

Effective Integration of Technology in a Social Studies 8 Unit Plan

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In an increasingly digital age, integration of technology in educational materials and settings has become almost essential for increasing student engagement and access to learning. However, in many circumstances, this integration does not fully utilize digital tools to their maximum potential, or may create additional challenges or obstacles to both educators and learners. This paper will examine the educational theory behind the integration of technology in the classroom, and explore different frameworks for determining whether educational technology is being used effectively in the classroom. These concepts will then be applied to a unit plan, and used as a lens in which to examine whether its learning activities are effective in their integration of technology.

Literature Review

Connection to Learning Theories:

While there are a myriad of learning theories that could be applied to the effective integration of technology in the classroom, the three most relevant to this specific unit plan are Constructivism, Constructionism, and Connectivism. Each of these theories have many similarities to each other, but also offer their own unique perspective into effective use of educational technology.

Constructivism: Constructivism is a learning theory that posits students do not learn passively, but instead construct their learning through relating past and present experiences, as long as the experiences are at an appropriate developmental level (Oakley, 2004). In order for new learning to occur, students need to synthesize their

previous knowledge with taught concepts in order to construct new knowledge. In relation to technology in the classroom, constructivist theory has been used in the development in educational software since the 1960s, where the guiding principles of constructivist learning were used in the development of early artificial intelligence systems (Hof, 2021). In the present day, educational technology incorporates constructivism by allowing concepts to be grounded in familiar contexts, and can be more easily differentiated to individual student learning levels (Kimmons, 2018).

Constructionism: While very similar to constructivism, constructionism focuses more on physical building of learning products, and places emphasis on student collaboration in this process (Rob & Rob, 2018). While this theory has traditionally been associated with building physical models or artifacts, the evolution of technology now allows for students to digitally create content, and opens possibilities for creation and exploration that were often unavailable due to cost, safety, or materials (Kimmons, 2018).

Connectivism: Connectivism is a social learning theory that has evolved directly from the development of social networking and programs that provide global and instant access to online communities (Martino et al, 2022). The goal of connectivism in education is to better connect students with peers and resources to facilitate better community learning, on a scale not possible with non-digital methods (Kimmons, 2018).

Frameworks for Effective Educational Technology in the Classroom:

Similar to the vast number of learning theories, there are many different frameworks that have been developed to help teachers evaluate whether their use of technology is effective in their classrooms. This section will introduce two of those

frameworks, and discuss a third that will be used to evaluate the technology within a unit plan.

RAT Framework: This framework, which stands for Replacement, Amplification, and Transformation, can be used to assess the quality/efficacy of technology being used in an educational setting (Hughes et al., 2006). To conduct this assessment, teachers look at whether the technology being used is: R - replacing a practice that was already in use; A- amplifying or elevating a practice to a higher level of learning; or T- transforming the way students are learning in a way not possible without the technology. In theory, the more practices that fall in the T section of this framework, the more effective the practice is in its integration into the classroom (Kimmons, 2018).

SAMR Framework- SAMR is another technology assessment framework that is similar to the RAT model, but adds one more step of evaluation for educators. Developed by Puentedura in 2003, SAMR stands for Substitution, Augmentation, Modification, and Redefinition. Similarly to RAT, SAMR has educators examine which section of the framework their technology use falls into, with S and A being on the lower end of educational efficacy, and M and R being on the higher end (Puentedura, 2003).

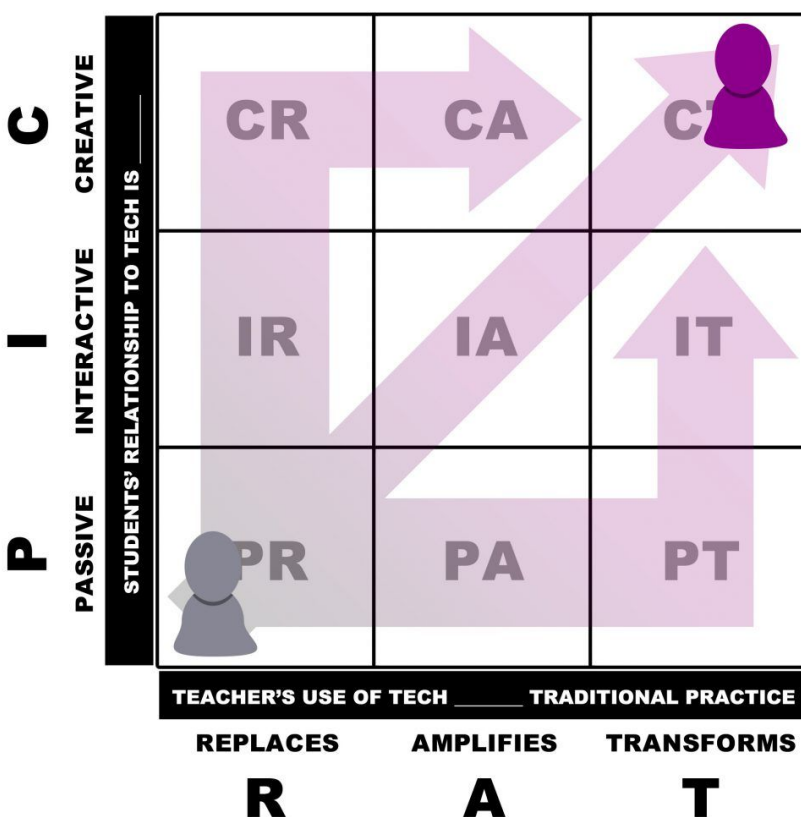
PICRAT Framework:

While both the RAT and SAMR frameworks can be helpful tools for educators to examine their technological practices in the classroom, both are very teacher-centric, and do not take into account the student perspective. PICRAT, on the other hand, is a framework that looks at both teacher and student usage of classroom technology.

PICRAT stands for: Passive, Interactive, Creative (student criteria); and Replacement, Amplifying, Transformation (teacher criteria) (Kimmons 2018). This framework is

represented in the following graphic, with the least effective use of technology on the bottom left of the grid, and the most effective use on the top left:

Figure 1: PICRAT Grid



(Kimmons, 2018)

Unit Plan

Learning Objectives and Outcomes:

Students will learn about life and history of the Middle Ages through learning activities that promote a deeper understanding of content through perspective taking and reflection. This unit connects to the BC Social Studies curriculum in the following ways:

Curricular Content

Social, political, and economic systems and structures, including those of at least one indigenous civilization (Ministry of Education, n.d)

Curricular Competencies

Use Social Studies inquiry processes and skills to ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions (Ministry of Education, n.d)

Assess the significance of people, places, events, or developments at particular times and places (Ministry of Education, n.d)

Explain different perspectives on past or present people, places, issues, or events, and compare the values, worldviews, and beliefs of human cultures and societies in different times and places (Ministry of Education, n.d)

Learning Context:

This unit is intended for grade 8 students in British Columbia. While it is intended to be presented in a face-to-face teaching format, with some adaptation, it could be used in a hybrid model or even an online class format. It is intended for classes of 24-30 students and can accommodate a variety of learning needs. Easy access to technology (computers and iPads) is necessary for this unit as it incorporates digital tools for learning and assessment.

Recommended Pre-Teaching/Pre-Requisite Skills:

Prior to beginning this unit, it is recommended that students have some experience with the following:

Minecraft Education

Online research strategies and skills

Prior to beginning this unit, it is recommended the teacher familiarize themselves with the following programs:

Minecraft Education

Google Expeditions

Online blogging sites (Wix, Wordpress...)

Assessment:

In this unit, there are three major points of summative assessment. They are:

Character Building Research Activity

Minecraft Village Group Project

Medieval Citizen Journal

It is also recommended to keep all student learning and class activities in portfolios to easily assess student learning and understanding as the unit progresses, as well as to help gauge student engagement/interest and adjust accordingly.

Extensions/Adaptations:

This unit could be extended, or used to compare different forms of government during the similar time period (Feudal Japan) with very minor changes made to the learning activities.

Adaptations can be made in terms of presentation methods or level of content based on individual student needs. While this unit is intended for a face-to-face teaching format, many of the activities could be transferred to a hybrid or online course, however, many of the collaboration activities would need to be altered or changed.

Unit Plan Sequence:

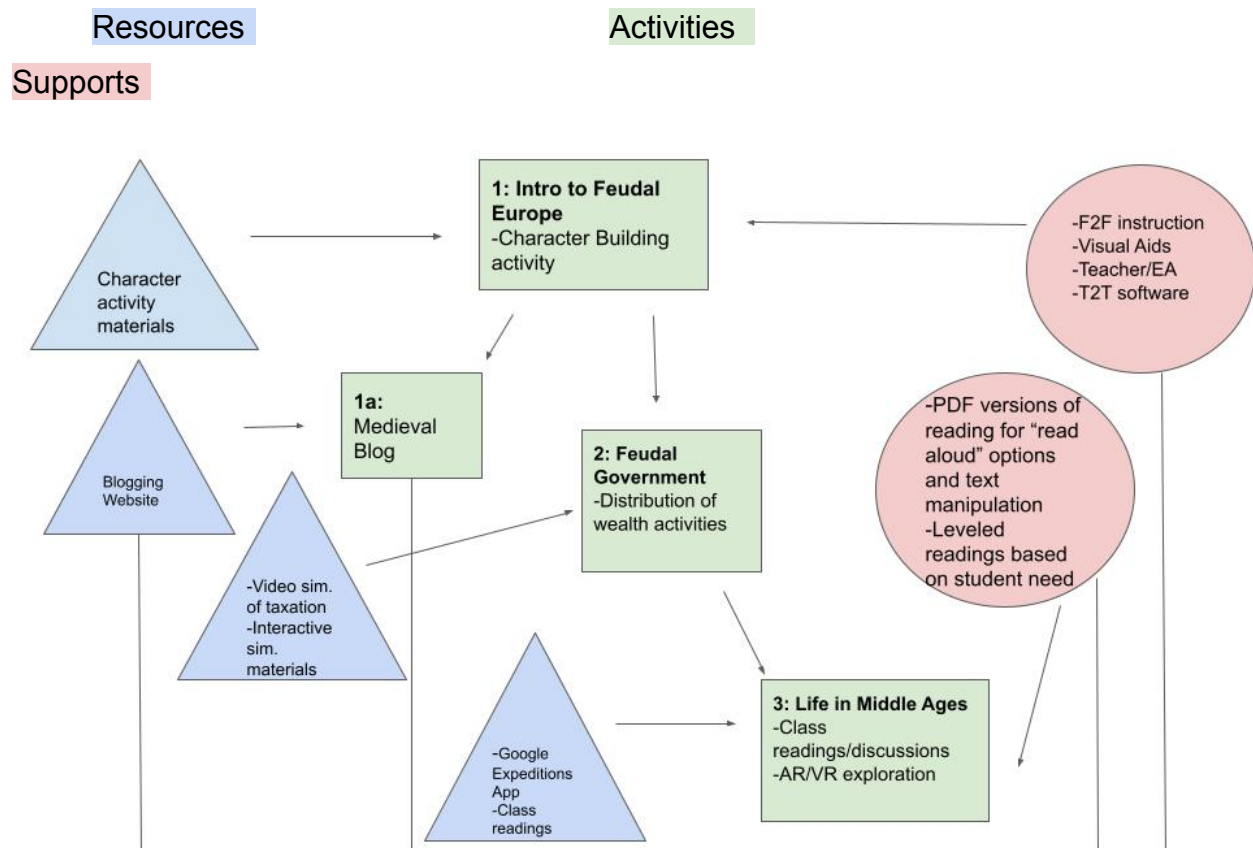
Resources	Learning Activities	Supports
-Character Building	#1 Introduction to Feudal	-F2F instruction

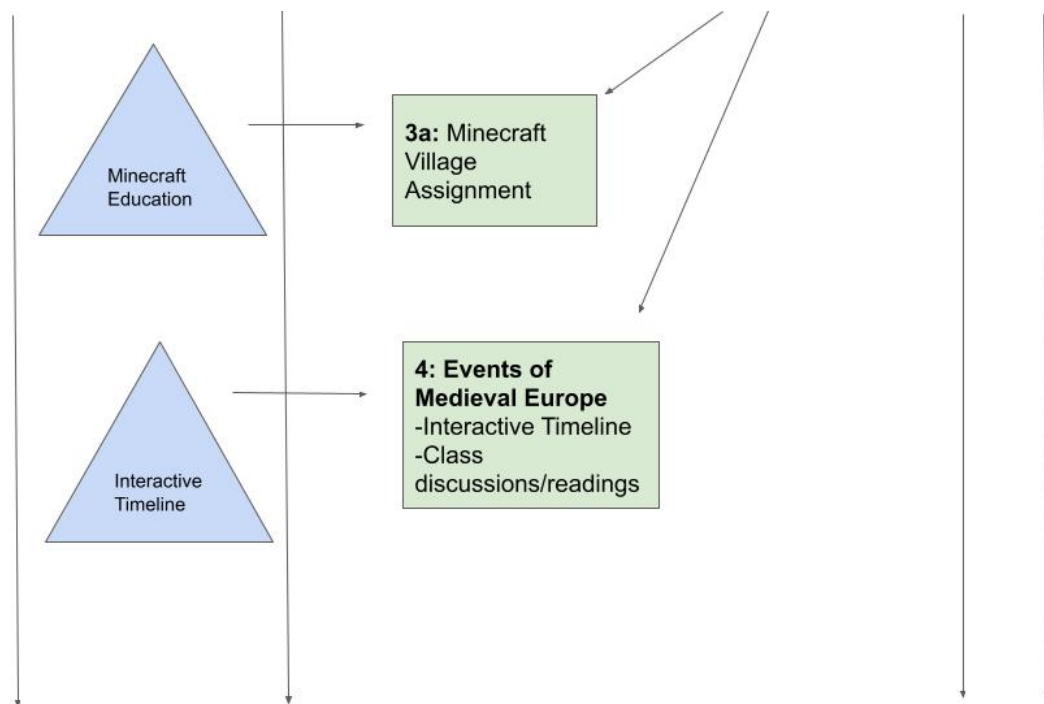
<p>Assignment and lesson materials</p> <ul style="list-style-type: none"> - Blogging website for journals 	<p>Europe</p> <ul style="list-style-type: none"> - Start Character Building Activity - Introduce Medieval Journal Project - Journal Entry #1 	<ul style="list-style-type: none"> - Teacher/EA support - Talk to text software (if needed for written portions) - Visual aids to help understanding of material
<ul style="list-style-type: none"> - Video simulation of Feudal Taxation/Class divide - Materials for Interactive taxation activity - Blogging website for journals 	<p>#2 Discussion of Feudal System of Government</p> <ul style="list-style-type: none"> - Explanation/discussion of class system and divide - Simulation of distribution of wealth/resources/taxation - Journal entry #2 	<ul style="list-style-type: none"> - F2F instruction - Teacher/EA support - Talk to text software (if needed for written portions) - Visual aids to help understanding of material
<ul style="list-style-type: none"> - Minecraft Education (Class server) - Google Expeditions activity (app may need to be pre-loaded onto iPad prior to use) - Readings for reading activity - Blogging website for journals 	<p>#3 Life in Medieval Times</p> <ul style="list-style-type: none"> - Discussion and readings of everyday life for medieval citizens (whole class/individual/groups) - Google Expeditions walkthrough activity - Start Minecraft Village Assignment - Journal Entry #3 	<ul style="list-style-type: none"> - F2F instruction - Teacher/EA support - Talk to text software (if needed for written portions) - Visual aids to help understanding of material - PDF/digital versions of readings to access "read aloud" options or increase font as needed - Leveled readings based on student reading level (if needed)
<ul style="list-style-type: none"> - Interactive timeline - Readings on significant events - Blogging website for journals 	<p>#4 Significant Events of Medieval Europe</p> <ul style="list-style-type: none"> - Discussion on the significant historical events during this period - Interactive events timeline - Journal entries #4 and #5 	<ul style="list-style-type: none"> - F2F instruction - Teacher/EA support - Talk to text software (if needed for written portions) - Visual aids to help understanding of material - PDF/digital versions of readings to access "read aloud" options or increase font as needed - Leveled readings based on student reading level (if needed)

* Sections highlighted in **yellow** denote learning activities to be elaborated on

** Sections highlighted in **green** denote learning activities to be examined through PICRAT framework

Diagram of Learning Sequence:





Learning Activities:

Character Building Activity: Students will be assigned a medieval society rank at random. These ranks will have a similar distribution to medieval society (King/Queen, Monks/Nuns, Nobles, Knights, Merchants, and Peasants/Farmers). This will be their identity for the duration of the unit. They will be tasked with researching what a person of their standing's everyday life would have looked like, and creating their own personal identity based on their findings. They will then create a poster based on their character and research. While the original resource suggests students create their posters on PowerPoint, this is only a substitution use of technology, and making physical posters could be more beneficial as the class could create a visual display of the Feudal system within the classroom (Learning Theory: Constructivism, Connectivism)

Medieval Journal Project: Throughout this unit, students will keep a journal or blog from the POV of their medieval identity. In their blog, they will write responses to the different

topics we cover from their identity's perspective. They will also be required to respond to their classmates' blogs as well. (Learning Theory: Constructivism, Connectivism)

Simulation of Wealth Distribution/Taxation: Demonstration of how the distribution of wealth worked in Medieval Europe. Activity starts with the farmers having all the resources (skittles or counters) and through tithes paid to the next social class, students see how the majority of wealth moves from the masses to the very few individuals at the top of society. (Learning Theory: Constructivism)

Reading Activity (Mantle of the expert/jigsaw activity): In their societal rank groups, students will read a passage about what everyday life would have been for someone of their social group. As a group they will discuss their thoughts and feelings about the passage. Then, students will be assigned into new groups consisting of at least one group member from each of the previous groups. This will ensure that every group has a representative from each social class. The students will then give a small description of each of their readings and discuss their thoughts on the similarities/differences between the different lifestyles. (Learning Theory: Constructivism)

Google Expeditions Walkthrough: Using the app "Google Expeditions", students can explore a medieval town using AR/VR, complete with explanations of the purpose of each structure/area. The immersive nature of this activity will help students gain a more in-depth perspective of the difference between medieval life and today (Learning Theory: Constructivism)

Minecraft Medieval City: Students will collaboratively design a medieval city using Minecraft education. Students will be tasked with building different structures that were significant in the Middle Ages and provide a description of their purpose within the city and notable events that happened at the site. Students will work in groups for this activity. (Learning Theories: Constructivism, Constructionism, Connectivism)

Interactive Events Timeline: To accompany the discussion of major historical events of the medieval period, students will be provided access to an interactive timeline that they can access individually and as a class. (Learning Theory: Constructivism)

PICRAT Assessment of Educational Technology:

Throughout the unit, digital tools have been used to enhance student learning. Using the PICRAT framework, each of these tools will be assessed for effectiveness.

Abbreviations will be assigned to each tool based on where they sit on the PICRAT grid. Refer to Figure 1.1 for reference.

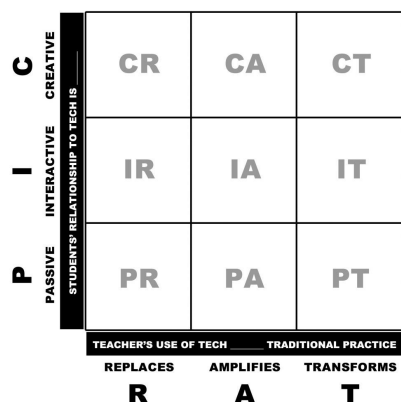


Figure 1.1: PICRAT Grid

(Kimmons, 2018)

Unit Plan Digital Tools:

Blogging Website/Software: By allowing students to use a blogging website such as Wix or Wordpress, or even a class portfolio site, students will not only be making a digital version of their written responses to learning activities, but will also be able to view and comment on those of their peers. This allows for further collaboration and content creation options. **PICRAT Score: CT**

Talk-to-Text Software: Students who may have difficulty writing or typing their work can more successfully participate and complete assignments by using this software. This transforms their learning as the student does not have to wait for an adult to scribe for

them if they are familiar with the tool, and allows them to take full ownership of their learning. **PICRAT Score: CT**

Video Simulation of Taxation: This tool is meant to accompany a hands-on activity. While the information could be delivered by the teacher in a lecture, videos are often more engaging and help visual learners as well as audio learners. **PICRAT Score: PA**

Minecraft Education: This tool allows students to freely create and build in ways that often are not possible in the real world. The online platform allows students to collaborate even when not at school. **PICRAT Score: CT**

Google Expeditions: This app allows users to experience areas of the world, history, or abstract concepts in VR/AR through the use of their iOS/Android device. The AR/VR component gives the ability to see things in 3D, full scale, and is an overall immersive experience. **PICRAT Score: IT**

Digital Texts/Immersive Reader Options: Having access to digital versions of class readings allows students to read at their own pace, increase font/zoom in on graphics, or enable “read aloud” if they have a reading difficulty, providing students with more ownership of their learning. **PICRAT Score: IA**

Interactive Timeline: By using interactive timeline software (tiki toki...) students are able to not only have a visual of different events, but also be able to manipulate it and explore it at their own pace, and have a resource they can return to throughout the course. **PICRAT Score: IA**

Conclusion

Throughout the process of designing this unit, I have found new understanding and appreciation for the purposeful and effective use of technology in educational

design. At first, it was very difficult to determine what digital tools were just there as a substitute for another tool, and which ones had an actual purpose. But as I delved deeper into the frameworks and theories behind effective integration of technology, I have found that doing an assessment on the technology used in my classroom was a very enlightening experience, one that I will continue to utilize in all of my future learning design practices.

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Lesson Resources

Original Unit Plan/Activities: Duffy Stirling (n.d), *Medieval Identity In-Depth Study Task*.

Retrieved from: Teachers Pay Teachers (See file in

<https://drive.google.com/drive/folders/1UYYMgr-HNPJfMB8ADn8TZ0UmLLa1pYRE?usp=sharing>)

Resource for Character Building Activity: Duffy Stirling (n.d), *Medieval Identity In-Depth*

Study Task. Retrieved from: Teachers Pay Teachers (See file in

<https://drive.google.com/drive/folders/1UYYMgr-HNPJfMB8ADn8TZ0UmLLa1pYRE?usp=sharing>)

Resource for Minecraft Activity: S Smith (2022), *Middle Ages Minecraft Assignment*.

(See file in <https://drive.google.com/drive/folders/1UYYMgr-HNPJfMB8ADn8TZ0UmLLa1pYRE?usp=sharing>)