Exploring Digital literacy: Curriculum Components

Abstract: The increasing use of technology within the world has affected the promote use of digital devices within the classroom. To address the needs of this new digital classroom, exploring digital literacy curriculum components is inevitable because the use of digital resources depends on the competences in using digital resources. In the fast-growing knowledge society, digital literacy curriculum has become one of the most important subjects. Whilst digital literacy seems to be a term that is mostly associated with higher education, its application to digital curriculum is yet to be widely exploited. This paper presents a digital literacy curriculum mixed model for higher education, in order to foster the development of digital literacy skills and explores the components of digital literacy curriculum with the aim of having students who can use digital tools to advance learning and keeping up with changing technologies as well as become global digital citizens. The components of digital literacy as outlined in this study are important in the use of digital resources because of the proliferation of digital information presently experienced due to a series of developmental digital activities in our world.

Keywords: digital literacy curriculum, components, higher education.

INTRODUCTION

Tomorrow’s illiterate will not be the man who can’t read; He will be the man who has not learned how to learn (Alvin Toffler, 1970).” Almost two decades ago, Gilster (1997) defined digital literacy as the “ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers” (p. 1). At this time, the Internet was in its infant stages. More than a decade later with Internet usage in full swing, Fieldhouse and Nicholas (2008) asserted that terms like literacy and fluency can be used to describe how users find and evaluate information within digital environments.

Digital literacy built upon a number of other crucial literacies in our time, including visual literacy (using non-textual symbols and images to make sense of knowledge), technological literacy (the ability to use a particular technology or technologies), computer literacy (from simply using computers to coding) and information literacy (finding, evaluating, using and sharing information). The digital literacy curriculum design process is key to ensuring that digital literacies are embedded in learning and teaching. Course validation and review provide opportunities to rethink how digital literacy can be reflected in learning outcomes and the tasks and assessments which support these so working with course teams at these critical points is key.

Students develop digital capabilities and confidence mainly in the context of their courses of study. They are more likely to adopt digital practices that are clearly relevant to the course they have chosen and the life chances that interest them. On leaving further or higher education, graduates will need more than a good general level of digital literacy: they will need a repertoire of specialized skills suited to their choice of career and their subject specialism. They will also need an appropriate awareness of digital literacy developments and issues. All of these make it important that relevant digital experiences and activities are embedded into the digital literacy curriculum.
The involvement of specialist professionals in this process (TEL staff, academic advisors and IT teachers) also allows new ideas to spread across subject boundaries. The digital curriculum provides a framework for engaging with technologies that are educationally relevant. For students, digital practices in the learning environment are shaped within their program of study where they tend to look to teaching staff for guidance on recommended technologies or adopt those required by the digital literacy curriculum. Embedding digital capability into the digital literacy curriculum aligns with their educational aspirations and helps make sense of the tasks and technologies in use. However, there is generally a lack of consistency within institutions in how students are introduced to technology in their studies, how technology is used in digital literacy curriculum activities and how digital literacy skills are assessed if at all. This study therefore aims to explore digital literacy curriculum components for support teachers to begin to think about how to address digital literacy in their everyday practice, the importance of digital literacy and sets out some pedagogical techniques for fostering it in the classroom from within subject teaching.

**REVIEW OF LITERATURE**

**Digital literacy**

Since the pioneering introduction of computers into education in the 1960s, four key concepts that have dominated the literature on literacies related to digital technology include: information literacy, media literacy, computer literacy, and digital literacy (Brown, Czerniewicz, Huang & Mayisela, 2016). These four literacies are not competing, but in fact are necessary components of what it means to be literate in the twenty-first century. The table below presents an outline of the different terms and how they intersect:

<table>
<thead>
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<th>Computer Literacy</th>
<th>Digital Literacy</th>
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<td><strong>Definition</strong></td>
<td>the ability to locate, identify, retrieve, process and use digital information optimally (UNESCO, 2011)</td>
<td>the ability to access the media, to understand and to critically evaluate different aspects of the media and media content, and to create communications in a variety of contexts (European Commission, 2007)</td>
<td>a set of user skills that enable active participation in a society where services and cultural offerings are computer supported and distributed on the Internet (UNESCO, 2011)</td>
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<td><strong>Primary Focus</strong></td>
<td>Information retrieval and assessment of quality</td>
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The concept of digital literacy only started to gain attention in the last decade. Initially digital literacy was viewed primarily as the functional skills and competencies that people needed in order to use computers and the Internet. However, in the last decade this has been expanded to consider the broader capacity needed to participate in a digital environment. UNESCO (2011) views digital literacy as a life skill that not only increases employability, but serves as a catalyst that “enables the acquisition of other important life skills” (p. 1). The view of digital literacy offered by JISC (2015) is even more comprehensive, defining digital literacy as “the capabilities which fit someone for living, learning and working in a digital society” (para. 3). The capabilities outlined by JISC (2015):

- digital learning and personal/professional development (learning)
- digital identity and wellbeing (self-actualizing).

Beyond functional and critical skills, the definitions and digital capabilities identified here propose a particular mindset, a way of being. In particular, the last three capabilities outlined—the abilities to engage in participatory culture, to be a lifelong learner, and to manage a professional digital identity—render digital literacy remarkably different from the initial views of digital literacy simply as mastery of technical skills.

Table 1: Summary of Key Concepts (adapted from Brown et al., 2016)

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- information, media, data literacy (critical use)
- digital creation, scholarship and innovation (creative production)
- digital communication, collaboration and participation (participating)
- digital learning and personal/professional development (learning)
- digital identity and wellbeing (self-actualizing).

Beyond functional and critical skills, the definitions and digital capabilities identified here propose a particular mindset, a way of being. In particular, the last three capabilities outlined—the abilities to engage in participatory culture, to be a lifelong learner, and to manage a professional digital identity—render digital literacy remarkably different from the initial views of digital literacy simply as mastery of technical skills.

Here you can learn more about the six elements of digital capability as modelled by JISC. The JISC model below illustrates the idea that proficiency in ICT (Information and Communication Technology) is a core element, whilst other skills overlap and build on this capability, and overarching it all is our digital identity and wellbeing.
Digital literacy is a broad and holistic concept that embraces much more than the functional IT skills that students need to survive in a digital society. Student and teachers should develop literacy skills with support and practice over time, until becoming increasingly proficient and fluent. Beetham and Sharpe’s framework (2010) highlights how this developmental process relates to digital literacy - from access and functional skills to higher level capabilities. They describe digital literacy as a constant development process. It can be traced over a continuum. Individuals become more proficient overtime and eventually reaching a level of expert practice depending on individual motivation and context. This framework can be useful as a tool to map out and guide strategic factors involved in the development of digital literacy across an institution. It can, therefore be applied also across postgraduate education – from novice to expert to making efficient and effective use of digital literacy in everyday activities and making digital literacy an intrinsic part of one’s identity. Crucially, it recognizes that digital literacies will vary according to context so it also reflects how individuals can be motivated to develop new skills and practices in different situations.

Digital literacy curriculum

As new technologies continue to emerge and as a result of living in a society and culture increasingly influenced by digital technologies, digital literacy is an important aspect of children’s learning. The digital literacy curriculum supports students’ abilities to engage with technology to acquire, comprehend and communicate knowledge to and with a variety of
Digital literacy and Modern Languages

Learning a foreign language today also implies learning how to communicate through a variety of digital formats, as well as to analyze, understand and critically engage with its culture through digital storytelling, social networking and digital applications. The latest generation of students – ‘Generation Z’ (born between 1995 and 2010) which, after the millennials (born between 1980 and 1994), is the second generation of ‘digital natives’ (Prensky) – has been exposed to the internet, to social networks and to mobile systems from an early age. Inevitably, this has produced a ‘hypercognitive generation’ which is ‘very comfortable with collecting and cross-referencing many sources of information and with integrating virtual and offline experiences’ (Francis & Hoefé 2018). In order to teach new generations how to critically engage with digital technology and develop an awareness of how digital tools are used to convey information and meaning, whether for commercial or cultural purposes, digital literacy curriculum components should become clear.

The term ‘digital literacy’ was coined in 1997 by Paul Gilster who defined it as ‘the ability to both understand and use digitized information’ (Gilster 2). Digital literacy means being able to communicate and represent knowledge in different contexts and to different audiences (for example, in visual, audio or textual modes). This involves finding and selecting relevant information, as well as critically evaluating and re-contextualizing knowledge. This process is underpinned by an understanding of the cultural and social contexts in which it takes place.

Bloom’s taxonomy digital literacy engages students in the process of learning on many levels. Students can use technology to help them remember new information. They can even use social media to get answers to their questions and interact with people around the world (Cole 2019). The model introduced by Pérez and Murray (2010) has an extended dimension and is underpinned by Bloom’s (1956) taxonomy with knowledge, skills and attitudes informing the practical application of this model. However, the model is not sufficient to underpin the more comprehensive digital literacy model. Reflection combined with the intent to be creative and innovative to generate new knowledge and skills are also essential. This model sees the user as having a central role. Moreover, the overlay of literacy, aptitude and creativity denote complexity and nonlinearity while learning, absorbing, evaluating and finally generating innovative and transferable technological artefacts and theories.
What is Bloom's taxonomy?

Put simply, Bloom's taxonomy is a framework for educational achievement in which each level depends on the one below. It’s often depicted in the form of a pyramid—similar to Maslow’s hierarchy of needs. Basic knowledge, the first stage of learning, leads to the development of the skills and abilities that are crucial to completing the pedagogical process: Comprehension, application, analysis, synthesis and evaluation.

While there are subcategories within each, each stage lies on a continuum. The belief is that students move up through each level of the pyramid in Bloom’s taxonomy, starting from very basic learning, to acquiring deeper knowledge on a subject, with each level crucial to the development of the next.

Teachers can apply Bloom’s taxonomy by asking questions and delivering assignments that directly correlate with specific learning objectives in each stage of the process, making the objectives clear to the student. For example, posing multiple choice questions can help gauge a student’s level of basic understanding and remembering of a subject, while asking a student to come up with a comparison or analogy points towards entering the application or analysis stage.

The history of Bloom’s taxonomy

Original Bloom’s taxonomy from 1956

In the 1940s, Benjamin Bloom, along with his collaborators Max Englehart, Edward Furst, Walter Hill and David Krathwohl, devised Bloom’s taxonomy in order to place educational goals into specific categories, with the belief that this classification would be useful in order to better assess college student performance. Each year for the following 16 years, Bloom and his colleagues revised and refined the framework at the American Psychological Association convention. In 1956, the final version was published as the ‘Taxonomy of Educational Objectives’, showing the path of educational attainment through six orders of learning.

“After forty years of intensive research on school learning in the United States as well as abroad, my major conclusion is: What any person in the world can learn, almost all persons can learn if provided with appropriate prior and current conditions of learning.” (Benjamin Bloom, 1956)

Bloom’s taxonomy has served as the backbone of many teaching philosophies since then. While it initially aided in the assessment of students, it quickly became a tool for teachers to devise their curriculum, outline clear learning objectives, and design classroom activities. It has been adapted for use in classrooms from K–12 to college and university level, and as proof of its versatility, you can even apply it to a series of Seinfeld episode clips, each relating to a level of the taxonomy. For 50 years, Bloom’s taxonomy in its original form was a guide for educational teaching—until its revamp for a new generation.

Revised Bloom’s taxonomy from 2001

In 2001, a group of cognitive psychologists, curriculum theorists, instructional researchers and testing assessment specialists led by Lorin Anderson, a colleague of Krathwohl’s and former student of Bloom’s, revised Bloom’s taxonomy by putting together a series of more dynamic concepts for the classification system versus the original static, one-dimensional levels of educational objectives. At the core of the revision of Bloom’s taxonomy is the use of verbs to replace nouns—providing learners with clearer objectives for what is expected of them.

The new revision swaps the two final levels, Synthesis/Evaluation, making Create the ultimate level achievable. Additionally, Bloom’s revised taxonomy separates the cognitive domain, which consists of all of the levels involved in learning noted above, into four distinct types within a matrix: factual, conceptual, procedural and metacognitive. Factual knowledge is characterized by terminology and discrete facts.
Conceptual by categories, principles, theories, and models, looking at the relationships among all elements within a larger structure that helps it work together. Procedural is the knowledge of a specific technique, process, or methodology: essentially, how to do something. Finally, metacognitive defines a student’s self-assessment of his ability and knowledge of different skills and techniques. Is the student actually aware of their own cognition?

The matrix organization of the revised version of Bloom’s taxonomy is designed to be a more precise form of thinking about learning, making it easier for educators to create clear objectives for lesson planning and student evaluation. It also makes it simpler for students to understand what is expected of them.

**Figure 4: Bloom’s taxonomy framework**

**Why is Bloom’s taxonomy important?**

Bloom’s taxonomy has been actively used by teachers from K—12 to college instructors for over five decades. Yet it is still just as important today as back in the ’50s. At the heart of the Bloom’s taxonomy framework is the ability to create achievable learning goals that teachers and students understand, and build a definitive plan to meet them. Instructors are encouraged to view learning objectives in behavioral terms, such that they can see what students are capable of as a direct result of the instruction they have received in each level.

Using the categorization, educators can effectively organize objectives and create lesson plans with appropriate content and instruction to lead students up the pyramid of learning. Educators can also design valid assessment tools and strategies to ensure each category is met in turn, and that each part of the course material is in line with the level’s objectives, whether it’s basic knowledge at the beginning of a course (e.g., remembering and recalling basic concepts), or applying that knowledge towards the middle of a school year (e.g., using the learned information in specific settings by solving problems.)

For students, Bloom’s taxonomy levels bridge the gap between what they know now, and what they need to learn in order to attain a higher level of knowledge. At the end of the learning process, the goal with Bloom’s taxonomy is that a student has honed a new skill, level of knowledge, and/or developed a different attitude towards the subject. And that teachers are able to effectively assess this learning on an ongoing basis, as the course moves through each stage of the framework Figure 6. Revised Bloom’s taxonomy framework

This pyramid, courtesy of the Vanderbilt University Center for Teaching, represents the revised Bloom’s taxonomy framework and educational objectives and outlines the key levels of thinking. It starts with the most basic level of knowledge at the bottom, Remembering, whereby students recall facts and basic concepts, and moves up towards the pinnacle: Create, where new or original work is produced in some fashion.

The creation of Bloom’s taxonomy after the Second World War reflects the increasing importance of formal education to industrialized society. In a world in which formal education began to play a greater role than ever before, Bloom’s taxonomy quickly became popular as a way to formalize teaching and learning practices, help write exams and develop curricula. The fact that Bloom’s taxonomy can be applied to any (cognitive) content intended for students to learn, is what makes this framework so powerful. It can be seen, to a greater or lesser extent, in all mark schemes and assessment objectives provided by all examining bodies in almost any curriculum subject. For teachers, Bloom’s taxonomy is a practical tool to use, providing a
framework in which to plan challenging lessons that help to ensure students’ progress is maximized – a fundamental tenet of successful teaching. Among its many uses, Bloom’s taxonomy provides an excellent foundation for lessons, as it can be used as a framework in which to deliver appropriate activities, assessment, questioning, objectives and outcomes. As Bloom’s taxonomy is a hierarchy of progressive processes ranging from the simple to the complex, in which it is necessary to first master those lower down the pyramid before being able to master those higher up, the framework promotes what Bloom termed ‘mastery learning’. In other words, by moving up the taxonomy, students become more knowledgeable, more skilled and develop an improved understanding of the content they are learning. Thus, by creating lesson plans and tasks, using the examples of verbs (in italics) provided, teachers can align with the different levels of the taxonomy.

By simply moving to the higher levels of Bloom’s taxonomy, these verbs can serve as the basis for learning objectives, questions or activities. They describe what we want students to be able to do, cognitively, with the content about which the students are learning. The higher up the pyramid of course, the more complex are the cognitive processes involved and, as such, ask students to engage in more challenging cognitive work connected to their lesson’s content. As part of successful teaching practice, it can be necessary to scale back challenge in accordance with the response it draws, moving down the taxonomy as necessary.

A lesson could be planned about the benefits of renewable resources, the Roman empire, building a website or one of Shakespeare’s sonnets. In all these examples, Bloom’s taxonomy can be applied. An important point to consider, however, is that there can be occasions, particularly when first introducing a topic, where it is necessary to spend longer on the lower levels of the taxonomy. On such occasions, we do not seek to scale multiple levels of the taxonomy in a single lesson, instead choosing to do this over the course of a few lessons, due to the nature of the content (Gershon, 2015, pp. 103).

Another point to make clear is that the separate processes of the taxonomy can be adapted according to the age-group and ability of students, enabling them to access the different levels of taxonomy according to the overall depth of their cognition. Level 6, Creating, for example, is obviously not going to be the same for a five-year-old as it would be for a sixteen-year-old. Nevertheless, the hierarchy of the different levels of the taxonomy remains the same. In this way, Bloom’s taxonomy is related to Bruner’s notion of the spiral curriculum. This idea posits that students should return to key concepts and ideas at different points on their learning journey, each time meeting them at a more advanced stage of development. At whatever depth of cognition students access their lesson’s content then, Bloom’s taxonomy can help teachers to ensure that students are challenged.

**Bruner’s Spiral Curriculum**

Bruner’s spiral curriculum (1960) is an approach to education that involves regularly re-visiting the same educational topics over the course of a student’s education. Each time the content is re-visited, the student gains deeper knowledge of the topic. It has the benefits of reinforcing information over time and using prior knowledge to inform future learning. He spirals curriculum is defined as a curriculum that returns to the same topics over time. It is juxtaposed to methods that involve learning something then moving on, perhaps never to engage with it again. When students re-engage with a topic repeatedly, they both consolidate prior knowledge in their memory and build on it over time.

The spiral approach to curriculum has three key principles that sum up the approach nicely. The three principles are:

- **Cyclical:** Students should return to the same topic several times throughout their school career;
- **Increasing Depth:** Each time a student returns to the top level and explore more complexity;
- **Prior Knowledge:** A student’s prior knowledge should be utilized when a topic is returned to so that they build from their foundations rather than starting a new.

The teaching strategy was developed by cognitive theorist Jerome Bruner in 1960. Bruner reflected on the fact that many teachers implicitly use this method. However, Bruner documented the approach and its great value for curriculum designers and, ultimately, student learning. To design a curriculum using a spiral approach, you need to create units of work that:

- Increase in complexity
- Start off where the previous unit ended

The spiral approach to curriculum design reminds us that courses are not singular, set-in-stone units of work. Each course or unit of work that we cover builds upon something previously. This approach forces us to work with our colleagues who were a child’s teacher in a previous year or in years to come to develop a cohesive approach to teaching. A group of educators can, for example, use a tool such as Bloom’s Taxonomy to come up with learning outcomes at different stages of a course. Educators would develop learning outcomes that have increasing levels of complexity. In the first course, a student might only need to demonstrate ‘understanding’ of the topic. At the next iteration, students may need to ‘critique’ or ‘analyze’. In the final iteration, the students may need to ‘create’ something from scratch.
This approach is extremely common in university degrees, where freshman courses provide foundational knowledge, and complexity increases from there. By the end, a student may need to create a capstone project or dissertation that demonstrates the highest form of learning: creating something new.

In language education, we teach in very clear structures: A1, A2 (beginner), B1, B2 (intermediate) and C1, C2 (advanced). A student cannot simply start at B1, because the teacher will return to grammar and vocabulary concepts covered in A2 courses with an expectation that the students will be at least familiar with them. The student will often struggle for a short time on the information that is re-introduced, but is expected to be able to pick it up again rather quickly because it was already taught in the past. This reinforces the importance of revision lessons prior to the beginning of the ‘higher level’ content.

Jerome Bruner’s spiral curriculum approach highlights the importance of re-engaging with ideas over time in order to keep them fresh in our minds and consistently build on ideas. It is based on the three principles of: (1) Cyclical Learning, (2) Increasing Depth on each Iteration, and (3) Learning by building on prior knowledge. The approach also highlights the open-ended nature of learning. In other words, it shows how learning is a never-ending lifelong process. While it is widely accepted as an appropriate approach for long-term school curriculum design, its limitations include the risk that the curriculum becomes too rigid and crowded, and that educators will have to focus on re-teaching content that wasn’t taught well enough (or was forgotten) the last time the topic was taught.

Image 1: Bruner’s Spiral Curriculum (1960)

The Digital Literacy Curriculum Mixed Model

It can be noticed that the more modern topography of digital literacy, albeit still dynamic and ever developing, reaches beyond functionality within a digital environment (using a computer and searching online). It extends to the mastering of more operational skills (critically using and evaluating information so that knowledge is generated and transformed). This translates to an understanding of the relationship between advances in digital technology and social, political and economic factors (Buckingham, 2010). In an educational setting, JISC (2012) points out that, students who lack digital literacy are less successful in their studies and less employable. Beetham affirms that digital literacy “stands at the intersection between digital knowhow and academic practice” (JISC, 2012, p. 2). Consequently, students in higher education must secure academic knowhow, while at the same time gain aptitude in digital skills. As a result, the researchers proposed Digital Literacy curriculum mixed model according to combination of Bloom’s taxonomy, JISC. (2016) Digital capabilities, Beetham and Sharpe ‘pyramid model’ of digital literacy development model (2010) and Bruner’s Spiral Curriculum. This a comprehensive digital literacy model and can be useful as a tool to map out and guide strategic factors involved in the development of digital literacy across an institution. It can, therefore be applied also across postgraduate education – from novice to expert to making efficient and effective use of digital literacy in everyday activities and making digital literacy an intrinsic part of one’s identity. It is underpinned by Bloom’s (1956) taxonomy with knowledge, skills and attitudes informing the practical application of this model and sees the user as having a central role. The spiral approach to this digital literacy curriculum design reminds us that courses are not singular, set-in-stone units of work. Each course or unit of work that we cover builds upon something previously.

The researchers used some tools as Beetham and Sharpe ‘pyramid model’ of digital literacy development (2010) at the bottom of their mix model because individuals become more proficient overtime and eventually reaching a level of expert practice depending on individual motivation and context and digital literacy
can be traced over a continuum. The idea of putting Bloom’s Taxonomy in digital literacy curriculum as a backbone was coming up with learning outcomes at different stages of a course. Educators would develop learning outcomes that have increasing levels of complexity. In this way, Bloom’s taxonomy is related to Bruner’s notion of the spiral curriculum and students can return to key concepts and ideas at different points on their learning journey, each time meeting them at a more advanced stage of development. At whatever depth of cognition students access their lesson’s content then, Bloom’s taxonomy can help teachers to ensure that students are challenged. Individuals can develop learning outcomes that have increasing levels of complexity. In the first course, a student might only need to demonstrate ‘understanding’ of the topic. At the next iteration, students may need to ‘critique’ or ‘analyze’. In the final iteration, the students may need to ‘create’ something from scratch. At the top of digital literacy curriculum or spiral opening, the JISC model illustrates the idea that proficiency in ICT (Information and Communication Technology) is a core element, whilst other skills overlap and build on this capability, and overarching it all is our digital identity and wellbeing. The view of digital literacy offered by JISC (2015) is more comprehensive and defining digital literacy as “the capabilities which fit someone for living, learning and working in a digital society” (para. 3). Also, digital literacy draws on many orders of thinking across Bloom’s taxonomy (Anderson & Krathwohl, 2001); it may involve applying technologies to tasks and problems, analyzing information presented digitally, creating new works (whether digital or physical) as well as evaluating and synthesizing (critical approaches to digital objects and their social significance, as well as to the procedural rhetoric (Bogost, 2007) of the tools themselves).

Figure 6. ‘Digital literacy curriculum mixed model’ (Forutanian, 2021) based on combination of four models, JISC Digital capabilities (2015), Beetham and Sharpe ‘pyramid model’ of digital literacy development (2010), Bloom’s taxonomy (2001) and Bruner’s spiral curriculum (1960)
CONCLUSION

By equipping higher education institutions with the means to provide a clear understanding of expectations of assumed digital literacy knowledge, disciplines will be able to plan how digital literacy curriculum components are developed, extended and enhanced. Current researchers argue the importance of exploring digital literacy curriculum and instruction in higher education in order to prepare students who are able to deal with the complex challenges of our age (Rotherham & Willingham, 2009). In conclusion, this paper suggested a digital literacy mixed model that provides improvements in digital literacy learning and meet individual’s digital needs, as consensus understanding and benchmark of digital literacy is required, allowing graduate skills to be built from common foundations to be contextualized and understood further within disciplines. In addition, future research must continue to investigate the effects of using this digital literacy curriculum mixed model and instruction on students’ cognitive, academic, and social capacities, as well as measuring these effects across different grade levels and subject areas. Trilling and Fadel (2009) emphasized digital skills for the 21st century is necessary in order to prepare active citizens who are able to face the challenges of a global society; able to be innovative in order to solve complex problems; and use the power of technology to change the world for the better. Wiggins and McTighe (2005) stated that by combining core academic content and necessary digital skills, students can have a bright future. This paper has continually shown that the application of digital literacy curriculum and instruction is very significant in preparing students with the essential digital skills that will help them satisfy their desire to be successful in the future.

REFERENCES


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