

**Breakout and Escape Room Instructional Methods in History Education:
A Critical Analysis**

Lauren G. Santarelli
Texas A&M University

Introduction

Getting students excited about the study of history in schools can be a difficult process for teachers. Despite the passion teachers personally may have about the subject, students are often reluctant to analyze primary source documents, read about the past or listen to lectures presented by their teacher. Sparking student interest however, is crucial not only toward encouraging student engagement, but also in developing student understanding of historical events, perspectives and concepts (Wanzek, Kent & Stillman-Spisak, 2015). Therefore, the implementation of instructional methods or activities that teach content material in engaging and meaningful ways are necessary.

A recent instructional method that seeks to teach students history in an engaging manner is the use of breakout boxes and escape rooms. Breakout boxes and escape rooms are educational games that require students to answer a series of puzzles correctly in order to solve or accomplish a larger overall objective. Breakout boxes and escape room instructional methods have become increasingly popular in schools across the United States to engage students in a number of subjects, including history. However, despite this popularity (A search of Google resulted in 124 million hits) and adoption in classrooms, little research has been conducted in examining how history is being taught in these activities or if these activities are effective methods towards teaching social studies disciplines.

The Rise of Breakout Boxes and Escape Room Instructional Methods

Breakout boxes and escape rooms are typically associated with the entertainment industry. Similar to going to a movie or bowling at a local bowling alley, escape rooms have become common leisure activities. Escape rooms are “live action” games that require teams to solve narrative based challenges, which incorporate puzzling tasks, within a limited time frame (Nicholson, 2018; Rouse, 2017). The challenges that participants face range anywhere from finding a cure to an outbreak of a zombie virus to racing against pirates in order to locate hidden treasures. After participants are prompted with the overall narrative task, they are physically locked within a room until the numerous puzzles and tasks have been solved or time expires.

Escape rooms have become increasingly popular in North America since the first “known” escape room opened in 2013. Since 2013, it is estimated that over 1,800 escape room-based businesses have opened up across the continent (Nicholson, 2018). Due to this rise in popularity, it should come as no surprise that educators and curricular organizations have begun to incorporate these activities into the classroom. Organizations such as Breakout EDU© are leading the way in implementing this instructional method.

The escape room design was modified to fit the K-12 classroom through the creation of breakout boxes. In this design, students are still prompted with an overall narrative task, but instead of escaping a from a locked room, students are tasked with unlocking breakout boxes (Rouse, 2017). Breakout boxes are secured by a number of combination locks. In opening breakout boxes, students solve educational based puzzles that in turn reveal the combinations to the various locks. Breakout EDU© facilitates the use of breakout boxes and escape room instructional methods in schools by selling teachers lock boxes, locks, clue deciphering gadgets and subject specific games.

Teachers wishing to implement breakout boxes in their classrooms have also started to construct their own games. Teacher created breakout boxes or escape room games can be found on social media platforms such as the Facebook group “History Teachers (Breakout EDU)” and on teacher specific websites such as “Teachers Pay Teachers”. Additionally, professional education-based organizations have contributed to the popularity of breakout boxes and escape room instructional activities through offering teacher workshops or poster sessions either online or at their annual conferences (Garver & Muladore, 2018. p.21).

Breakout Boxes in History Education

In history and social studies classrooms, breakout boxes are typically designed with the intention of teaching historical events, figures or concepts. One of the most comprehensive examples of designing breakout boxes, with the intention of implementing them in history classrooms, comes from Rouse’s (2017) publication concerning the instruction of historical analysis skills to high school aged students. In Rouse’s breakout box, students are tasked with solving five puzzles that in turn will prevent a “crazy history professor from changing the course of history.” When beginning the game, students first need to locate a copy of the professor’s notebook. The notebook contains hints that students must reference in order to unlock their breakout box and escape.

The first puzzle in this breakout box tasks students with placing six historical images in chronological order: Paul Revere’s engraving of the Boston Massacre, Abraham Lincoln pictured with Union troops, women protesting in front of the white house for voting rights, Dorothea Lange’s iconic picture “Migrant Mother”, a smoking battle ship after the bombing of Pearl Harbor and protestors at the March on Washington. At the top of each image there is a number

with either an addition or equals sign. Once the images are placed in chronological order, three simple math problems must then be solved to unlock one of the locks.

The second puzzle of the breakout box incorporates a flash drive, a black light, and a half-torn up piece paper with words written on it that matches another half-torn up piece of paper contained in the evil history professor's notebook. Students first plug in the flash drive to a computer in order to trace the locations of the crazed professor as he visits historical landmarks such as the Eiffel Tower, and the Golden Gate Bridge. Through tracking the route the professor uses, students gain the combination that opens a directional lock.

The third puzzle of the breakout box has students locate an image in the classroom that displays a historical figure pointing at them. Students gain access to this information by matching the half-torn up piece of paper with its counterpart contained within the evil history professor's notebook. Once students find the correct picture, they must shine a black light on it in order to reveal a code written in invisible ink. Once students speak the code to their teacher, the location of a key to unlock one of the locks is revealed.

The fourth puzzle has students categorize cut out pieces of paper that contain statements associated with the historical thinking skills presented in Sam Wineburg's *Reading Like a Historian* (2011) curriculum such as, sourcing, contextualization, corroboration, and close reading. Once students have successfully matched each description with their correct historical thinking skill, a numerical combination is revealed to unlock another lock.

The fifth puzzle has students "analyze" five historical documents: The Declaration of Independence, Abraham Lincoln's Gettysburg Address, A joint resolution proposing the 19th Amendment, A letter written to the President of the United States by a young girl during the Great Depression, and the Lincoln Memorial Program outlining the March on Washington. At

the top of each document is the clue “APPARTS” and a series of blanks that frequently contain letters. One of the blanks is circled to indicate that it belongs in the combination to unlock the final lock. The clue APPARTS is a reference to a tool for sourcing and contextualizing a historical document contained in the professor’s notebook. APPARTS is an acronym for describing historical document analysis skills such as, author, place, prior knowledge, audience, reason, the main idea and significance. At the top of each document, one of the letters in the APPARTS acronym is highlighted in red to indicate what the students are looking for in the document in order to fill in the blanks. Once students complete this analysis process with all five documents, they receive an ABC combination that opens the final lock. When all of the locks have been opened, the students have “escaped the classroom” and achieved the lesson objective of learning historical analysis skills.

A Review of the Literature

Despite the growing popularity of breakout boxes and escape rooms in schools across the United States, little empirical research has been conducted in evaluating the effectiveness of these instructional methods towards teaching core subject content knowledge. Of the available literature, only Eukel, Frenzel and Cernusca’s (2017) work, with pharmacy students enrolled at North Dakota State University, presents findings of effectiveness. In this study Eukel, Frenzel and Cernusca engaged eighty-three, third year pharmacy students in an escape room game centered on gaining access to a glucagon placebo injection for a child with type one diabetes who was suffering from life threatening hypoglycemia. In order to save the patient, the pharmacy students had to solve a total of four puzzles that were contained within a room designed to simulate a child’s bedroom. The results of this study indicated a correlation between student participation in the escape room activity and enhanced knowledge of diabetes management

topics (Eukel, Frenzel&Cernusca's, 2017). However, because the students had studied diabetes management strategies before completing the breakout box, a reader might wonder if the box actually was teaching or reviewing students on previous knowledge.

The majority of the literature on breakout boxes and escape room instructional methods however, predominately describe the design processes in generating and implementing these activities in the classroom. Coventry University for example, under their escapED program, has outlined a detailed framework composed of six main design areas that should be considered when creating escape room based instructional activities. The six main design areas are, participants, objectives, themes, puzzles, equipment and evaluation (Clarke, Peel, Arnab, Morini, Keegan & Wood, 2017). In describing these design areas further, the authors of the escapeED program detail what teachers should consider while planning escape room activities. The design area related to participants for example, asks teachers to take into consideration concerns such as class demographics, educational level, time length and scale (Clarke, Peel, Arnab, Morini, Keegan & Wood, 2017). The remaining six design areas are similarly outlined in order to help teachers in the planning process.

Other literature outlining the design process of breakout boxes and escape room instructional activities, are based around creating games to teach specific subjects such as computer science (Borrego, Fernández, Blanes, & Robles, 2017), cryptography (Ho, 2018), information literacy (Punn, 2017), and history (Rouse, 2017). Of these publications, Rouse's (2017) design of a history-oriented breakout box is particularly insightful in understanding how escape room instructional methods have been proposed to teach history.

A Need for Further Analysis of Breakout Boxes and Escape Room Instructional Activities

After examining the available research, it is evident that the use of these live action, narrative based games in the classroom may have been asserted to increase student engagement and content knowledge. Through immersing students in live action game play centered on building core subject content knowledge, student engagement in the learning process could be increased as students collaboratively interact with peers, and work with multiple information sources. Despite these avowed benefits, further clarity is needed in understanding the type of historical content knowledge needed by the students for participation in these activities and the effectiveness of these activities in teaching history.

Historical Knowledge Framework

In understanding the types of historical knowledge needed to comprehend historical events, perspectives and concepts, it is necessary to recognize the processes of how history is constructed by Historians. Historians have to gather evidence, sort through and analyze information, and pull from multiple primary sources in order to formulate an opinion about what happened in the past. Therefore, Historians have to rely on two domains of knowledge in order to construct an interpretation of a historical narrative- substantive and strategic knowledge (VanSledright 2014). Substantive knowledge, or having a solid basis, can then be further divided into first-ordered and second-ordered knowledge. First-ordered knowledge incorporates factual content information such as, the definition of revolution or the identification of George Washington as the first President of the United States. First-ordered substantive knowledge for historians, however, is also organized into different schemas that are subject specific and range in complexity. Take into consideration a historian's factual knowledge about the dropping of the two atomic bombs in World War II. Factual knowledge relating to this topic could be the identification of the two cities bombed in Japan and the understanding of the psychological

impact on Japanese culture that the dropping of the bombs created. These two pieces of content knowledge relate to the same topic, but range in complexity

The second category of substantive knowledge is called second-ordered knowledge. This category requires working with conceptual ideas that are used to simplify history in a way that brings coherence and enables deeper understanding. Second-ordered substantive knowledge includes ideas such as persistent issues, societal change, historical significance, and progress and decline (VanSledright 2014).

The second domain of historical knowledge is called strategic knowledge. Strategic knowledge works with specific historical skills in order to process and understand substantive knowledge. Essentially, these are the skills that Historians implement in order to arrive at historical facts. Historians will use processes such as sourcing historical documents, searching out and corroborating various perspectives, and making sense of multiple perspectives within the larger historical context in order to determine substantive information (VanSledright, 2014; Wineburg 1991). The strategic knowledge tools that historians use to determine substantive information are essential in this field of study, because events from the past are predominately examined. Historians need to use strategic knowledge in order to piece together the most precise picture of what happened in the past. Table 1 summarizes and provides examples of the skills associated with each category of historical knowledge presented in VanSledright's (2014) framework.

Table 1
Summary of VanSledright's (2014) Historical Knowledge Framework

| Substantive Historical Knowledge – Content Focused | | Strategic Historical Knowledge – Procedure Focused | |
|---|--|--|---|
| First Ordered | Second Ordered | | |
| Low Complexity Primarily focuses on remembering and identifying | High Complexity Primary focus moves beyond simple recall and remembering based | Requires working with conceptual ideas such as persisting issues, societal change, historical | Requires specific historical skills that help process and understand content knowledge. |

| | | | |
|--|---|--|---|
| questions or content | questions and content | significance, progress and decline and cause and effect | |
| Example: Who was the first President of the United States of America? | Example: What factors contributed to the selection of George Washington as the first President of the United States? | Example: How did the actions of George Washington, as the first President of the United States, influence the role of the presidency for future Presidents? | Examples: Sourcing historical documents, corroborating evidence, juxtaposing historical perspectives, understanding/ determining author intent and use of writing style or vocabulary, and determining historical context surrounding the historical document. |

The theoretical framework presented by VanSledright (2014), should serve as a reference for teachers when deciding which activities to employ in the classroom.

An Analysis of User Generated Breakout EDU History Lesson Plans

Data Source

An analysis of the lesson plans presented on Breakout EDU's Social Studies Digital Platform was conducted in order to examine the historical knowledge taught in breakout box instructional games. On the social studies platform, Breakout EDU© currently offers over one hundred social studies games that teachers can use in their classrooms. However, not all of the lesson plans presented on the website are free. In order to access all of the lesson plans presented on the social studies platform, members must pay an annual fee. Social Studies breakout boxes that are free however, can be found on Breakout EDU's "User Generated Social Studies" webpage. There is a total of forty-six social studies-based games on the user generated webpage (Breakout INC, 2018). This study specifically analyzed the 13 breakout box activities that cover topics in American History and are labeled for students in middle and high school classrooms. A complete list of the American History breakout boxes included in this analysis can be found in Table 2 and Appendix A. Website links to the breakout box activities analyzed for this paper can be found in the reference section.

Data Analysis

The framework presented by VanSledright (2014), was used in order to assess the historical knowledge being taught in each breakout box activity. The puzzles associated with each breakout box activity (64 total puzzles) were examined and categorized into the following types of historical knowledge, first ordered - low complexity substantive knowledge, first ordered - high complexity substantive knowledge, second ordered substantive knowledge and strategic historical knowledge. Breakout box puzzles that were not categorized into any of the domains of historical knowledge presented by VanSledright (2014) were labeled as, “Does not teach Historical Knowledge”.

Table 2 presents a summary of the types of historical knowledge that are encouraged in each breakout box activity. The use of the word “meets” indicates that the puzzles directly elicit the correlating domain of historical knowledge, while the use of the “attempts” indicates that the puzzle “intended” to elicit the correlating domain of historical knowledge, but was not the main focus of the task.

Table 2
Findings in Relation to VanSledright's Historical Knowledge Framework

| Title | Total Puzzles | Puzzle #1 | Puzzle #2 | Puzzle #3 | Puzzle #4 | Puzzle #5 | Puzzle #6 |
|--|------------------|-------------------------------|----------------------------------|----------------|-------------------------------|-----------------------------------|-------------------------------|
| Commander in Mis-Chief (Welch) | 5 | Meets 1SBLC | X | Meets 1SBLC | X | Meets 1SBLC | |
| Crazy Judah's Secret (Rouse) | 6 | X | Attempts ST Meets 1SBLC | X | Meets ST Meets 1SBLC | Attempts 2SB Meets 1SBLC | Meets 1SBHC Meets ST |
| Historical Mastermind (Rouse) | 5 | Meets 1SBLC Meets ST | X | X | X | Attempts ST Meets 1SBLC | |
| The Lost Lincoln Letter (Housepin) | 5 | X | Meets 1SBLC | Meets 1SBLC | X | Meets 1SBLC | |
| My Solution is in the Revolution(ary War) (Essex & Corral) | 5 | Meets 1SBLC | Meets 1SBLC | Meets 1SBLC | Meets 1SBLC | X | |
| Mystery Mission (Vannasdall) | 5 | Meets 1SBLC | Meets 1SBLC Meets ST | X | X | X | |
| Nebraska (VonHagel) | 4 | X | X | X | X | | |
| Pass of Fail on the Oregon Trail (Wood) | 5 | X | X | X | X | X | |
| Patriot or Loyalist? It's Up to You (Vandergrift) | 6 | Meets 1SBLC | Meets 1SBLC | Meets 1SBLC | Meets 1SBLC | X | |
| The Road to the Revolution (Osinski) | 6 | X | Meets 1SBC | Meets 1SBLC | Meets 1SBLC | X | Meets 1SBLC |
| Save the Stocks: An Intro to the Great Depression (Powell) | 5 | Meets 1SBLC | Meets 1SBLC | Meets 1SBLC | X | X | |
| The Shot Heard Around the World (Shippee) | 3 | Meets 1SBLC | X | Meets 1SBLC | | | |
| Texas Tea: Oil in Texas (Rogers) | 4 | Meets 1SBLC | Meets 1SBLC | Meets 1SBLC | | | |

The initials presented in the table correlate with the following types of historical knowledge,

1SBLC – First Ordered Substantive Knowledge Low Complexity
1SBHC – First Ordered Substantive Knowledge High Complexity
2SB – Second Ordered Substantive Knowledge
ST – Strategic Knowledge
X – Does not teach Historical Knowledge

Findings and Discussion

Findings in Relation to Historical Knowledge

The analysis of the breakout box activities presented on Breakout EDU's User Generated Social Studies Platform, labeled for use in middle or high school American history classrooms, indicates that a majority of the puzzles associated with each game either encourage low-complexity first ordered substantive knowledge or do not teach historical knowledge at all. Further, the analysis also indicates that first ordered substantive knowledge – high complexity, second ordered substantive knowledge and strategic historical knowledge are seldom encouraged in the breakout box activities. First ordered substantive knowledge – high complexity, second ordered substantive knowledge and strategic historical knowledge are only encouraged in four out of the sixty-four total breakout box puzzles.

Explanations regarding the categorization of the breakout box puzzles into the specific domains of historical knowledge are discussed further in the following order, does not teach historical knowledge, first ordered substantive historical knowledge – low complexity, first ordered substantive historical knowledge – high complexity, second ordered substantive historical knowledge, and strategic historical knowledge. Examples of the breakout box puzzles that fall within each domain will also be provided.

Puzzles that do not teach historical knowledge.

Twenty-eight out of the total sixty-four breakout box puzzles were categorized as “do not teach historical knowledge”. These puzzles were classified as such because neither the task nor

the question being asked of students, for the successful completion of the puzzle, related to historical content. The first puzzle in the “Nebraska” (VonHagel) breakout box activity for example, gives students the following clue,

The Top Crops in Nebraska

- 1.) Corn
- 2.) Soybeans
- 3.) Hay

In addition to this clue, students are provided with five cut-out pieces of paper that each display a picture of an ear of corn, four cut out pieces of paper that each display clusters of soybeans, and eight cut-out pictures that each display bales of hay. To successfully solve this puzzle, students would need to order the pictures in accordance with the first clue of “Corn, Soybeans and Hay” and then count how many pictures of corn, soybeans and hay that have been cutout. This process will reveal the three-digit numerical combination of 548. The overall nature of this puzzle is not based in historical content knowledge, but instead asks students to count cut-out pieces of paper in a structured manner.

Another example of a breakout box puzzle that does not teach historical knowledge can be found in puzzle three of the breakout box activity, “Historical Mastermind” (Rouse, 2017). In this puzzle, students are tasked with searching for a picture of a historical figure pointing at them (Figure 1). Once students find the picture, they shine a black light on the back of the image in order to reveal a code written in invisible ink. Once students speak that code to their teacher, the location to a key to unlock another lock is given. This puzzle was categorized as “does not teach history” because students are only analyzing the image of the historical figure to see whether or it is pointing directly at them. The teacher does not provide any information as to who the historical figure is, when the image was painted, or who was the artist of the painting. Further, students are not asked to find any other information about the picture beyond whether or not the

figure is pointing directly at the audience. Historical content is not being discussed in the puzzle and students would not need to use strategic historical knowledge skills in order to identify a picture of a man pointing.

Figure 1

Image of Man Pointing for Historical Mastermind Breakout Box Puzzle 3



(Rouse)

Another example of a breakout box puzzle that does not teach historical knowledge can be found in puzzle two of the breakout box activity, Commander in Mis-Chief (Welch). In this puzzle students are presented with a copy of a letter written by Alexander Hamilton to the Governor of Pennsylvania, Thomas Mifflin, during the Whiskey Rebellion (Appendix B). In unlocking the lock associated with this clue, students are tasked with reading the document in order to find words within the text that coordinate with directions. While reading the document, students are supposed to identify the directional words of Western, down, and forward. Once identified, students will use the directions of left, down, and right to unlock the directional lock. This puzzle was categorized as “does not teach historical knowledge” because the nature of the task was to identify words in a body of text that coordinate with directions. Had the students been tasked with understanding the message of the letter, or the purpose of the letter, this task would have received a different historical knowledge classification.

First ordered substantive knowledge - low complexity.

The remainder of the breakout boxes that cover topics in American History predominately focused on first ordered substantive historical knowledge – low complexity. First ordered substantive historical knowledge – low complexity is historical information that primarily focuses on remembering and identifying content, such as the names of authors, events, locations or dates.

Typical examples of the types of first ordered – low complexity substantive knowledge questions that were asked in the breakout box activities can be found in Table 3.

Table 3

Examples of First Ordered Substantive Historical Knowledge in the analyzed Breakout Boxes

| Title | Topic | Examples of Questions Asked of Students |
|--|-------------------------|---|
| The Lost Lincoln Letter (Housepin) | Reconstruction | What does the phrase “four score and seven years ago” make reference too? |
| My Solution is in the Revolution(ary War) (Essex & Corral) | American Revolution | In what state did the British establish their first colony? |
| Patriot or Loyalist? It’s Up to You (Vandergrift) | The American Revolution | This act gave the British the right to requisition buildings to house British troops. |
| Save the Stocks: An Intro to the Great Depression (Powell) | The Great Depression | What was the approximate Dow Jones Industrial Average in 1928? |

A breakout box activity that includes a number of first order substantive knowledge – low complexity questions is the one entitled “My Solution is in the Revolution(ary War)” (Essex & Corral). In this activity, puzzle numbers one, two, three and four, all ask students low level remembering or identifying questions. In puzzle number four, for example, students are tasked with figuring out the directions that coordinate with a directional combination lock. The directions are revealed once students successfully answer a series of six questions about the thirteen colonies. The movement from one question to the other indicates one direction needed for the combination. Question one for example states, “Start at the state where the British established their 1st successful colony.” Students who are familiar with this content area,

therefore, would start at the state of Virginia. Question two then asks students, “This region’s economics relied heavily on plantations”. Students who are familiar with this content area, therefore, would move down or “South” to the Southern region. The move “down” would be one portion of the combination for the directional lock. Figure two depicts the next two movements that would take places in this puzzle. This puzzle is classified as first ordered substantive-low complexity historical knowledge because students are asked to identify or recognize information such as names, dates, or even basic facts about the 13colonies.

Figure 2

Movement Number Two for “My Solution is in the Revolution(ary War)’s” Puzzle #4



(Essex & Corral)

First ordered substantive knowledge - high complexity.

The remaining types of historical knowledge, first ordered-high complexity substantive knowledge, second ordered substantive knowledge and strategic knowledge are seldom encouraged in the breakout box puzzles. First ordered – high complexity substantive historical knowledge, for example, is only included in one puzzle out of the sixty-four puzzles included across all thirteen breakout boxes. The one puzzle that meets the criteria of encouraging first ordered high complexity substantive historical knowledge is puzzle number six within the “Crazy Judah’s Secret” breakout box activity.

In the “Crazy Judah’s Secret” breakout box activity, students analyze G. Frederick Keller’s political cartoon entitled, “The Curse of California” (Appendix C). The primary purpose of including the political cartoon in the breakout box is to have students describe the main point of the image. In order to understand the main point of the image, students must analyze the various symbols contained within the cartoon. This represents first ordered – high complexity substantive historical knowledge because students have to analyze the authors perspective of the Southern Pacific Railroad as it is depicted in the political cartoon. To assist students with the analysis process, the teacher asks the students to identify important symbols included in the political cartoon. By asking students to identify the key symbols, the teacher is encouraging students to use first-ordered low complexity substantial knowledge. The use of low complexity substantive knowledge however, is important in this task, to support the development of the students’ high complexity substantive historical knowledge in determining the main idea of the political cartoon.

Second ordered substantive knowledge.

The second portion of substantive historical knowledge, second ordered substantive knowledge, is not taught or encouraged in any of the sixty-four puzzles. Second-ordered substantive knowledge includes ideas such as persistent issues, societal change, historical significance, cause and effect, and progress and decline (VanSledright, 2014). Of the thirteen games analyzed for this study, only puzzle number five in the “Crazy Judah’s Secret” breakout box attempts to teach students second order substantive historical knowledge. The specific knowledge the puzzle tries to teach students is cause and effect relationships. In this puzzle, students are tasked with matching cause and effect relationships as they appear on cut out pieces of paper. Students have to correctly match all nine cause and effect cards in order to reveal a clue

written vertically along the seam of the matching cards. The cause and effect relationship descriptions are simple explanations that could fall into the category of first-ordered low complexity historical knowledge. One pair of the cause and effect cards for examples states, “Cause = ‘Because the railroad took a great deal of labor to build’, Effect = ‘The railroad companies hired many workers, including Chinese and Irish immigrants, to build the railroad’” (Figure 3). The cognitive skills required to correctly match this set of cause and effect relationships, at the simplest level, only requires students to understand the relationship between the phrases “took a great deal of labor” and “hired many workers”. Further, the design of this particular puzzle could eliminate the process of using word association to solve the puzzle altogether, if students are able to correctly match the letters of the clue written vertically along the seam of the cards. The clue written along the seam of the cards spells out the word, “octopus”, which is intended to hint at the next clue, “The Curse of California” political cartoon. Figure 3 displays the clues associated with the cause and effect relationship puzzle in the “Crazy Judah’s Secret” breakout box activity.

Figure 3
Second Ordered Substantive Historical Knowledge Illustration

| CAUSE | EFFECT |
|---|---|
| Because of the Pacific Railroad Act of 1862, | the US government granted railroad companies money and land to help build the transcontinental railroad. |
| Because the railroad took a great deal of labor to build, | the railroad companies hired many workers, including Chinese and Irish immigrants, to build the railroad. |

(Rouse)

Strategic historical knowledge.

The second domain of historical knowledge, strategic historical knowledge, was identified in only four puzzles. Strategic historical knowledge incorporates specific historical skills in order to process and understand substantive knowledge. Strategic knowledge skills consist of processes such as sourcing historical documents, searching out and corroborating various perspectives, and making sense of multiple perspectives within the larger historical context (VanSledright, 2014; Wineburg, 1991). The breakout boxes that either successfully incorporate or attempt to incorporate strategic historical knowledge, typically only task students with either analyzing historical pictures or sourcing historical documents.

Picture analysis. The task of analyzing pictures can be found in the breakout box activities, “Crazy Judah’s Secret” (Rouse) – puzzle number six, “Historical Mastermind”(Rouse) – puzzle number one, and “Mystery Mission” (Vannasdall) – puzzle number two. Puzzle number six of the breakout box activity, “Crazy Judah’s Secret”, is classified as picture analysis in the domain of strategic historical knowledge because students are tasked with analyzing the main points being made by G. Frederick Keller’s political cartoon, “The Curse of California”. In order to understand the main point of the cartoon students need to employ the strategic historical knowledge skills of contextualization, and close reading/examination in order to understand the intricacies and inclusions of certain symbols that represent the author’s point of view about the Southern Pacific Railroad being a “crushing” monopoly.

The strategic historical knowledge tools associated with picture analysis can also be seen in the breakout boxes activities “Historical Mastermind” (Rouse) – puzzle number one, and “Mystery Mission” (Vannasdall) – puzzle number two. In these two puzzles students are tasked with identifying historical content contained within the images in order to place those images

into chronological order. The first puzzle of “Historical Mastermind” (Rouse) for example, tasks students with identifying content in images such as, Paul Revere’s engraving of the Boston Massacre, Abraham Lincoln pictured with Union troops, women protesting in front of the white house for voting rights, Dorothea Lange’s iconic picture “Migrant Mother”, a smoking battle ship after the bombing of Pearl Harbor and protestors participating in the March on Washington. In order to place the images in chronological order, students need to employ the strategic historical knowledge skills of contextualization, and close reading/examination in order to pick out subtle clues that indicate what event, in American History, the photo is referencing.

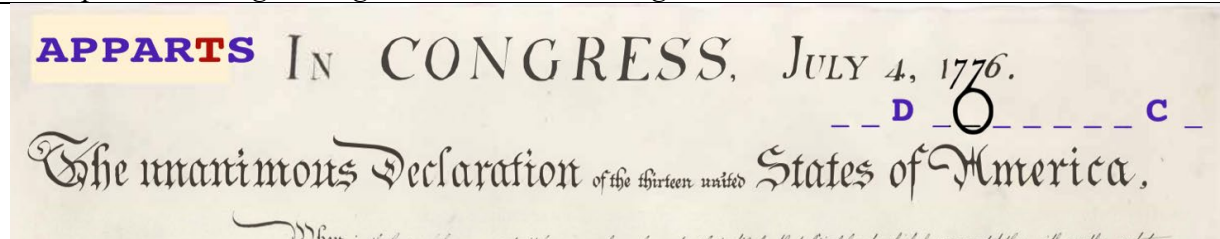
Similarly, in puzzle number two of the “Mystery Mission” breakout box activity, students must identify three California Missions and then place them in the correct chronological order, based on the date they were founded. In order to place the images in chronological order, students need to employ the strategic historical knowledge skills in order to pick out subtle clues that indicate which mission is depicted and when it was founded.

Document analysis. The task of analyzing historical documents can be found in the breakout box activities, “Crazy Judah’s Secret” (Rouse) – puzzle number four and “Historical Mastermind” (Rouse) – puzzle five. Puzzle number four of the “Crazy Judah’s Secret” (Rouse) breakout box activity, however, is the only puzzle that is meets the requirements of strategic historical knowledge for the task of document analysis. The fourth puzzle of the “Crazy Judah’s Secret” (Rouse) breakout box activity tasks students with analyzing a letter written by W.M. Smith to his sister Lele Graves. Students are further asked to consult the *Stanford History Education Group’s* Sourcing Poster in order to analyze the document. The poster, however, has been modified by the game designer. Each bullet point on the original poster, describing a sourcing procedure, has been assigned a number. On a separate piece of paper, students are given

a list with numbers on it that coordinate with the numbers on the sourcing poster. Each number has a set of blanks next to it that the student needs to fill in with answers that come from the historical document. The strategic historical knowledge skills students are asked to use to analyze the document include identifying the author of the document, why the document was written, when the document was written, and where the document was written. These skills classify as strategic historical knowledge because they are needed by each student in order to understand the historical context surrounding the document.

Attempt at historical document analysis. An attempt at teaching strategic historical knowledge skills can be found in puzzle number five in the “Historical Mastermind” breakout box activity. The fifth puzzle “attempts” to guide students through the process of documents analysis, but due to design flaws, does not properly teach strategic historical knowledge skills. In facilitating the process of document analysis, the acronym of APPARTS is used. The acronym coordinates with strategical historical knowledge skills such as identifying author, place, prior knowledge, audience, reason, (the) main idea and significance. Students are instructed on what to look for in the document through identifying the highlighted letter in the APPARTS acronym. Take for example the instruction toward analyzing the Declaration of Independence, as displayed in Figure 4. At the top of the Declaration of Independence, the letter “T” is highlighted in the APPARTS acronym. The highlighted letter T indicates that students should note the main idea of the Declaration of Independence. In guiding students toward finding the correct answer a fill in the blank section is inserted at the top of each document. The blanks contain letters used in the word “Independence”.

Figure 4

Attempt at Teaching Strategic Historical Knowledge

(Rouse)

The intention of teaching historical document analysis in this method has merit. Students should be able to identify author, place, prior knowledge, audience, reason, (the) main idea and significance of a historical document in order to accurately construct interpretations of historical narratives. However, if this method of teaching strategic historical analysis is not done carefully, students may end up not using strategic historical knowledge skills altogether. In determining the main idea of the Declaration of Independence for example, it is not necessary for student to read the document in order to know that the main idea is independence. They simply have to decipher what “T” in the APPARTS acronym means.

Conclusion

After analyzing and interpreting the puzzles contained in the breakout box lessons, it is evident that students are only being taught portions of historical knowledge or are not being taught historical knowledge at all. Of the types of historical knowledge being taught, first ordered-low complexity substantive historical knowledge is the most emphasized knowledge type for students to develop across every activity, although found in only 33 of the puzzles. While it is important for students to identify, remember and understand low level factual historical knowledge, placing an emphasis on its development in students could stymie their ability to understand that the subject of history is constructed through the processes of careful analysis, and juxtaposition of multiple perspectives. Further, the singular focus on developing

first order – low complexity substantive historical knowledge in students can continue to define history as a subject of facts consisting of “dead people, dates and antiquated political parties”. The subject of history however, is more than the bland recitation of dates or “dead people”, instead, it is the story of how mankind dealt with issues such as overcoming oppression, protecting inalienable rights, responding to injustices, and charting unknown frontiers. In prioritizing the memorization of facts to questions such as “what act gave the British the right to requisition buildings and homes in the thirteen colonies to house British troops”, teachers deny students an opportunity toward further understanding concepts such as when are people justified in calling for social change, or to what degree should the powers of the national government be limited.

Although breakout boxes and escape room games allow students to take on the role of heroes thwarting the evil plans of crazed presidents, or professors, their tendencies to present low level factual historical knowledge in new formats should be understood by teachers. It is all too possible that the emphasis on teaching low level factual historical knowledge in breakout boxes can be attributed with the nuanced coordination of content knowledge with the combinations of various locks needed to facilitate breakout box activities. Naturally the dates of historical events such as the founding of Jamestown coordinate more effectively with a four-digit numerical lock than understanding the relations that the colony of Jamestown had with the neighboring Powhatan Indians. However, when possible, teachers and breakout box designers should try to incorporate puzzles that provide students with opportunities to develop or practice other types of historical knowledge. The incorporation of puzzles that encourage strategic historical knowledge skills, such as those found in the activities entitled, “Historical Mastermind” and “Crazy Judah’s Secret”, should be included when applicable.

Further research in the area of using breakout boxes and escape rooms as instructional methods toward teaching historical knowledge could examine how to better incorporate puzzles that focus on developing first ordered – high complexity substantive knowledge, second ordered substantive historical knowledge and strategic historical knowledge. As is apparent in the analyzed breakout boxes, second ordered substantive knowledge has not yet been incorporated. Enabling the understanding of cause and effect relationships, progress and decline, persisting issues and societal change in students is important to develop in order for them to understand the holistic nature of history and social interaction. Additionally, further research in the field could examine how to incorporate multiple perspectives on a historical event. A large portion of constructing interpretations of historical narratives deals with the process of corroborating and juxtaposing multiple perspectives. Students need to have practice in performing these skills so that they can understand how historical claims are made and supported with evidence.

The live action game play and enticing narratives may inspire students to approach their study of history with increased vigor when compared to the traditional “sage on the stage” instruction. However, regardless of the possible engagement opportunities these methods present, teachers should critically analyze and weigh the kinds of historical knowledge they foster and develop in students. Although memorizing dates, names and events has its importance, students deserve to have access to opportunities where they can study history holistically and in a manner that allows them to examine the social intricacies of life. Through incorporating puzzles that focus on both procedural knowledge and “higher order” concepts, the study of history might just be able to breakout and escape the stereotype of being “just one thing after another”.

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Complete List of Analyzed Breakout Box Instructional Activities

| Author | Title | Topic | Grade |
|------------------------|---|------------------------|-------|
| Welch, J. | Commander in Mis-Chief | Primary Sources | 6-8 |
| Rouse, W. | Crazy Judah's Secret | Railroads | 6-8 |
| Rouse, W. | Historical Mastermind | Historical Analysis | 9-12 |
| Housepin, C. | The Lost Lincoln Letter | Reconstruction | 6-8 |
| Essex, H. & Corral, E. | My Solution is in the Revolution(ary War) | American Revolution | 6-12 |
| Vannasdall, J. | Mystery Mission | Santa Barbara Missions | 6-8 |
| VonHagel, A. | Nebraska | Nebraska Facts | 6-8 |
| Wood, S. | Pass of Fail on the Oregon Trail | Westward Expansion | 6-12 |
| Vandergrift, J. | Patriot or Loyalist? It's Up to You | American Revolution | 6-12 |
| Osinski, M. | The Road to the Revolution | American Revolution | 6-8 |
| Powell, J. | Save the Stocks: An Intro to the Great Depression | The Great Depression | 9-12 |
| Shippee, M. | The Shot Heard Around the World | American Revolution | 6-8 |
| Rogers, D. | Texas Tea: Oil in Texas | Texas History | 6-8 |

None of the Breakout Box activities listed on the User Generated Social Studies Breakout EDU webpage included information regarding with a date of creation or posting.

Alexander Hamilton to Thomas Mifflin

Philadelphia, Pennsylvania, 20 September 1794.

Letter signed, 2 pages.

War Department

Sept. 20th 1794

Sir

The Intelligence received from the **Western** Counties of Pennsylvania, which comes **down** to the 13th Ins^{t.}, and announces as far as it was then known, the result of the meetings of the People in the several Townships, and districts to express their sense on the Question of submission or resistance to the Laws. - while it shews a great proportion of the Inhabitants of those Counties disposed to pursue the path of Duty, shews also, that there is a large and violent Party which can only be controuled by the application of Force – This being the result, it is become the more indispensable and urgent to press **forward** the forces destined to act against the Insurgents with all possible activity and Energy. The advanced season leaves no time to spare, and it is extremely important to afford speedy protection to the well disposed, and to prevent the preparation and accumulation of greater means of Resistance, and the extension of Combinations to abet the Insurrection—The President counts upon every exertion on your part, which so serious and eventful an emergency demands.

With perfect respect,

I have the honor to be

Sir

Your obed^{t.} Serv^{t.}

Alexander Hamilton

His Excellency Thomas Mifflin

Governor of Pennsylvania

[Docket]

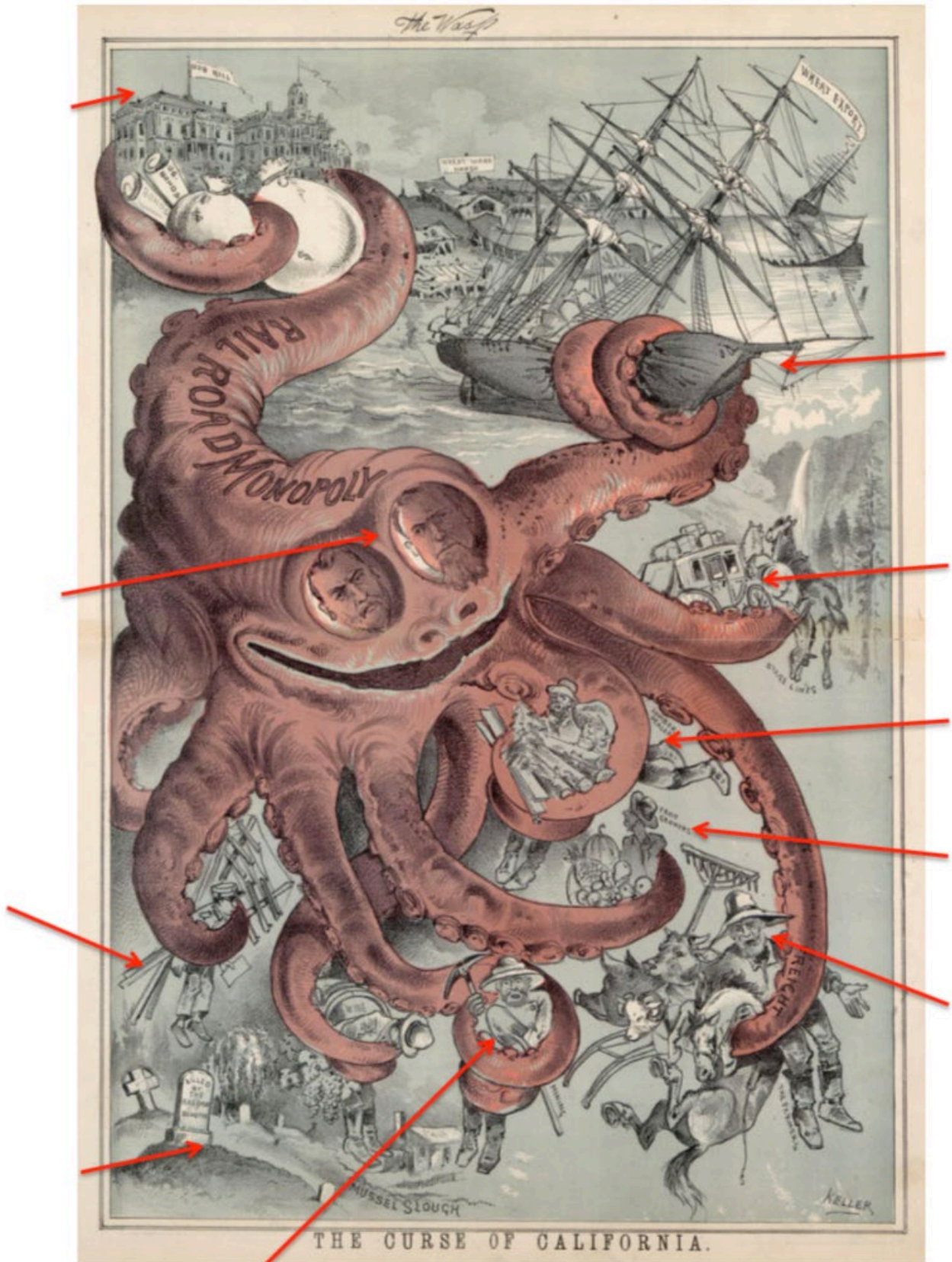
War Department

His Excellency Thomas Mifflin

Governor of the Commonwealth of Pennsylvania

copied for the Legislature of

The words indicating different directions are not highlighted in the original puzzle from the “Commander in Mis-Chief” (Welch) breakout box activity.



THE CURSE OF CALIFORNIA.

What is the point of this cartoon?