

DIGITAL STORYTELLING AS AN INSTRUCTIONAL MEDIA TOOL WITHIN THE ELEMENTARY SCHOOL EDUCATION: A SYSTEMATIC REVIEW

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Abstract--- *Although Digital Storytelling (DST) was definitely a popular educational media tool in training from the 1990s, there is a lack of evaluation of DST effectiveness in elementary schools' training. For this reason, a systematic approach in reviewing existing literature has been used. Research articles were searched in electronic databases applying "digital storytelling" as a keyword and in the aspect of the "elementary school education." The systematic review listed 24 publications that meet the requirements above. Our analysis shows that the adoption of DST in the Asian and European countries has increased over the years. Upon content analysis, it was found that studies about DST in classrooms started in 2008, with the number of studies growing yearly and the highest number of studies conducted in Asian countries. The experiments had been mainly carried out in language guidance, accompanied by science learning. As a result, observational research is required to track the effect of DST studies and information on DST in the elementary school classroom. It's extremely hoped the paper would find that DST is able to offer a strong learning experience covering a lot of what society expects will be noted and able to do within the 21st century.*

Keywords--- *ICT, Instructional Media, Digital Storytelling, Education*

I Introduction

In this century, education and learning take place using the latest notions and techniques, for example, computers, the Internet, multimedia, audio, video, and animation (Ohler, 2008). Today, Internet access can be reached from everywhere, including cell phones, through technological development and Internet resources. As people begin to have access to the Internet independent of time and space, Internet usage is growing (Karakoyun & Kozu, 2016) and people are obtaining information everywhere and anywhere. The advancement in ICT leads to knowledge appearing in various formats, namely audio, video, animation, and mixture. This, in turn, contributes to the improvements in the world of education and training. Incorporating digital storytelling (DST) in the learning of different subjects, according to several research works, has created learning prospects in many fields, namely facilitating the learners in enhancing study capacities, organizational abilities, and interest for the subject (Salpeter, 2005). DST is also found to be an effective tool to help students better understand, and gather,

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develop, evaluate, and integrate visual pictures with written text (Burmark, 2004), help struggling learners to see and visually communicate text (Hafner & Miller, 2011).

In Malaysia, several studies on DST have shown that DST has succeeded in enhancing learning. Norhayati and Siew (2004) pointed out that students were capable of defining moral values better in moral education-related subjects and were drawn to this form of learning. Krish, Hussin, and Sivapuniam (2011) reported that researches on the reception of Malaysian students in technological advances have been largely encouraging.

DST differs from conventional storytelling because it ensures interaction and enables people to form their tales, not only by playing the role of viewers but also by using data and communication technology to tell stories. DST focuses on the incorporation of storytelling with multimedia for certain purposes in literature, for example, text, photographs, audio, music, and video. DST is widely used in various disciplines, including education, medicine, communication, tourism, and sociology. DST is used for many reasons, for example, to tell people about significant events in life, to examine historical events to understand their background, and to provide educational information (Donner, 2002). Digital stories are short videos created through the integration of image, video, context, and are an audible or written narration via certain simple hardware and authentic software (Wang & Zhan, 2010). DST produces meaningful stories representing the imagination of individuals (Robin & Pierson, 2005). Info-based, instructive, and personal stories can be targeted towards digital stories (Robin, 2008). Digital stories can vary from personal or educational stories to accounts of historical incidents and various fields, from social science to technology. Education innovations have gradually materialized in the education and learning world; therefore, as many academicians, scholars, and educators have stated, digital stories have become common in the school environment and different study areas (Banaszewski, 2005).

DST is an effective teaching and learning technique or method to build communities, to connect, to reflect on their experience, and to promote teaching (Robin, 2008). DST has made a significant contribution to the development of students through various skills, including literacy, critical reading, troubleshooting, critical thinking, and communication. Teachers can use their own stories in schools to bring teaching into action or require students to create digital stories to make abstract topics more comprehensible in conceptual content, encourage discussions of topics, or enhance current classrooms (Chang, 2017). Therefore, DST can be seen as a tool for teachers and learners to adopt new technology and acquire new skills in literacy. Jacobsen, Clifford, and Friesen (2002) maintained that teachers who have regularly been challenged to apply ICT devices are often new to those tools and have less technical expertise than the students.

In Malaysian classrooms, the ICT program in the region of internet learning and teaching has risen recently. Kumar et al. (2008) found a moderate connection between Actual Computer Usage (ACU) and secondary technical acceptance; nevertheless, the researchers found the attitude and perceived helpfulness and usability concepts (among other things) demonstrated significant positive relationships with AUC. This indicates that the use of technology was generally positive, although its real use was only mild. The failure of the teachers to introduce more technology into their teaching tend to answer the question of why the use of DST was moderate (Singh, T.K., & Muniandi, K. (2012)

This research seeks to display the present problem of DST in chief education by systematically reviewing the literature on DST and also the context of primary school. It is, therefore, intended to define DST in the education

field and the research methods that were used to incorporate DST based on various criteria. To the very best of the authors' expertise, there have been no previous systematic ratings on this subject.

II METHODS

A systematic review of the literature by experts was carried out on 15 December 2019 to define DST as an Instructional Media (IM) tools within the elementary school education. Peer-reviewed literature was scoured for studies of DST in the classroom content from two research databases (SCOPUS and WEB OF SCIENCE). The search terms were (Digital* OR media*) AND (storytelling*) AND (classroom*). Two researchers independently searched and deleted duplicate articles. The same researchers performed a title and abstract screening evaluation of the materials. Other publications were thoroughly read and analyzed based on the requirements for inclusion. The researchers summarized the included studies separately on samples, study design, data collection methods, and the interpretation of findings. A reviewer divided every article into two categories, namely research papers and systematic reviews of past studies. To identify relevant sources, a systematic review of previous studies was also included for a full-text analysis; however, the current systematic review does not include these reviews.

In this systematic review, the DST concept focuses primarily on the classroom setting. The included studies were qualitatively synthesized throughout the studies with a brief analysis of specific subjects.

III RESULTS

A peer-reviewed literature search resulted in 95 articles, five of which were duplicates and removed from the list. Forty-two papers were omitted from the analysis after the review of the titles and abstracts, and the remaining 48 articles were included for a full-length evaluation. Finally, from the 48 articles, only 24 articles qualified for the analysis, while 24 articles were omitted. Among the 24 excluded articles, two conference papers (Aronson et al., 2016; Treadwell et al., 2011;), three educational reviews (Kane et al., 2002; Takacs et al., 2015; Greene et al., 2018), 16 types of research did not present any relevant data for the current systematic review (Beucher & Seglem, 2019; Benick, 2012; Gon et al., 2017; Miyaji, 2018; Matias & Grosland, 2016; McGovern, 2019; Price et al., 2015; Rahim, 2012; Kordaki & Psomos, 2014; Kobayashi, 2012; Nam, 2017; Roberst, 2019; Starcic et al., 2017; Esteban Nunez & Gomez Rios, 2019; Diaz, 2016; Mojgan & Mosayeb, 2018;), and one study did not provide first instance data (Saubern et al., 2019).

The 24 included studies are summarised in Table 1. The included studies were published on 2018, with three studies each conducted in Indonesia (Nurul, 2017; Suhartoo et al., 2018; Dewi et al., 2018), Taiwan (Yang et al., 2012; Chian et al. 2016), the USA (Zaidi et al., 2017; Robin, 2018), followed by two studies in Iran (Moigan et al., 2018; Bashirnezhad & Yousefi, 2017), Portugal (Morais et al., 2019a; Morais et al., 2019b), one study in Turkey (Ozen et al., 2019), Italy (Di Bals et al., 2010), Greece (Ramos & Bratitsis, 2018), Austria (Alexander, 2018), Saudi Arabia (Eissa, 2019), Pakistan (Elahi et al., 2015), Malaysia (Thang et al., 2015), the UK (Wright et al., 2019), Australia (Smeda et al., 2014), Egypt (Sadik, 2008), and Korea (Nam, 2017).

All but seven of the included studies focused on DST effectiveness in the primary school classroom. The 7 articles are DST for nursing classes (Price et al., 2015), storytelling and also mothering (McGovern, 2019), an

evaluation of autobiographical resources in written manifestation (Robert, 2019), 4 research centered on the traditional technique of storytelling minus the utilization of technologies (Rios and Nunez, 2019; Gon, 2017; Kirsch, 2016; Piipponen, & Karlsson, 2019).

IV DISCUSSION

Peer-reviewed literature documenting DST as a digital classroom aid was systematically examined for the first time to determine the efficacy of increasing the subject skills of primary students. We reviewed 24 research articles and evaluated the patterns and outcomes of the DST analysis in this systematically analyzed literature on DST. Our review shows a continuing dependence on DST. Indonesia has the most studies in our analysis of this topic. DST participants vary among the primary, secondary, and higher education institutions. When the articles were analyzed, it was determined that the original contexts of those articles were English language teaching (N= 14), followed by Chemistry and Science (4), Mandarin (1), Turkish (1), Math (1), Computing (1) History (1) and General study (1).

Our search identified one peer-reviewed article that matched our topic, authored by (Dewi, N. R., Savitri, E. N., Taufiq, M., & Khusniati, M., 2018). This research was conducted for eight weeks in a primary school in Bandung, Indonesia, as an additional school project. The students' language skills ranged from basic to intermediate. Before this project was initiated, the students were asked whether they were ready to join the project voluntarily and whether they had access to their mobile phone and a reliable Internet connection. The study included an English teacher to assist the researchers in helping the students to focus on their DST project. As Reinders (2011) stated, students, can develop their linguistic skills and create digital biographical narratives about the life of outstanding personalities through story writing and digital storytelling. When writing scripts, the students were more optimistic about writing longer stories, as their peers and teachers gave constructive feedback. The students could also develop their pronunciation and intonation in storytelling by rehearsing their narrative several times.

| No | Author | Country | Type of paper | Subject | DST enhanced student learning | DST increased classroom participation | Summary |
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| 1 | Yang et al. (2012) | Taiwan | Research | English | Yes | Yes | The performance of DST partakers was substantially better compared to lecture-type ITII partakers in the aspects of English accomplishment, critical thinking, and learning purpose. The DST's vital learning great was highlighted in the job interview results because the teacher and learners indicated DST enhanced elements, such as learner's comprehension of subject content, willingness to enjoy, |

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| | | | | | | | and capability to think critically, that's vital in preparing learners for dynamic modifications to come down with 21st century. |
| 2. | Alexander (2018) | Austria | Research | English | Yes | Yes | 2 classes of co creativity, namely engaged control and action, were shown by learners in the electronic story writing stage. Learners alter various methods of engagement and immersive intensities of committed work by offering, acquiring, sharing, or restricting control in the tasks of digital story-writing. Learners experienced co-creative flow as shared pleasure and excitement, which materialized via full immersion in the functions of the digital story-producing stage, where control and rationality were not present. |
| 3. | Chao-Fernandez et al. (2017) | - | Conference | Music | Yes | Yes | The application of online DST resulted in an increased level of musical appreciation in the whole group, specifically among the learners who were the centre of the research, who became more incorporated into the class and whose self-esteem improved significantly. |
| 4. | Eissa, H. M. S. (2019) | Saudi Arabia | Research | English | Yes | Yes | The students of the chosen tertiary institutions faced hardship in speaking English, discovered that using DST as a pedagogy assist the learners in building their speaking abilities. These results help Saudi Arabia's EFL instructors in establishing a favourable environment in and out of their lessons, that will encourage the students to converse in English efficiently. |
| 5. | Suharto et al. (2018) | Indonesia | Research | English | Yes | Yes | In order to explain the progression as well as quality of DST press improvement with a paired storytelling mastering standard to improve the speech skills of second grade pupils of Annur Surabaya Islamic Elementary School. |
| 6. | Setyarni et | - | Conference | English | Yes | Yes | Higher-Order Thinking was endorsed to educate |

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| | al. (2019) | | | | | | teenagers English in all learning sessions via different approaches, namely questioning, brainstorming, role-playing, mind-mapping, discussing, and forming new thoughts written in storytelling. As learners could convey their ideas critically safely, they found this learning framework fun and enticing. The learners can associate their previous knowledge and experience too. |
| 7. | Mojgan et al. (2018) | Iran | Research | English | Yes | Yes | Findings demonstrated that role-playing application in storytelling lessons had a substantial impact on young Iranian EFL students' story writing over the approach of reading stories aloud. Moreover, the results indicated applying role-playing in storytelling lessons improved students' comprehension of the story writing style and forms of the focused language. |
| 8. | Elahi et al. (2015) | Pakistan | Research | English | Yes | Yes | Pakistan's educational policy recognized the significance of information technology in learning and teaching practice. This research illustrates the efficiency of DST against the conventional and learners' digital learning process at elementary schools. Qualitative research approaches such as interviews with teachers and youngsters and classroom observation were used in this research. The outcome of the study indicates DST can be applied effectively as a significant strategy with this group. |
| 9. | Chiang et al. (2016) | Taiwan | Research | English | Yes | Yes | DST improved students' imaginative thinking extremely. Students' reactions on the use of English readers and DST instruction had been encouraging. |
| 10. | Nurul (2017) | Indonesia | Research | English | Yes | Yes | Speaking is a crucial proficiency that must be exercised in the classroom. This result suggests that teaching skills via reading and storytelling approach can |

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| | | | | | | | enhance the speech capability of the learners. |
| 11. | Morais et al. (2019) | Portuguese | Research | Science | Yes | Yes | The interaction between the older learners and also the pre-schoolers was discovered to be advantageous for the 2 groups, as this task encourages knowledge gain. From the queries they presented, the informal interactions, and their drawings, the younger learners were observed to understand the theories, like the discussions, and be interested in pursuing science in the “storytelling moment” and first-hand tasks with the pre-schoolers. This research demonstrated that the application of stories and first-hand tasks is a constructive approach in encouraging youngsters to study chemistry. |
| 12. | Blas et al. (2010) | Italy | Research | English | Yes | Yes | Some distinct elements and advantages associated with the application of DST are investigated in this study, concentrating on two particular problems: a) How digital storytelling can become “collective,” that is, including the entire class, instead of individuals or small crowds; b) How digital storytelling can be incorporated into regular syllabus tasks at school, creating significant learning advantages. |
| 13. | Dewi et al. (2018) | Indonesia | Research | Science | Yes | Yes | Science DST could enhance learners’ cognitive skills. The N-gain calculation values are 0.48 and 0.42 for experimental class one and class two, respectively. The enhancement of learners’ cognitive abilities on both levels was moderate. Tremendous progress was evidenced by the new classes in the conventional completeness of learners' cognitive abilities. |
| 14. | Thang et al. (2015) | Malaysia | Research | Mandarin | Yes | Yes | Examinations demonstrated that DST that merges storytelling with various digital audio, video, multimedia pictures effectively improves |

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| | | | | | | | language learning in multiple contexts. DST is observed to inspire learners while enhancing their interaction, social, and technology abilities. The establishment of DST improves teachers' and learners' experiences in different ways. Even with weak points, the Mandarin mentor was eager to continue using it in the classes of his. |
| 15. | Wright et al. (2019) | United Kingdom | Research | English | Yes | Yes | Results indicate using storytelling consistently in classes would be useful for primary school teachers to build youngsters' spoken language, helping them to understand the stories. Enhanced spoken language abilities can result in the kids often participating in class discussions, providing more extended responses to teachers' queries, feeling a better delight in and commitment to language and literature, that could lessen extensive issues related to language challenges, for example, classroom disturbance and behavioural troubles. |
| 16. | Smeda et al. (2014) | Australia | Research | English | Yes | Yes | This study indicates that DST can aid learners with special needs, such as ESL and VCAL learners. Furthermore, DST is able to help learners in raising the confidence of theirs and provides to better social and mental abilities. |
| 17. | Sadik, (2008) | Egypt | Research | English, Science, Math & Social | Yes | Yes | Teachers could be motivated to apply DST in preparing stories about their classes and learners and relate to colleagues from different schools to develop their own cooperative learning spaces. |
| 18. | Zaidi et al. (2017) | USA | Research | Computing | Yes | Yes | Findings provide a proof which offers a string of courses encompassing Scratch by a variety of learners with ample female role models (four females as well as male student) who might change the mindset of children on computing. |
| 19. | Nam (2017) | Korea | Research | Chemistry | Yes | Yes | DST impacts learner accomplishment, social existence, attitude in online cooperative learning |

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| | | | | | | | conditions. |
| 20. | Ozen Et al (2019) | Turkey | Research | Turkish Language | Yes | Yes | The majority of the learners desired to have digital production tasks in Turkish subjects, and that they prefer to prepare their stories using computers rather than writing in conventional methods. |
| 21. | Morais Et al. (2019) | Portuguese | Research | Chemistry | Yes | Yes | This constant research focuses on the need to improve the storytelling and additionally exercises to impart chemistry to a crowd attending not just the cognitive skills of theirs, social representations, and also context; but in addition to the own specificity of this particular science. |
| 22. | Rammos & Bratitsis, (2018) | Greece | Research | History | Yes | Yes | The growth of the differentiated teaching model on the chapter of sixth class History, which includes the design and production of a learning game using ICT through peer teaching educational material. |
| 23. | Robin, (2008) | USA | Research | General Topic | Yes | Yes | This paper explains the technological pedagogical content knowledge (TPCK) framework and discusses how the framework can be applied with DST. |
| 24. | Bashirnezhad & Yousefi, (2017) | Iran | Research | English | Yes | Yes | The research focused on storytelling listening effect on Iranian intermediate EFL learners' pronunciation. The study revealed that the planned DST curriculum was efficient as it increased the student's enthusiasm to improve their pronunciation. |

There are two limitations in this study. First, we only concentrated on and reviewed the 24 high-quality studies in our systematic review because of the limited time and resources. Second, we wanted to include an overview of the functions of the teacher. Such knowledge is, however, sometimes incomplete and, therefore, inadequate for a meaningful analysis. Additional empirical research may also include the role of the instructor in DST for further comprehension.

V CONCLUSION

Overall, this study described the broad trends in the usage of DST in classrooms. This research was limited to 24 reviews that were obtained from electronic databases through a survey conducted with keywords “digital

storytelling.” It is, therefore, possible to achieve broader results, taking into account the research expected to be undertaken in the future, by conducting inquiries in various contexts with different key terms in multiple databases and by reviewing published studies to establish an improved framework for future studies.

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