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Digital Tools for Knowledge Construction in the Elementary Grades

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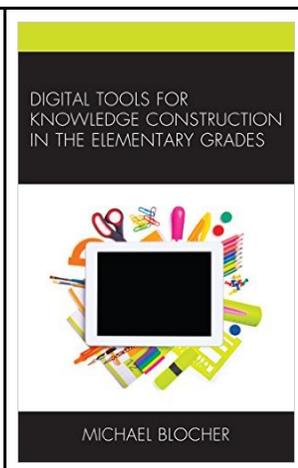
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Digital Tools for Knowledge Construction in the Elementary Grades is written by Dr. Michael Blocher professor of educational technology at Northern Arizona University's College of Education. This book consists of two parts and 10 chapters. The author mainly designed this book for teachers in the elementary schools who would like to integrate digital tools and technologies in their student-centered classrooms.

The first part of *Digital Tools for Knowledge Construction in the Elementary Grades* provides introduction regarding the student-centered technology integration, instructional strategies, and assessment. In the second part, the author focuses on digital tools that can support and assist elementary learners. Blocher could challenge the readers with posing controversial questions throughout this book and could also make his readers think critically about the activities, tools, and strategies they might use in the classroom.

In the first chapter, Blocher introduces two learning perspectives as objectivism vs. constructivism and provided different instructional strategies based on these two perspectives. He believes that the teacher paradigm would highly influence his/her decision to integrate technology in the classroom. In the objectivist perspective which is more teacher-centric, the teacher gives rules and explains steps and the students follow the instructed rules. In this perspective, the teacher uses the technology to transfer knowledge. Learners receive pages of text, narration, or video that provide them with information through a digital tool. Blocher introduces two types of educational software programs as Type I Applications and Type II Application. He maintains that Type 1 Applications or educational software programs mostly are used in objectivist based classrooms where information flows toward the students via a highly structured digital tool.

However, in constructivist perspective which is more student-centric, knowledge is constructed by the students and is not received from the teacher. In constructivist view, learners use the technology to visualize, explore, publish, communicate, share, and construct knowledge. Type II Applications are used in constructivist perspective where the technology is used to help the learners to build or enhance their knowledge. Blocher states 3 purposes of classroom technology integration as: Learning from technology, learning with technology, and learning about technology. In chapter 1, the author just tabbed the water to introduce two broad learning paradigms and the corresponding instructional strategies. The readers and/or teachers need to have a prior knowledge about learning theories and paradigms to understand this chapter and examples better.

In chapter 2, Blocher very well presents some instructional strategies in a simple language applicable to all teachers in the elementary levels. Case-based, project-based, and inquiry-based learning are three student-centered instructional strategies mentioned in this chapter. In chapter 2, the author provides applicable examples for the teachers to integrate technology in the collaborative and cooperative activities as well as scaffolding techniques. Teachers would take advantages of the approaches mentioned in this chapter to integrate technology into their instructional strategies.

Chapter 3 is recommended to those readers who are interested in learning more about different State Standards like Common Core, ISTE, or NETS. Blocher also explains different types of assessment such as summative, formative, collaborative, team, and individual. Furthermore, the author exemplified different instances for each of these types of assessment and provided the rubrics. The examples in this chapter would be a good model for teachers to assess achievement of the standard-based or problem-based performance of the elementary learners.

Chapter 4 focuses on the similarity of the human brain to computer data processing. This chapter gives an overall overview on how the computer receives, processes, and retrieves data. This chapter is recommended to teachers who want to learn about the basic technology concepts and operations. If you are interested in reading about good data-saving habits using an online storage tool and file management, this chapter suits your needs.

Global digital citizenship is one of the controversial issues in the current era. Teachers need to know how to teach the students to be a good citizen in the digital age. The author examines different aspects of digital citizenship and the corresponding digital themes in chapter 5. Blocher provides the international collaboration scenario in this chapter and tries to integrate different tasks, academic objectives, cross-cultural collaboration, digital age themes, rules, and regulations for the teachers and educators. Teachers can use similar scenario in their classes to help the students gain greater global awareness and a better understanding of cultural differences. The readers also can learn about netiquettes, digital access, open-sources license, ethics, copyright, digital commerce and law, and digital literacy in chapter five.

If you are a teacher or an educator looking for some digital or collaborative tools to use in your elementary or secondary classes, chapter 6 of this book gives you plenty of new ideas to implement them in your class easily and cost-effectively.

Chapter seven provides an overview of digital tools that can be used by teachers and learners to conduct research, collect data, and interpret the analysis. The author proposes some useful tips for educators to conduct original research, pose accurate research questions, and collect data from original sources. Blocher also gives some examples regarding Qualitative and Quantitative research and how the related research questions look. It seems the tools and techniques used in this chapter are somehow complicated for the elementary or even the secondary students. As the author noted, the cognitive level of the students' needs to be taken into consideration and the scaffolding techniques needs to be adjusted based on the learners' cognitive level to implement the strategies and tools in this chapter. Yet, this chapter is more useful for the teachers or the educators to conduct research based on their class data. The tools and strategies cited in this chapter are hard to be understood and manipulated by the elementary learners.

Information visualization and online publication are the focus of chapter eight. The author introduces plenty of examples ending with a scenario regarding digital tools supporting the creation, development, and publishing the electronic documents, books, websites, and multimedia. If you are interested in different technological tools applicable in your class to help the students to mind-map and visualize their learning, chapter eight of this book is where you need to refer.

As a teacher or the educator, you have learned about critical learning, problem-solving, and decision-making tasks in the classroom. You might have implemented different instructional strategies to fortify these skills in your students. How about using digital tools to backbone your problem solving and critical thinking activities in the class? Digital scenario tools, simulations, and logical thinking tools followed by the scenario regarding how to integrate these tools in the classroom are the main discussion points in chapter eight. This chapter gives the reader a very good overview of digital tools and activities that help the students enhance their problem-solving ability in the real life situations. This chapter is recommended to all teachers and educators who are seeking a good and innovative digital tool for K-12 students.

Blocher, in the last chapter of this book, focuses on the foundation of gaming and gamification and the application of edutainment in the classes. He mentions the cons and pros of using games in the educational system. The examples, links, and tools introduced in this chapter are good instances of integration of games to enhance learning and achieve the course objectives.

Throughout this book, the author tried to provide the readers with real-life situation scenarios and realistic approach to the integration of the digital tools in the class in order to understand the content and construct the meaning.

One of the shortcomings of this book is that some topics and chapters are very professional to be used in elementary classes.

To sum up, I highly recommend this book to the teachers and educators who are looking for increasing the knowledge of digital tools in the schools. This book gives very clear examples of how technology can be integrated simply in the everyday class tasks and activities. This book

is specifically written for teachers in elementary and secondary levels and brings many innovative ideas and technologies which can be simply used in the student-centric classes.

REFERENCE

Blocher, M. (2016). *Digital tools for knowledge construction in the elementary grades*. San Bernardino, CA: Rowman & Littlefield.