A Learning Process Model to Enhance Digital Literacy using Critical Inquiry through Digital Storytelling (CIDST)

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Abstract—Digital literacy is important because it is the underpinning influence that sustains an individual's competent and purposeful use of digital technology in education. Having digital literacy requires more than just the technical ability to operate digital devices properly; it also comprises a variety of skills that are utilized in executing tasks in digital environments, such as information skills, socio-emotional skills, cognitive skills and reproduction skills that the learner needs to master in order to use digital environments effectively. This research aim is to propose a learning process model to enhance digital literacy using critical inquiry through digital storytelling (CIDST). The research methodology was divided into two phases: the first phase involves document analysis and synthesis to develop the learning process model and the second phase involves evaluating the suitable learning model by experts. From the results, we anticipate that our learning process model could be used for reference on the part of teachers planning and implementing instructional activities to enhance the digital literacy of undergraduate students.

Keywords—Digital literacy, digital storytelling, critical inquiry, learning process

1 Introduction

In the modern era, digital literacy has become highly popular within educational institutions and learners. A huge jump in technology has introduced dramatic changes to our daily life, one aspect of which that enables us to strive being digital citizenship. Hence, there is a need to close the gap in terms of digital device accessibility, and expand opportunities to access technology in order to create equality.When learners can make increasing use of media and technology to interact with their environment, learner autonomy is significantly cultivated and consolidated. They will gain competence in researching, investigating and creating their own digital masterpieces with the assistance of the modern tools that are available. This increased learning

opportunity enables them to expand their knowledge and creativity to a greater level [1]. Therefore, orienting learners toward a practical application of technology to support learning is crucial [2]. This is in harmony with the study by Shopova [3] which highlights the significance for technologically-oriented individuals in constantly updating their knowledge to further develop the learning process.

Notwithstanding, digital literacy alone does not determine digital citizenship. Gilster [4] states that critical thinking is another indispensable skill for members of digital society. Learners need knowledge, thinking development, critical use of information technology, and the supporting skills required for academic work, along with knowledge regarding privacy, security in terms of the use of the internet, creativity, ethics and responsibility [5] [6] [7]. Furthermore, the digitally literate should be competent when it comes to producing content in a digital learning environment, using digital media to present it, and enhancing their creative ability, especially in an era of digital transformation [8] [9] [10]. As suggested by Bawden [11], digital literacy involves learning through a set of multiple skills, rather than through the use of tools or technology. Therefore, an approach to cultivate digital literacy should combine techniques and strategies that simultaneously bolster not only digital literacy, but also critical thinking skills.

Cognitive development is at the center of digital literacy. One of the learning methods known for encouraging learners to think creatively, to analyze, synthesize, practice, research, evaluate and reflect, is critical inquiry, evolving from inquiry–based learning. It is a systematic learning process that allows learners to research, practice using digital tools and think critically, to question, consider, evaluate and assess information. A number of studies have revealed a positive correlation between critical inquiry learning and digital literacy [6] [12] [13] [14].

Besides developing researching skills as part of the thinking process, digitally literate learners must be able to create and produce a wide range of media in digital learning environments. With regard to this notion, digital storytelling is one reliable method for presenting content that has been thoroughly researched, gathered, analyzed, synthesized and assessed in terms of reliability and validity prior to production using digital tools. It is quite evident that the whole process provides a springboard for thinking, and for the development of analytical and digital device-aided presentation skills [9] [15] [16]. Additionally, in this digital transformation era, learners should shift their role from taking in information to producing it. Consequently, digital storytelling is one learning method that stimulates learners to make use of tools to create some good work after reliable data research, writing and organizing.

This paper proposes an approach involving how to enhance digital literacy by means of critical inquiry through a digital storytelling process on the part of undergraduate students. The researcher is interested in investigating critical data-researching processes in order to develop thinking processes and research skills involving reliable data by using systematic analytical thinking, by constructing content and by producing digital media. Digital media devices will be used to present and publicize the content in a more interesting way to shape up digital literacy, as well

as to foster lifelong-learning in the digital learning environment. Two research questions are:

RQ1: How is critical inquiry in digital storytelling used in order to enhance digital literacy carried out?

RQ2: What do experts think of the use of critical inquiry through digital storytelling in order to enhance digital literacy?

2   Literature Review

2.1   Digital literacy

Digital literacy is a set of competencies possessed by an individual for the purpose of applying digital devices properly in the digital era, conveniently accessing, applying, evaluating, analyzing and synthesizing data, as well as creating new knowledge. With it, learners will be capable of communicating and presenting content through a wide variety of digital technologies. Digital literacy, especially in academic institutions, helps students to begin to navigate this new set of expectations. If literacy is the ability to read, interpret, and produce texts valued in a community, then academic digital literacy is the ability to read, interpret, and produce information in digital formats valued in academia. The researcher has divided digital literacy into three skills [17] [18] [19]:

- **Information skills**: The basis for information management, techniques and multiple strategies involving digital information management, encompassing the process of identifying problems, determining search topics, methods and strategies to access, analyze, synthesize content, systematize, evaluate, interpret and apply the information used in working or solving problems correctly.
- **Digital tools usage**: The skills and competencies in learning how to use a wide variety of applied software and digital devices to successfully accommodate a daily life. It is also concerned with the ability to maintain, manage usage and solve basic computer problems, as well as the ability to communicate, systematically organize either personal or networked data, conform to ethical norms, and make use of technologies for effective team working.
- **Digital transformation**: The skills in consolidating information for the purposes of creating, improving, designing and producing both content and products, and presenting information in new forms of information, creating new knowledge and new digital innovation under collaborative learning. Learners can reflect their thinking to improve their work and publicize it in line with copyright laws.

Furthermore, a survey of the literature demonstrated that one important factor for digital literacy development is cognitive skill, because learners will need thinking skills to consider, evaluate, decide and choose appropriately with regard to every component of digital literacy development [20].

2.2 Critical Inquiry

Critical inquiry is a method originally evolving from inquiry based learning married with critical theory. Inquiry-based education was proposed by Dewey in 1933. It is a teaching and learning strategy that promotes the engagement and active participation of a learner with regard to discovering knowledge [6] [21]. Exposed to thought-provoking situations, learners are actively stimulated to raise questions and search for answers by themselves. Learners will be trained to place particular emphasis on the process of searching, evaluating and drawing conclusions, rather than the outcomes, and a teacher will assume a facilitating role, providing help and advice when needed.

The use of critical inquiry was proposed by Sirotnik [22] in his study aiming to reform schooling. He believed that critical inquiry would provide well-reflected data in terms of school development. The process branched out from critically inquiring about the school's existing problems for the purpose of clarifying facts. This involves critical thinking, dialogue, decision making, action-taking, and evaluation by means of gathering, interpreting and analyzing the data based on the empirical evidence. Feasible solutions suiting a society and a school's context will be obtained as a result of relying on the critical inquiry process as a device to understand and analyze data regarding values, beliefs and social disciplines. Furthermore, it is in regard to the use of critical thinking in order to elaborate on a wide variety of phenomenon at school level in terms of social, political and historical aspects through a reflection process, searching for knowledge and reasonably advocating or arguing with regard to particular topics. Data is gathered from multiple sources for analyzing, interpreting and rationalizing though argumentative questioning, and sharing of perspectives. Additionally, critical inquiry stressed the significance of training learners to be able to assign meaning and make decisions so that they can rationally assess a situation and decide on action based on their thinking [23]. Therefore, critical inquiry helps to maximize systematic thinking by considering causal relationships and potential conflicts, as well as developing an ability to explain social phenomena [24]. The study conducted by Bailin and Battersby [25] advocated the similar notion that critical thinking should be integrated into critical inquiry in order to achieve more systematic and holistic data consideration.

2.3 Digital storytelling

Digital storytelling was not commonly integrated into class teaching until the inception of a central unit called the Center of Digital Storytelling (CDS) by Joe Lambert and Dana Atchley at U.C. Berkley in 1993 [16]. The CDS has continued to provide training and assistance to those interested in creating and sharing their personal stories [26]. A model of digital storytelling was developed with the goal of further enhancing the software and hardware capacity associated with producing digital media, and to increase the digital media's function based on consumer demand. This model supports an individual's storytelling skills along with their technology competency. Daily life stories were a common theme for early digital storytelling,

characteristically encompassing short and simple storytelling due to financial limitations. Then, since digital storytelling became more widespread in classroom. One such factor is that the ease and speed with which one may create a digital story has only increased as technology tools become more affordable. Therefore, a number of educational institutions introduced it to develop learners' multiple skills [26] [27] [28].

Digital storytelling is the practice of using digital tools, video searches or hand-drawn images, scanned images, photographs, graphics, texts, recorded audio, music, sound effects, not to mention the learners' own voice in narrating, to tell stories. Learners are considered creators and producers rather than consumers, since they pass through the traditional writing processes of brainstorming, selecting a topic, drafting, conducting research, writing a script and developing an engaging story which they then supplement with multimedia tools. Finally, the digital stories can be played on a computer, and uploaded on to a website or online channel [26] [29] [30]. Consequently, the story told should depict interesting angles in line with reality, and it is more interestingly presented through digital media and technologies. It is the type of content presentation that draws in audiences in terms of shared feelings and participation [31].

Moreover, digital storytelling has the potential to engage learners in integrated approaches to learning involving digital media. Digital storytelling encourages learners' motivation, and helps teachers to build constructivist-learning environments [30] [32]. In addition, it serves as a springboard for thinking, reflecting and in–depth researching, creating and presenting through digital media. The researcher synthesized the guidelines for the development of a learning process model based on the critical inquiry and digital storytelling process, in order to enhance the digital literacy of undergraduate students.

3 Methodology

The research methodology was divided into the two following phases:

Phase 1: The steps of designing the learning process involving critical inquiry through digital storytelling in order to enhance digital literacy, were as follows:

- Synthesize documents relating to digital literacy skills, consisting of Martin [17], Ferrari [18], Kaeophanuek, Na-Songkhla and Nilsook [19] and Owen, Hagel, Lingham and Tyson [20]).
- Complete a review of the literature related to the digital storytelling process written by Gregori-Signes [33], Yang and Wu [34], Morra [35], Ohler [28], Papadopoulou and Vlachos [29] and those in the critical inquiry methods by Sirotnik [36], Geahigan [37], Ngeow and Kong [38], Lassonde [39], Foote et al. [12], Gilbert [40], Bermudez [41].
- Design the new learning process called the critical inquiry through digital storytelling (CIDST) in order to enhance digital literacy.

Phase 2: The steps of evaluating the suitability of the learning process of critical inquiry through digital storytelling were as follows:

- Create a tool for evaluating the suitability of the learning process of critical inquiry through digital storytelling in order to enhance digital literacy.
- Propose the development of the learning process of critical inquiry through digital storytelling in order to enhance digital literacy to 7 experts who hold doctoral degrees, work as lecturers at universities, and have at least 10 years relevant experience. These experts would consist of three experts in literacy disciplinary subjects and four experts in educational technology, who would consider and evaluate the suitability.
- Analyse the results of the evaluation of the suitability of the learning process of critical inquiry through digital storytelling in order to enhance digital literacy by

using the mean ($\bar{x}$) and standard deviation (SD). A five-point Likert scale would be used to assess the appropriateness of the activity.

4 Results

The findings of this study were used to answer two questions; RQ1: How is the use of critical inquiry in digital storytelling in order to enhance digital literacy carried out; RQ2: What do experts think of the process of critical inquiry in digital storytelling to enhance digital literacy?

Table 1. The synthetic digital storytelling process

Digital storytelling process	[33]	[34]	[35]	[28]	[29]
Phase 1: Getting the idea					
Planning, start with an idea		✓	✓	✓	✓
Determine the viewpoint		✓	✓	✓	✓
Research/Explore	✓	✓	✓	✓	✓
Phase 2: Creating a story					
Writing the script	✓	✓	✓	✓	✓
Storyboard/ mapping the scenes		✓	✓	✓	✓
Picture and music selection/recording the script	✓	✓	✓	✓	✓
Production	✓	✓	✓	✓	✓
Phase 3: Publish the digital story					
Revision/ Improvement	✓	✓	✓	✓	✓
Assessment			✓	✓	✓
Display/ Share	✓	✓	✓	✓	✓
Reflection and feedback		✓	✓	✓	✓

4.1 Steps in critical digital storytelling to enhance digital literacy

Preliminary finding: the researcher surveyed the literature related to digital storytelling and critical inquiry to synthesize and design learning processes using critical inquiry through digital storytelling for digital literacy advancement.

Digital storytelling process: Congruent data was mapped and categorized into 3 phases as illustrated in Table 1. Based on the review of the literature associated with the digital storytelling process, the process can be categorized into 3 phases:

Phase 1: Getting the idea was the first step in constructing a plan. Story planning involves creating an idea that launches the story, and determining a viewpoint in creating, outlining and researching a story.

Phase 2: Creating a story. This phase involved creating a story according to the direction specified in Phase 1. Learners were required to actually plan, wrote the script, and laid out the story structure. This involved identifying and gathering materials, and producing work using a range of different software.

Phase 3: Publish the digital story. This step was concerned with screening and evaluating for perfection. Instructor and peer evaluation were included to further the work. The final product was published on a wide variety of online platforms which reflected the long process of learning in each and every step.

The method of critical inquiry: Most writers on critical inquiry argued that the method of critical inquiry cannot be specified as a series of steps. However, for this paper we had constructed a learning map demonstrating the steps involved in the learning design based on the survey of the related literature.

Table 2. Critical inquiry method

Critical inquiry method	[36]	[37]	[38]	[39]	[12]	[40]	[41]
Problem-posing		✓	✓	✓	✓	✓	✓
Exploring				✓			
Collecting/observing		✓		✓	✓	✓	✓
Organizing				✓			
Analysis/comparison		✓		✓		✓	✓
Summarising						✓	
Interpreting/ recognizing	✓	✓					
Discussing	✓	✓	✓	✓	✓		
Reflecting/providing feedback	✓	✓	✓	✓		✓	✓
Evaluating		✓	✓		✓		
Transferring/taking action						✓	✓
Presenting	✓			✓			

As shown in Table 2, the steps were grouped into five methods as follows:

Questioning: This step was intended to stimulate thinking, to raise critical questions and to undertake research in order to obtain answers. Questions raised should be in line with the learners' interests or previous experiences, and they should also be challenging enough to drive the thinking process. Learners were required to think carefully, observe and plan for implementation, summarize references and offer proof for the conclusion. This encouraged students to think about ideas rather than simply memorizing facts. Such online tools included online notes, mind mapping and concept mapping.

Gathering: This step involved inquiry and exploring information from multiple learning sources that bears upon and illustrates the problem for a variety of possible solutions. This mainly depended on the learners' experiences and learning processes. Teachers operated as a facilitator in charge of providing advice and guidance with

regard to various data sources. Learners gathered data from an external source, assessed its reliability, and thoroughly studied it with assistance of a range of online tools such as search engines or cloud programs.

Analyzing: This step was about analyzing all the gathered data. The data was carefully analyzed, corroborated using a number of different sources, and synthesized, and its similarities as well as its differences were systematically sorted, considered in terms of authorship, and acknowledging the context of meaning. Knowledge extracted may or may not be in favor of the determined hypothesis. This was what learners can bring to the table for collaborative learning. This bolstered their conceptualizing skills as well as their teamwork skills. One practical online tool was the use of a mind map.

Discussing: This step was designed to help learners expand and validate their knowledge through discussion. Learners discussed not only congruent but also incongruent topics in order to create a connection with their prior knowledge or developed concepts, in order to elucidate related situations and incidents. Learners could make observations while collaborating with others. Teachers were in charge of pointing out various aspects, and training learners to be open-minded. This would deepen their understanding and expanded the scope of their knowledge. They were able to generate possible solutions or strategies based on an identified 'theory of action'. Tools for discussion included an online forum.

Reflecting: This step involved reflecting upon the entire learning process so that learners learned to be observant, analytical and keen to sharpen their own learning process. Learners learned from their experiences and became engaged in an ongoing learning loop, while teachers assumed an assessing and evaluating role. With reflective feedback, learners had an opportunity for self-evaluation and assessment at every step in the process, and could apply their accumulated knowledge in their daily lives. Useful tools in this process included oral discussions, electronic journals and Google documents.

Critical inquiry through digital storytelling (CIDST)

After having conceptualized three phases and a thinking process based on critical inquiry, the researcher then integrated the critical inquiry method into the digital storytelling to eventually create a critical inquiry through the digital storytelling process. The ultimate aim was for learners' thinking processes to be stimulated in every nuance of the storytelling process. The results from mapping are illustrated in Table 3.

As shown in Figure 1, the researcher presented the model of critical inquiry through digital storytelling for digital literacy enhancement using the name CIDST: Critical Inquiry through Digital Storytelling.

4.2 Evaluating the suitability of the learning process of critical inquiry through digital storytelling

The second research question asked what experts think of the process of critical inquiry in digital storytelling as a means of enhancing digital literacy. The steps for

Table 3. Mapping of learning process of critical inquiry through digital storytelling

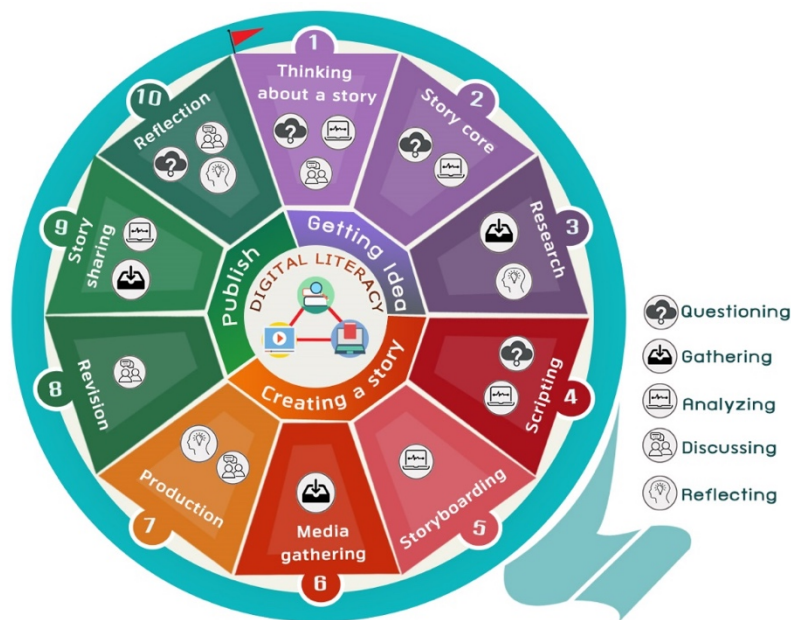| Digital storytelling process		Critical inquiry method				
		Questioning	*Gathering*	*Analyzing*	*Discussing*	*Reflecting*
Phase 1 Getting the Idea	1. Thinking about a story	✓		✓	✓	
	2. Story core	✓		✓		
	3. Research		✓			✓
Phase 2 Creating a Story	4. Scripting	✓		✓		
	5. Storyboarding			✓		
	6. Media gathering		✓			
	7. Production				✓	✓
Phase 3 Publish the digital story	8. Revision				✓	
	9. Story sharing		✓	✓		
	10. Reflection	✓			✓	✓

Fig. 1. Model of CIDST: Critical Inquiry through Digital Storytelling

evaluating this process were as follows: 1) Create a tool for evaluating the process. 2) Propose the development of the process to 7 experts who hold doctoral degrees, work as lecturers at universities, and have at least 10 years' relevant experience and are experts in the field of technological education. These experts considered and evaluated the suitability of the process. 3) Analyze the results of the evaluation of the process by using the mean ($\bar{x}$) and standard deviation (SD), A five-point Likert scale used to assess the appropriateness of the process.

The results of the suitability of the learning process model of critical inquiry through digital storytelling in order to enhance digital literacy, as evaluated and certified by 7 experts, are as follows (Tables 4-6).

Table 4. Critical inquiry method

Critical inquiry method	$\bar{x}$	SD	Level of agreement
Questioning	4.86	0.38	strongly agree
Gathering	4.71	0.49	strongly agree
Analyzing	4.86	0.38	strongly agree
Discussing	4.57	0.53	strongly agree
Reflecting	4.43	0.53	agree
Total mean	4.69	0.46	strongly agree

Table 5. The results of evaluating learning process of CIDST

Learning process of CIDST	$\bar{x}$	SD	Level of agreement
Phase 1 Getting the Idea			
1. Thinking about a story	4.86	0.38	strongly agree
2. Story core	4.71	0.49	strongly agree
3. Research	4.57	0.53	strongly agree
Phase 2 Creating a story			
4. Scripting	4.86	0.38	strongly agree
5. Storyboarding	4.43	0.79	agree
6. Media gathering	4.71	0.49	strongly agree
7. Production	4.86	0.38	strongly agree
Phase 3 Publishing the Digital Story			
8. Revision	4.57	0.53	strongly agree
9. Story sharing	4.71	0.49	strongly agree
10. Reflection	4.86	0.38	strongly agree
Total mean	4.71	0.48	strongly agree

Table 6. The results of evaluating the learning process of critical inquiry through digital storytelling to enhance digital literacy

The CIDST learning process	$\bar{x}$	SD	Level of agreement
Digital literacy can be enhanced by the learning process of digital storytelling	4.86	0.38	strongly agree
Digital literacy can be enhanced by the learning process of critical inquiry	4.71	0.49	strongly agree
Digital literacy can be enhanced by of the learning process critical inquiry through digital storytelling (CIDST)	4.86	0.38	strongly agree
Total mean	4.81	0.42	strongly agree

Table 4 shows that the experts strongly agreed overall in terms of the critical inquiry method (total mean 4.69). Most of the experts agreed that the questioning and analyzing steps improved critical thinking ($\bar{x}$ 4.86). This is followed by gathering information ($\bar{x}$ 4.71). This information demonstrated that the experts agreed that reflection was the step that was rated at the lowest level ($\bar{x}$ 4.43).

As can be seen from Table 5, the experts strongly agreed overall with regard to the learning process of CIDST (total mean 4.71). Most of the experts agreed that the steps involving thinking about the story, scripting, production and reflection ($\bar{x}$ 4.86) could improve digital literacy at the highest level. This is followed by the story core, the media gathering and the story sharing steps ($\bar{x}$ 4.71).This information demonstrated that the experts agreed that storyboarding was a step that would enhance digital literacy at the lowest level ($\bar{x}$ 4.43).

The analysis of the information shown in Table 6 reveals that overall, the experts strongly agreed that the learning process of critical inquiry through digital storytelling enhanced digital literacy. Overall suitability was rated at the high level ($\bar{x}$ 4.81).

5 Discussion

The review of the literature disclosed three underlined skills for digital literacy development, namely (1) information skills involving defining, accessing, gathering, analyzing/synthesizing, organizing and evaluating competency (2) digital tools usage skills encompassing a set of competencies in applying software in daily use. This is concerned with the use of appropriate digital tools depending on their purpose or need, to solve technical problems, to communicate, to collaborate, to share information and use information ethically, and lastly (3) digital transformation incorporating the ability to compose, create, improve, design, produce content and product, and present information in a new way. As a result, with three aspects of digital literacy development as a goal, learners must be immersed in the learning process, driving them to raise questions, research for data, and sharpen their skills in the use of digital devices to produce work. In support of this idea, Khan and Waheed [44] consistently suggested that those who are digitally literate must not only be able to search, interpret, evaluate and share data in a digital environment, but also apply digital information which is valid and reliable. Also, they should be able to use digital devices to create and develop digital content in many forms, and to present it in a digital environment.

The strengths of the model is that it combines critical thinking and knowledge creation, and that the technological artefact in the form of video platforms were dialogical processes that support motivational qualities and learning outcomes. Because both define a set of outcomes, many of which overlap, the same methods of instruction are employed in the classroom. Instructional techniques, including active learning, group work, questioning techniques, discussion, journaling or reflective writing, and the use of graphic organizers, may be utilized to provide practice with digital literacy and critical thinking concepts, by encouraging an emphasis on process [45] [46]. In new learning environments, students are expected to be lifelong learners, and they need experience of how to become motivated and committed as part of the learning process.

Moreover, digital storytelling will help to shape learners' skills in communicating, learning to conduct research on a topic, specifying topics and raising questions with regard to particular data. Learners learn to gather and organize data as well as related ideas [47] [48] [49]. In addition, they get to sharpen their skill in writing, outlining content and expressing them interestingly through the use of digital media and technology as part of the act of storytelling. In consistency with a previous study by Robin [26] and Miller [50], it was suggested that digital storytelling plays a significant role in developing 21st Century learners in terms of effective data and idea management. Learners are able to perform meaningful storytelling as well as to make use of technology to effectively solve problems. Furthermore, Yand and Wu [34]

found that digital storytelling significantly sparks motivation in integrating technology into the classroom. Learners become genuinely engaged in the lesson and actively motivate themselves to execute the assigned work.

It is evident that digital literacy development cannot effectively blossom without thinking process development. The integration of critical inquiry methods provides support in this model and stimulates the thinking process. In this way, it serves as a set of tools for more systematic practice. This is because critical inquiry theoretically prioritizes the process of questioning for a deeper understanding compared with the rigid search for facts. In other words, critical thinking is perceived as being more crucial than data memorization. This is in agreement with the findings of the study by Daraviras [51], who investigated applied critical inquiry as an intervention to develop reading skills. Learners had to be able grasp what could be inferred from the content in order to develop a deeper understanding through questioning. Likewise, Dobler [13] also applied critical inquiry as a tool to seeking out clues to evaluate the truthfulness of information.

Therefore, critical inquiry through the digital storytelling process is one palatable teaching alternative that is set to increase digital literacy. Digital storytelling approaches that address story, visual and media literacy, can effectively develop the digital literacy skills students will need in the future [52].

6   Conclusion

In this paper, we propose the design of a learning process model and construct an instructional design for the purpose of enhancing digital literacy using critical inquiry through digital storytelling (CIDST). The proposed model is comprised of three phases consisting of ten sub-steps, namely thinking about a story, story core, research, scripting, storyboarding, media gathering, production, revising, story sharing and reflection. We used five thinking methods of critical inquiry in the form of questioning, gathering, analyzing, discussing and reflecting which are integrated into every individual step to perform digital storytelling. Moreover, we used online learning tools to encourage students to engage with a range of methods of critical inquiry such as online note taking, mind mapping, concept mapping, online discussion, electronic journals and Google documents. The results of this study indicate that the evaluation undertaken by certified experts ensures its appropriateness as an effective teaching model in terms of enhancing digital literacy.

7   Acknowledgement

8   References

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