of digital media while still using traditional media and preserving local wisdom [45]. A study of 630 students in four primary schools in Manipur, India, found that multimedia-based dance learning had an impact on improving students' creativity, psychomotor skills, and physical fitness [46].

## 4. CONCLUSION

Multimedia-based dance learning in elementary schools uses project move, digital media, social media, films, computer programs, and digital dance choreography, and is supported by dance organizations that focus on innovating dance learning in the digital era. Dance learning can be integrated into various subjects such as science, math, music, literacy, and others. Multimedia applied in dance learning is done through various applications, software, and various digital platforms. Multimedia-based dance learning in elementary school has an impact on subtle feelings, speaking styles, heart atmosphere, batan health, good dance movements, affected body coordination, dance improvement in the digital era, interesting motor skills, increased computational thinking ability in students, creativity, psychomotor, and physical fitness. Future researchers need to explore multimedia-based dance learning in elementary schools according to problems, gaps, and contemporary multimedia developments.

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