

Strategy Games in the Education of the Man, Society, History and Civilization: Educational Potential and Challenges

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Abstract – This article explores the possibilities of integrating the strategic computer game *Age of Empires II: Definitive Edition* as an educational tool. An original scenario has been developed that aligns with a lesson from the curriculum for the subject “Man and Society.” The focus of this study is on measuring the effectiveness of this resource in enhancing students’ motivation to learn and in creating methodological guidelines to support teachers. Based on the feedback from 22 fourth-grade students, the primary benefits identified from using the computer game include increased motivation to learn and greater engagement in the learning process. Notable challenges include the high cost and the time investment required for a teacher to create a quality scenario.

Keywords – computer game, man and society, history and civilisations, strategy.

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1. Introduction

In all stages of modern education, information and communication technologies are becoming a significant component of the learning process. "The application of computers in education enables better organization of teaching in schools, as well as the ways and methods of presenting verbal and visual material" [7].

In this context, digital games are often used as educational tools that blend entertainment and educational elements, offering innovative approaches to engage students. Digital technologies, like gamification, can heavily influence the learning process in content areas related to science education, a field that students often present negative emotions and have difficulties in understanding concepts [5]. Since the beginning of the 21st century, the educational potential of video games has sparked considerable interest among researchers, with notable studies including “Digital game-based learning” by M. Prensky [11], “What video games have to teach us about learning and literacy” by J.P. Gee [9], and “How computer games help children learn” by D.W. Shaffer [12]. Even the strongest critics of digital games acknowledge their ability to engage and impact those who play them. According to Bahchevanova, it is essential for the technological world of computer games to find its place in education, to increase children’s motivation to learn and to strengthen and apply acquired knowledge and skills [2].

For sure the role of computer games in the development of undergraduate perceptions of history has to be explored further. [10]

2. Video Games as an Educational Tool

At the beginning of the 21st century, a movement known as “serious games” began, changing how educators perceive computer games with educational objectives.

An example of a game with serious educational functions is “Discover Babylon”, developed through collaboration between the UCLA Cuneiform Digital Library, FAS Learning Technologies, Entertainment Escape Door project and the Baltimore Historical Museum.

This multiplayer game features historically and scientifically accurate 3D photorealistic simulations and various question-and-answer management tools designed to promote learning. The game is intended to engage children aged 8 to 14 and contains various challenges and mysteries that can only be solved through knowledge related to the history, culture, and society of Ancient Mesopotamia [8].

Using computer games as an educational tool in history lessons also carries its risks, as games often provide an inaccurate representation of historical contexts, events, and figures, which has the potential to confuse students and create misunderstandings about the period being studied [9]. Thus, computer games cannot serve as primary didactic material, but rather as supplementary tools used for a specific purpose and in a controlled environment. According to Velcheva and Dimitrov, “teachers should more frequently introduce educational games developed on innovative digital platforms into their teaching practice. This will allow a deeper connection with their students and will facilitate the acquisition of more lasting knowledge” [3]. Velcheva and Hristov support the view that educational games, even in the form of role-playing games, “provide greater opportunities for socialization, communication, creativity, and collaboration” [4].

For a computer game to be an effective educational tool, the teacher has to have clear answers to six basic questions -“Who,” “What,” “When,” “How,” “Why,” and “In what way.” Related to the present topic, these questions are as follows:

“Who is the learner?” — This question includes demographic characteristics (such as gender, age, spoken languages, cultural identifications), as well as specific data on the students—interest, motivation, experience, and self-assessment. For the purposes of this study, 22 fourth-grade students, divided into four groups, participated.

“What is being learned?” — This question refers to the educational content of the game. The present study focuses on the theme “Bulgarian Society in the Middle Ages,” studied in third grade as part of the “Man and Society” subject, specifically the lesson on the restoration of the Bulgarian kingdom and the rule of Peter and Asen.

Competencies as expected outcomes, as outlined in the curriculum, include: “Relating significant events and processes of the unification of Bulgarian society (establishment of the Bulgarian state, creation of a unified legislation, Christianization, cultural rise) to the respective ruler;

Giving examples of Bulgaria’s contributions to medieval Europe” [6]. The activities planned for this lesson include extracting information about the past from written and material historical sources, sequencing events in time, and forming accessible conclusions about the significance of major events.

“When does the learning take place?” — For this study, the lesson was conducted in the school computer lab, where each student had access to a personal computer. Due to the method's specificity, the lesson was conducted during the time allocated for “Activities of Interest” for students enrolled in the “History Comes Alive” club. The activities in the club imply that students with an interest in history have joined. The presented game aims to reinforce the curriculum content and enrich it with additional facts about the studied period. The study was conducted at the beginning of the school year when fourth-grade students review the material studied in third grade.

“How is the teaching conducted?” – This example presents a review of content taught in 3rd grade, now enriched with additional tasks and historical sources integrated through core gameplay mechanics.

“Why does the learner engage in the game?” – This question explores the students’ motivation. In this case, participation in the “History Comes Alive” club is voluntary for each student.

“By what means is the teaching conducted?” – This question distinguishes between purpose-built games (games designed specifically for educational goals) and “modified” games, which result from customizing existing commercial games. In this case, the game is a modified version, personalized by the teacher for a specific class or group of students.

3. Age of Empires II: Definitive Edition – Educational Potential and Characteristics

Age of Empires is a real-time strategy computer game created by Ensemble Studios and published by Microsoft in 1997. It quickly gained popularity with its innovative approach to history, allowing players to build and manage civilizations across different historical eras. Following the success of the first release, Age of Empires II was introduced in 1999, further expanding the gameplay mechanics and historical elements. The game focuses on societal development, resource management, and military campaigns, covering periods from the Middle Ages to the Renaissance.

In 2019, *Age of Empires II: Definitive Edition* was released, featuring enhanced graphics, updated gameplay, and new content built around historical scenarios.

From an educational perspective, *Age of Empires II: Definitive Edition* offers significant opportunities for studying history, geography, and logic.

The game provides historically based campaigns, where players encounter key historical figures and events. Some of these campaigns allow players to "step into the shoes" of historical characters such as Tsar Ivaylo, Joan of Arc, Saladin, and many others. Additionally, the game has a dedicated section that includes historical information about numerous medieval states and notable figures.

In addition to the factual knowledge that can be acquired through gameplay, the game fosters the development of strategic thinking and resource management. These qualities make it suitable for educational use, as it allows students to explore complex historical and social topics in an interactive and engaging manner. *AoE II: Definitive Edition* enables modifications, allowing each player to create custom historical scenarios. This includes designing a geographic map, constructing specific types of buildings, placing units (such as rulers, soldiers, clergy, peasants, etc.), and attaching supplementary materials to designated locations (in this case, a lesson plan, historical sources, and tasks). The entire scenario is created through "triggers," which include "condition-effect" mechanisms. For example, when Asen and Peter reach the Golden Church in Preslav, the mission is considered complete.

Currently, the educational potential of the series is widely utilized by educators, with the most notable example being the History Department at the University of Arizona, which has integrated *AoE IV* into its undergraduate curriculum as an educational tool aimed at developing historical knowledge and strategic thinking. Associate Professor of Medieval History Paul Milliman and Associate Professor of Ancient History and Department Head Alison Futrell, in collaboration with designers from the game studios World's Edge and Relic Entertainment, have developed educational content that complements the historical facts from *AoE IV* campaigns. This enables players to access additional content beyond the game, including historical sources, educational videos, and quizzes to test their learning. An interesting aspect of this program is that students can earn 1 academic credit for participating in the course if they play *AoE IV* and meet specific educational requirements. This initiative is part of the university's efforts to introduce new teaching methods through digital games, enhancing student engagement and critical thinking.

4. Custom Scenario

This article aims to explore the potential of *AoE II: Definitive Edition* as an educational tool in teaching social studies and history and civilizations, as well as in enhancing student engagement and motivation to learn.

A specific example is presented for using the game in the classroom to achieve targeted educational goals and outcomes. The use of this model aims to improve students' academic performance, as well as to develop essential 21st-century skills, such as critical thinking, teamwork, and digital literacy.

For the purposes of this study, a custom scenario was created using the "Scenario Editor" function in *AoE II: Definitive Edition* to be used as an educational tool, through which 4th-grade students can review the material covered in the previous school year, specifically regarding events related to the restoration of Bulgaria by Asen and Peter. The scenario includes the following elements:

- A map of the Bulgarian lands in the 13th century, with medieval cities such as Tarnovo, Preslav, and Lovech marked.
- Soldiers bearing the names of the brothers Asen and Peter, along with the cleric Basil, who crowns Peter as king.
- Tasks that students have to complete.
- A lesson plan and historical sources.

The educational scenario begins in front of the Church of St. Demetrius in Tarnovo, where in the fall of 1185, the brothers Asen and Peter begin their uprising. In the opening minutes of the game, students are required to read the information provided by the brothers regarding the historical context, followed by reading the lesson plan located in the "Hints" section.

After the elder brother, Theodore, is crowned king and adopts the name Peter, students must move the units toward the city of Preslav. The instructions specify that Preslav is located east of Tarnovo, and to complete the task correctly, students need to orient themselves on the map and choose the right direction. Once the soldiers reach Preslav, the mission is automatically marked as completed, initiating the next task: "Ally with the Cumans." In the "Objectives" section, it is noted that the Cumans are located north of the Danube River. For this task, students have to again correctly determine the direction to guide the Bulgarian soldiers to the designated location.

Upon arriving at the Cuman camp, students receive a message that the fortress of Lovech is under siege and have to head west from Tarnovo immediately.

Once they complete this task, players are instructed to move south of Tarnovo to defeat the Byzantines at the Trevne Pass. After completing all the missions, a brief text appears on the screen, recounting the final years of the two brothers' rule and the conspiracies against them. Once this text disappears, students open the “Scouts” section, which presents three historical sources, each with two questions.

After writing their answers in their notebooks, to finish the game, students click on the Church of “St. Demetrius” and select the icon labeled “Reign of Tsar Kaloyan (1197-1207).” This is the end of the game, at which point “You are the winner” appears on the screen. A clear ending is a key to the effectiveness and impact of video games, as it ensures that players are fully aware of their successes or shortcomings, helping them improve their performance in the future. The time allotted for all activities is 30 minutes, with the last 10 minutes of the class reserved for reflection and checking answers.

5. Research Results

For the purposes of this study, a didactic experiment was conducted in the form of a survey with 22 fourth-grade students. This survey aimed to assess changes in their motivation to learn, as well as the applicability of the author-developed scenario as an educational tool. The specific questions and possible answers are:

To what extent did you feel motivated to learn and participate in class while playing the scenario about the rebellion of Asen and Peter?

- Very motivated
- Motivated
- Uncertain
- The game did not motivate me

To what extent did the game help you better understand the history of the rebellion of Asen and Peter?

- It helped me a lot
- It helped me somewhat
- Uncertain
- It did not help me

To what extent did the game motivate you to learn more about the history of Bulgaria and the rebellion of Asen and Peter after the end of the lesson?

- Strongly motivated me
- Somewhat motivated me
- Uncertain
- Did not motivate me

Do you think this type of activity is useful for you in social studies classes?

- Yes, definitely
- Yes, somewhat
- Uncertain
- No, I don't think so

What was the most interesting part of the game for you?

- Open-ended response

What would you suggest improving in the scenario to make it even more useful and engaging?

- Open-ended response

The results from the survey can be found in Figure 1.

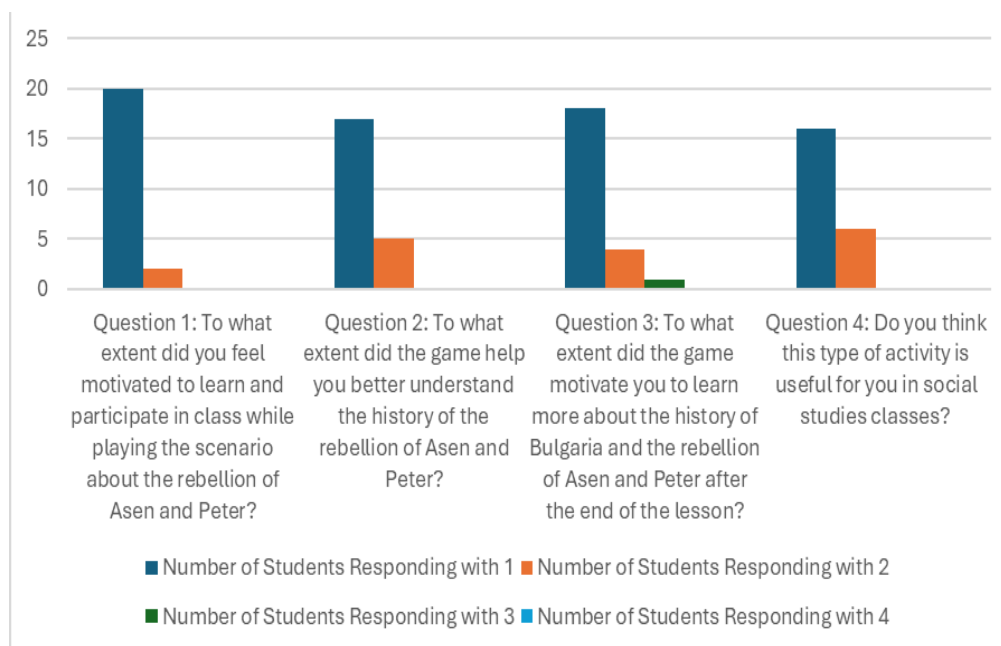


Figure 1. Survey results 1

Question 1 – Twenty students indicated that they felt very motivated while playing the scenario, and two others felt motivated. The results show that the majority of students (a little over 90%) felt highly engaged during the game-based scenario, suggesting that the game is effective in holding students' attention and motivating them. The absence of responses on Scale 3 (Uncertain) and 4 (Unmotivated) also leads to the conclusion that students demonstrated strong interest in the activity.

Question 2 – Seventeen students stated that the game greatly helped them understand the history of the rebellion of Asen and Peter (Scale 1), while 5 students felt it somewhat contributed to their understanding of the material (Scale 2). This indicates that a little over 77% of the surveyed students believe the game significantly aided their understanding of historical facts and the logic of events. The remaining nearly 23% of fourth graders also found it useful, albeit to a lesser degree. The lack of responses on Scales 3 and 4 shows that the scenario was successfully integrated as an educational tool to reinforce knowledge.

Question 3 – Eighteen students (almost 82%) were strongly motivated (Scale 1), 4 were somewhat motivated (Scale 2), and only one student was uncertain about whether they felt motivated to learn more about the topic after class (Scale 3). The data suggest that most of the surveyed students exhibit a high motivation to continue studying the material beyond the classroom, indicating that the scenario sparked a desire for a deeper understanding of the topic.

Question 4 – Sixteen of the surveyed students responded to the question "Do you think this type of activity is useful in social studies classes?" with "Yes, definitely" (Scale 1), and 6 students answered "Yes, somewhat" (Scale 2). All students consider this scenario suitable for use in social studies, with nearly 75% fully agreeing—supporting the hypothesis that the game has potential as an educational tool in school settings.

Question 5, responses were diverse, with the most frequently mentioned elements being tasks where players control Asen and Peter's army and move it across the map. This gameplay mechanic is one of the reasons for the game's popularity over recent decades.

Question 6 also received varied responses. The most popular suggestions for improving the scenario included adding more missions and historical figures, as well as developing new scenarios covering the entire Medieval Bulgarian period.

Although the results are not intended to be representative, the survey shows a high level of engagement, motivation, and positive evaluation of the custom scenario in AoE II DE as an educational tool.

Students not only acquired new knowledge, but also expressed a desire to continue studying history related to the founding of the Second Bulgarian Empire. The game effectively combines historical facts presented interactively with diverse challenges that stimulate students' skills and motivation to learn. In this regard, N. Atanasova notes that: "...Educational work in primary grades will be more effective if teachers build on students' positive attitudes towards projects, games and other interactive methods and forms of educational interaction." [1].

6. Conclusion

Although these findings are helpful, they are not all-inclusive. The sample size was too little to be statistically significant and too localized to yield broadly applicable, believable findings. The model of using Age of Empires II: Definitive Edition demonstrates significant educational potential in social studies and history classes, thanks to its interactive nature and adaptability to the needs of specific students. The game offers an engaging way to present material, not only involving students in dynamic historical scenarios, but also fostering active participation through historical simulations. The teacher's ability to create custom educational scenarios further enhances the flexibility of this approach. This allows the development of scenarios aligned with students' knowledge levels, which can be gradually made more complex or linked into campaigns covering larger historical periods. These educational scenarios also enable the integration of maps, historical sources, and tasks that enrich the learning process.

Alongside its advantages, the custom model of integrating AoE DE as an educational tool also presents challenges. One primary issue is the cost, as each game copy has to be purchased separately for each computer, which could be a significant expense for schools. Additionally, the time required to create a high-quality educational scenario aligned with learning objectives can vary from days to weeks, depending on the specifics of the topic. Also, as a challenge, we can note that a large number of students had never played this type of video game before, experienced some difficulties in navigating its mechanics and gameplay, and required support and guidance from the teacher. A large number of teachers also require solid training on how to create an educational scenario.

To determine the effectiveness of this custom model, additional and larger-scale studies are needed, including its practical application with more students and the development of additional educational scenarios.

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