Research Article

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Reflections of art history instructors on an educational digital game: A narrative case study

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ARTICLE INFO	ABSTRACT
	The current paper is based on a large art-based project that aims to explore the art history instructors' practice-based reflections on their adoption, implementation, and use of the educational video game, ARTè: Lumiére, which is an exploration game designed to enhance art history and art appreciation courses in the context of the birth of French Impressionism. The data were gathered from three art history instructors teaching in higher education through semi-structured interviews with a particular focus on reflection on their undergraduate students' engagement and learning experience during the gameplay. Results indicate that there were four major emergent themes, including self-reflection, reinforcement of learning, Lumiére as a game changer, and overcoming the obstacles. Regarding the instructors' reflections and experiences, we suggest that instructors' presence during the gameplay and the game design process might have a significant impact on the students' learning experience. Keywords: art history, educational games, higher education, teachers, impressionism

INTRODUCTION

Research in art education has shown that a significant number of studies focused mainly on student engagement with games by assessing their knowledge of art history, vocabulary and artworks (Ahmad, 1989; Ciganko, 1995; Guhin, 2002; Katter, 1988; Osmundson, 2000; Susi, 1988; Taylor, 1991). In the late 1970s, there was a decrease in the quantity of papers written on the use of games in art education due to the transition from the arts in education model to discipline-focused art education (Patton, 2014). More recently, researchers tend to apply different approaches of using games in art education, for example, computerized simulations have increased the popularity of games in the USA. Within art education, computer games were utilized in a variety of ways, such as, as study materials (Parks, 2008; Patton, 2013; Sweeny, 2010); teaching methods (Efland, 2000; Gude, 2007; Matthews, 2010); art material (Szekely, 2000).

Vlachopoulos and Makri (2017) investigated the effectiveness of games and simulations as innovative instructional methods in higher education and found that those teaching practices have a positive impact on students' learning process in terms of cognitive, behavioral, and affective domains. Whether the use of games promotes positive learning outcomes could depend on teachers'

perceptions and teaching practices through games (Huizenga et al., 2017). Insights into teachers' opinions about the advantages of using digital games for learning based on their practices could help us better understand their adoption of digital games in the classroom. Furthermore, their experiences about how they get involved in the game, and how teaching and learning processes are reflected before, during and after the gameplay can be useful for discerning the effectiveness of educational video games in a classroom setting. Previous research indicated that teachers' beliefs about the benefits of implementing games in the classroom was the best predictor of the use of games in their courses (Proctor & Marks, 2013).

A review paper, which provides an evidence-based review and synthesis on the design and use of serious games in higher education put forward that qualitative research methodologies have not been used as often to explore how university teachers understand, experience and use educational games for teaching and learning (Lameras et al., 2017). More specifically, there is a lack of insight into how art instructors in higher education adopt, implement, and use video games in their classes. There is also limited knowledge on teachers' pedagogical approaches, roles, choices, and thoughts when they teach with games and thus, this might lead to confusion during the game design, game play and after the end of the game.

This study, therefore, focuses on the exploration of the practice-based reflections of the art history instructors who adopted, implemented, and used an educational video game, which is called ARTé: Lumiére (Thomas et al., 2018), in their courses. We specifically seek to answer the overarching research question: *What are art history instructors' practice-based reflections on the adoption, implementation, and use of an educational video game concerning their undergraduate students' engagement with the game and learning outcomes in their courses?*

MATERIALS & METHODS

Research Design

The purpose of this qualitative study is to explore the reflections of the three art history instructors in higher education regarding their experiences of using the educational game called ARTé: Lumiére. The research question guiding this study necessitated an in-depth interpretation of the art instructors who adopted, implemented, and used an art educational game in their art history courses. According to Clandinin and Connelly (2000), we all live 'storied' lives, and thus each individual has a story to share. Regarding Dewey's (1916, 2005) two criteria of experience, Clandinin and Connelly (2000) emphasize that "people are individuals and need to be understood as such, but they cannot be understood only as individuals. They are always in relation, always in a social context" (p. 2). For this reason, a narrative case study design was appropriate to explore meanings based on individuals' reflections and thoughts and then construct themes that can represent patterns of meanings within a data set. Thus, narrative was more appropriate for this study to understand the participants' experiences within their case (Sonday et al., 2020).

Participants

Three participants were purposively selected to participate in the present study. For recruiting purposes, the snowball sampling method was conducted. The faculty advisor provided the research assistant with contact information for those art instructors who expressed their interest in participating in the study. During the initial contact with the participants via electronic mail, the participants were given a brief description of the study using the information form as well as a copy of the Institutional Review Board's approved consent form. The research assistant scheduled a time to meet in person on Zoom with each participant to conduct the interview protocol. The background information about each participant was given using pseudonyms, as follows.

The first participant, *Amelia* teaches an undergraduate Art History survey course in a public community college on the west coast of the USA. She adopted the use of the game for one semester in her class when everything turned online due to the pandemic in 2020. She thought game-based learning could be fun for lecturing on the period of French Impressionism. She made the game optional for all students, including it as an extra credit opportunity. As her first time integrating a game into her large survey course, Amelia assigned a teaching assistant to help her manage and implement the game in her

class. The students played the game at home on their own time so there was no collaboration among the students throughout the gameplay.

The second participant, *Charlotte* is an art historian teaching Modern Art online in a public research university in the south-central region of the USA. She used the game three times in her classes in different terms. She decided to use the game as an alternative to a textbook considering the high cost of college textbooks. As she already taught online, the pandemic did not affect her teaching delivery mode and kept the course online. Unlike Amelia, Charlotte made the gameplay mandatory for her students as she was thinking that way would incentivize them to play it for an extra length of time and then gain extra credit. Also, she anticipated that the more the students played it, the more they would enjoy it.

The third participant, *Elizabeth* is an art instructor teaching Art History in a public research university in the southwestern USA. She had the opportunity to use the different versions of the game in the period 2019-2020. She is also a modernist working on 20th century and contemporary art, and highly interested in 19th century French art. She modified her approach for using the game over the four courses regarding the length of gameplay, feedback, optional or required participation, and assessment. Elizabeth expected her students to participate in discussion platforms to support their collaborative learning and critical thinking through the weekly posted questions on the gameplay.

Material

This study consisted of a one-on-one interview session in which participants were asked to answer questions based on the semi-structured interview protocol. The research team developed the semi-structured questions (Patton, 2015) (see **Appendix A**). The interview protocol was conducted following the interview protocol refinement framework, which consists of four steps (Castillo-Montoya, 2016). The process includes:

(a) ensuring the interview questions are aligned with the research questions,

(b) setting up an inquiry-based conversation,

(c) receiving feedback on the protocol used in the interview, and

(d) piloting the interview protocol.

In line with the purpose of the study, the interview questions focused on three themes: the adoption, implementation, and use of the game in the classroom. The determination of validity and reliability of the researchers-developed questions was obtained through a pilot interview with a professor in the field. The questions including probing and follow-up questions were revised based on the feedback and suggestions of the three experts in the field (Creswell et al., 2007).

Game Context

ARTé: Lumiére (Avci et al., 2020, 2021, 2023; Thomas et al., 2018) is an art history-based exploration game in which players learn the cultural background and general style of the art of several periods throughout history, by playing hand-crafted mini games driven by immersive quests in a detail-rich world. Regarding the instructional goals of the game, the
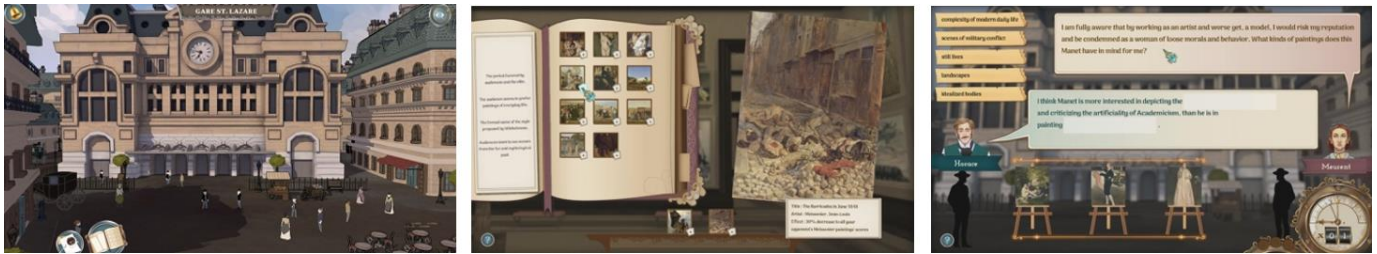
Figure 1. Sample screenshots of gameplay (Triseum, 2018)

Table 1. Phases of thematic analysis

Phase	Description of process
1. Familiarizing with data	Transcribing data, reading & re-reading data, & noting down initial ideas.
2. Generating initial codes	Coding interesting features of data in a systematic fashion across entire data set, collating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking if themes work in relation to coded extracts & entire data set, generating a thematic map of analysis.
5. Defining & naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions & names for each theme.
6. Producing report	Final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of analysis to research question & literature, & producing a report of analysis.

students would be able to demonstrate the capacity to interpret visual literacy and interpret artworks by considering their historical and cultural context. The game creates an immersive, engaging narrative that not only introduces the player to 1880s Paris but also gives the user a distinct purpose and motivation to pursue progress in the game. Further, it helps players acquire the ability to meet accurate, historical characters from their respective art movements to gain a greater understanding of the time period and reasoning behind the different works of art. The core game mechanics are

(a) mini games, which consist of two types of cards, including artist and painting cards. Using artist cards, players begin each instance of connections with a pair of artist cards on the board and

(b) quests that help explore a fanciful and expansive world, where the birth and life of art movements are brought to life before your eyes.

Figure 1 shows the sample screenshots of the gameplay.

Data Collection

Data were collected by conducting a one-on-one online synchronous interview via Zoom based on the semi-structured interview protocol the researchers developed. All interviews were recorded and then transcribed verbatim. The semi-structured one-on-one interview format was conducted to facilitate understanding of the participant's experiences, practices, and reflections throughout the interview. Participants were asked a variety of questions that would guide them to share their experiences and enable us to identify the patterns of their using and playing video games (Parse, 2001). In addition, our personal game-play experiences and status characteristics (e.g., gender, age, and educators) provided with an insider status, thus having the opportunity to build a conversational atmosphere and empathic relationship with the participants (Hesse-Biber, 2017). The interview setting was private and quiet and took approximately one hour for each session. We recorded the interviews and took notes during the interview for further content analysis of the transcripts.

Data Analysis

We conducted inductive thematic analysis (TA) to arrange the data set into the main fragments of focus of study (Sullivan & Forrester, 2019). TA is a useful method to analyze transcribed conversations by focusing on a series of themes that were identified through interviews. For the interpretation of the data in TA, Braun and Clarke (2006) suggested two different processes, which are semantic and latent themes. Based on that, we used the "latent theme" approach since this also allowed us to focus on deeper meanings and allusions within the data. We followed the phases of TA suggested by Braun and Clarke (2006).

The trustworthiness of the current study was ensured through various steps in line with Lincoln and Guba's (1985) recommendations. Initially, the data analysis was performed iteratively. Each recorded interview was actively listened to and manually transcribed upon completion of the interviews, aiding in the identification of initial codes and shared meanings in the narratives. Subsequently, member checking was conducted by sending each verbatim transcribed interview file to participants for their validation. To enhance transferability, a "thick description" of each participant was provided. During the transcript analysis, memoing was employed to mitigate personal bias (Glaser & Strauss, 1967). In the subjectivity or reflexivity statement (Lincoln & Guba, 2000), the principal researcher, who interviewed with the participants, assumed the role of an outsider, not being part of the participant community, to maintain impartiality. **Table 1** shows the phases of TA.

RESULTS

Regarding the analysis of the interviews, four emergent themes were identified as

(a) self-reflection,

(b) reinforcement of learning along with two subthemes, including student voice and learning outcomes,

(c) Lumiére as a game changer, and

(d) overcoming obstacles.

Each theme was substantiated by direct condensed quotations to represent the participants' (pseudonyms were used) experiences and emotions (Patton, 2015; Yin, 2011).

Theme 1: Self-Reflection

Each participant told their personal experiences of playing games from different perspectives. Participants described their experiences in relation to other individuals in their life, which indicates the collaborative nature of playing games. For example, Amelia shared her positive opinions about gameplay and early childhood memories when she started playing the first video game called "Oregon Trail" in so much excitement. There was nostalgia in her words and voice, she was going back to her primary school years and playing an iconic video game with its limited visual bandwidth and attributes in the 1970s compared to the new version in 2021. Further, she highlighted the potential of video games in learning and described her story of playing games despite being a non-gamer, as follows.

> I do think that it's a really excellent way and has a future I remember as a fifth grader. We used to play this game called the Oregon Trail that the kids still play in school to this day. And I just remember loving that and like being so excited about going into the computer lab and playing this game, which had like, minimal graphics if anything right like in watching the little cart go along the map of the US, so I just think that there's a lot of excitement in games and you can learn a lot from playing games as well. So, I think that their potential is awesome. I'm not a gamer in the sense that that's not my hobby or anything, but every once in a while, I'll get really connected to a game and play it, especially if it involves me connecting with my children and playing it with them. (Amelia)

The second participant, Elizabeth did not view games as an integral part of her enjoyment other than using games in her instruction. Although she mentioned being not enthusiastic about games, she was interested in such games that ignited somewhat intellectual curiosity. Also, she shared her lived experience of transitioning from card games to video games during her college years when Pac-Man, an arcade game was released in 1980.

> Well, I do not play games. Actually, I thought the card games were the only games that I would really be interested in playing. I think I did play, I mean we're talking about way back when I was an undergraduate and video games started. I mean, you know, it was a big thing like everybody played Pac-Man, but that was so long ago. I have no interest in these, you know really gory. And I sort of think that that's my one horizon of thinking about games. What I see is pandering to teenage boys. I have an, I'd say, intellectual interest in games. (Elizabeth)

Unlike Elizabeth, Charlotte expressed her interest in playing games together with her family. Games could provide socially rewarding experiences among individuals and the shared joy might strengthen the relationship with family and friends. Considering the collaborative aspect of games, each individual can find a different taste of joy as Charlotte expressed:

> Whenever we get together we have not had much chance with the COVID-19, but we try to get together like three or four times a year and we play like some of the games we play "Premium." It was one that we really liked. And there's another one. Gosh, I'm trying to think of the name of it there it's interesting because the games are kind of they have different this one game we play as different cards, and they're kind of dated so there are some things that my husband and I can get really well my kids do not know what it is. Then there's something that they understand that we do not know what they are so that's kind of a fun game. (Charlotte)

Theme 2: Reinforcement of Learning

Each participant was asked several questions about the game, Lumiére, in terms of their reflections on how the game might have had an impact on student learning in relation to art history, more specifically 'impressionism' as a revolutionary art movement. In line with that, the theme "reinforcement of learning" was concluded based on the participants' positive reflections on student learning. For example, Amelia told how the game played a crucial role in helping the students recognize the period of French Impressionism through the vivid representation of typical characteristics of impressionism (e.g., music, clothes, and characters). Amelia expressed, as follows:

> They got a nice sense of the time period like the little figure, how he was dressed, and you know the station and just kind of a sense of the music that got a sense of being a little bit transported into that time period. (…) The idea was that at the very least, I think it helps them understand and recognize impressionist art in a way that maybe you know they would not, so it took them a little bit deeper. So, in terms of just recognition of the time period, the place on time is an important learning outcome. I think that the game helped with that. (Amelia)

Regarding the impacts of the game on reinforcing student learning, Charlotte highlighted the complementary element of the game that helps students make connections across other art periods in terms of styles, famous artists, and the relationship with the academy, which opposes French Impressionism.

> I think it really helped to reinforce the knowledge that they were gaining as far as artistic styles and then also the intellectual concepts behind them and understanding the role that the academy played during that time period, and how are just for trying to break away from the academy and why. I think the ones who play learn more about the connections between the

different artists, go from time period to time period. And the game allows you to see how those time periods really overlap and that they're not really successive. So, you know, always have to say, think about all these different branches coming out at the same time. So the way that you see that game and the interactions of the different individuals, they're all alive at the same time and making different decisions on their path forward into innovation. (Charlotte)

Elizabeth pointed out that the game provided students with a different aspect of Impressionism that was not studied in her traditional instruction. According to her report, the distinction between modernism and impressionism was well depicted through Lumiére. For art historians, Impressionism might have distinct interpretations and Elizabeth focused on the avant-garde style, which was first attacked by the critics but later gained acceptance in the history of modern art (Mattick, 1989). She expressed her standpoint on impressionism in relation to Lumiére, as follows:

It offers something I do not offer in my lectures and the videos, and that is to talk about academic artists. I mean, mostly because the courses are so fast, and I have to pack in so much material. I focus mostly on the avant-garde so on, you know the rise of impressionism or right, sort of the story of the realest scope to impressionism. And, you know, also that's how I was taught, that's emphasized that story of the modernist avant-garde. But what I like about Lumiére is that, and I think that's very progressive also includes academic artists who were not impressionists right who did not pursue that modernist vision, but who were also very important in French society in French culture. (Elizabeth)

Subtheme 1: Student voice

As a subtheme of "reinforcement of learning" each participant shared their reflections on the feedback they received from their students during or after the gameplay. For instance, Charlotte put stress on the positive effect of Lumiére on improving student understanding of the critical issues happening during the impressionist period. The social challenges resulting from the counter-style of impressionism against the classical subject matter were mirrored in the game and thus, seemed to facilitate her student understanding as she mentioned:

They felt like it gave them a better understanding. You know, I'm mainly dealing with the artists, their lives, styles, and the changes in the culture. They felt that worked for them, that assisted them to understand the relationships between the artist, you know, the culture that they live in, and then kind of transforming that culture, dealing with upheavals within the society, which 19th century France have a lot of social upheavals. So it's always nice for them to get a little bit more understanding of those different government overthrows now that were impacting on the game. So those are things that they took away from it. (Charlotte)

Additionally, Elizabeth told how the game helped her students through the process of analyzing artworks from a critical perspective. Students were expected to demonstrate higher order thinking in the critical analysis of artistic work rather than a sole description of the artwork. Regarding that, the game provided the students with the opportunity to gain more understanding of the impressionist artworks as responded:

They told me, quite a number of students across, you know, throughout these four classes that Lumiére did help them to look very closely at artworks that they felt they had not really been asked to look closely at before (…) It improved their look and looked right. They've critical looking skills and of course, in our history, looking right as part of understanding the work means you have to look at how the work is constructed in order to get at some conclusions about it or to think about why it's significant. And I think Lumiére does a good job with asking students to look critically at what's happening inside of an artwork. So many of them felt that they really improved their focus on individual artworks because of Lumiére. (Elizabeth)

In contrast to the remarks of two instructors, Amelia mentioned that her students did not enjoy playing the game and found it not challenging. Her comment drew attention to the distinction between commercial video games and educational games in terms of challenge, integration, and engagement. Amelia desired to stimulate the interest of students in conjunction with impressionism and gameplay but seemed to feel disappointed by some students' negative feedback as she expressed:

I thought it would be a fun way for the students to learn about impressionism through game-based learning. It was not as integrative or as interesting as they thought it would be. I felt like the game was still kind of in its nascent see. The problem with games like these is that they're competing with so many other types of games, right, so even students who were kind of gamers and they were really excited about this potential once they got on it were lacking for them. They did not feel it was a college-level game. And they did not feel that the graphics were up to what they wanted to play a game with; they wanted it to be more graphics, more, more, more, more integrative, different than the way it was set up. (Amelia)

Subtheme 2: Learning outcomes

The participants also shared their expectations and practices in the context of Lumiére and art history. Charlotte told of the huge potential of the game to help students articulate the connections made between the contextual features (e.g., social and cultural) of art itself and the art world in general. She used the metaphor "*two-way street*" in the following statement to signify the external factors that influence the development of both society and art. She also mentioned critical thinking as a core skill.

Well, one of the things I'm always trying to do is to make them a little bit more aware of the social aspects of how society, and culture, impact the development of art and changes in the art world. To me that game allows that to happen (…) to hear more of the voice of the artist and individuals that were alive at the time and what they were dealing with and going through. This provides a greater opportunity for them to see the interconnections and the cultural and social changes that are taking place, which is important to me. And in teaching art history I'm trying to get them to see that development. What outside influences impact that development, and then what art historical changes influence the development of society because it's a two-way street. So, I think it really helped me with that kind of learning objective and also focus heavily on critical thinking. (Charlotte)

In parallel with Charlotte's thoughts, Elizabeth mentioned the integrative element of the game reflecting on the art world in different ways. Going beyond entertainment, Lumiére provided the background of the art movement in relation to characteristics, artists, and history. Elizabeth also underscored that conventional art teaching might not thoroughly represent the history of art, but Lumiére successfully did it by commenting:

It brings in the kind of issues of everyday life like economics and survival. Open within an artist's life as being meaningful factors, right in art history, and, you know, instead of just background know students have that ideas that well there's the background that you have to know and then on top of that comes the art, And it's all related, you know, it's all, it's all kind of one thing it's all part of learning about what art is. (…) I think some of them got a better sense of you to know history as a reality, you know, so as real people. I mean even if it was a little cartoon character or us running around. You know the idea that these were actual people, and that artists do one of them. I think put it really beautifully in their comments that these artists took a lot of risks. You know they risked their livelihood, the security of their families. In terms of pursuing different paths and art. And I think that's not something they get from the video lectures or in discussions with me. I mean that really came from Lumiére. And I thought that was also very valuable. (Elizabeth)

Theme 3: Lumiére as a Game Changer

The unplanned transition from traditional learning to an online learning setting due to the pandemic changed the methods of art schools in delivering the courses as well. Amelia told her sudden decision to integrate Lumiére into her art class during the pandemic. She mentioned that the students were in search of something to engage and Lumiére turned the pandemic into an opportunity for them despite their experience of playing it in isolation. She expressed this in the following statements.

I think that especially because we had adopted it during that crazy semester of COVID-19 when it had just hit, and everybody was retracted to the hop to the home. I think that those students who chose to do it as an extra credit option wanted to find another way to engage with the material. So, I think that the ones who chose it, were looking for engagement, but they were not doing it as a group so they could not really connect with one another. It was more like just the student engaging with the game itself. (Amelia)

Similarly, Elizabeth went through the abrupt transition to online teaching and had to make certain changes in her instruction. She said,

"My experience with the game has really been impacted by the pandemic. I've changed a lot in terms of how I think about assessments. I have tried to minimize traditional testing and completely changed that, asked very few questions."

Furthermore, Charlotte told her desperation during the pandemic through a lack of "*hand-holding*" her students as expressed in the following statements.

We were not able to use class time to play the game, so it was kind of more independent, dependent on them to do the game on their own. And like I said, all of this is just because we were in the pandemic. My approach to it would have been very different if we were not in the pandemic situation. So it was a little, it's a little bit harder for me to kind of do hand-holding and helping them because I'm not physically present during their gameplay. So they're kind of left on their own. (Charlotte)

Theme 4: Overcoming Obstacles

The participants were asked if they could go back in time, what they would do differently with the use of the game. The pandemic has brought unprecedented challenges for both teachers and students in general. It seemed inevitable to avoid encountering certain issues during that period. For example, Amelia told how she felt stuck and faced "*roadblocks*" at some point about being unable to resolve a problem related to the game. The hardship she experienced appears quite discernible from the following statements:

Whatever roadblocks I encountered if I did like stop and could not get somewhere. I did not have time or bandwidth to follow up and say, "hey I'm kind of stuck I do not know where to go from here," because of the timing, it was at the end of the semester that was so chaotic, so I did not solicit help, I just kind of gave up. (Amelia)

Despite the common strong push for the use of educational video games, there might still be some school administrators or leaders who are unwilling to advocate the adoption of those games in the classroom. Elizabeth was one of the instructors who personally experienced a barrier in using an educational game for her art instruction. Standing against the authority, she kept using the game in her class and noticed two diverse

groups of students who either liked or disliked the game. Using the metaphor "*two poles*" for describing those students, Elizabeth expressed her views in the following statements:

> I was basically told not to use the games, and I declined to follow that because that's my academic freedom to do so. (…) I'd say students who were very unhappy that they had to complete that assignment. There's also a core group of students who loved the game, and one told me "I was so excited to be able to play a game and it really helped me retain the material, keep me interested." So there are two poles and I've thought about how I can please both groups of students. (Elizabeth)

DISCUSSION & CONCLUSIONS

The present study aimed to explore the art history instructors' practice-based reflections on their adoption, implementation, and use of the educational video game, ARTè: Lumiére, in relation to their undergraduate students' engagement and learning experience during the gameplay. Regarding the in-depth analysis of the three art history instructors' narratives on experiences and reflections, four core themes with two subthemes emerged in the study: self-reflection, reinforcement of learning with two subthemes including student voice and learning outcomes, Lumiére as a game changer, and overcoming obstacles.

The instructors' self-reflection on their interest in playing games contributed to shedding light on the pedagogical perspectives they had with the implementation of the video game in the classroom. All the instructors had an interest in playing games at varying levels for different purposes such as entertainment, family gathering, and intellectual interest. Their experience of playing traditional games (card or board games) went back to their childhood. Technological advancements and increasing playground spaces appeared to change their tendency towards video games. It was observed that the participants adopted the use of games in their art history classes to enhance the student's understanding and engagement with the artworks in an interactive setting. The participants also used the game as supplementary learning materials among a variety of tasks and activities in which students had the opportunity to choose to gain extra credit rather than incorporating the game into the core curriculum. This aligns with numerous studies that underscore the positive outcomes of educational games on student learning, engagement, motivation, and satisfaction across various content areas (e.g., Alonso-Fernández et al., 2020; Huang & Huang, 2015; Yu et al., 2021). However, the outbreak of COVID-19 impacted the delivery of course materials and thus as the instructors mentioned, they were not actively involved throughout the gameplay except for providing some scaffolding activities (e.g., discussion board and Q&A sessions). Although many studies have indicated the importance of the teacher presence or partnership during gameplay and the implementation of the game (Hodges et al., 2021; Molin, 2017; Vangsnes & Økland, 2015), this might not be the case for undergraduate students, considering their positive feedback on their experience during gameplay. From the comments of the participants, 'Lumière' seemed to help the students engage in a fun learning activity in isolation despite other unprecedented challenges arising during the pandemic. Furthermore, the instructors' reflections on their students' better understanding and sense of impressionism through the game might encourage them to be actively involved in the process of educational game design. Previous research shows that teachers can better understand game-based learning when they take part in the development of learning games (Hodges et al., 2021; Li, 2012). In a study (Jong et al., 2017), teachers and researchers collaborated on designing and analyzing of serious gaming for the effectiveness of student gaming experience. Their efforts facilitated the redesign of teacher facilitation practices in game-based learning process.

As for the theme of "reinforcement of learning" the participants seemed to view video games as fun or motivational tools and that helped them decide to use Lumiére in the classroom. After the experience of using Lumiére to facilitate teaching art history courses, they realized that the game supported the improvement of the student's critical thinking skills and provided a better understanding of artworks as a whole in the context of French Impressionism. Their reflections on student learning suggested that video games could be helpful in promoting higher-order thinking skills in art instruction beyond making learning engaging and entertaining. These outcomes are consistent with the findings of a recent meta-analysis of 20 empirical studies, which revealed that the overall effect of game-based learning on students' critical thinking was significantly positive (Mao et al., 2021). Additionally, based on the remarks of the participants, it might be suggested that art-focused games like Lumiére could develop 'art appreciation' (i.e., the state of understanding and enjoying art as defined by Osborne, 1970) skills of students in terms of having the sense of famous artworks created within the particular art periods.

Further, the instructors' reflections on using Lumiére appeared to initially lead to some conflict with the school management and students. One study (Gaudelli & Taylor, 2011) examining social studies teachers' perspectives of the use of games in teaching showed that the teachers were hesitant and unconfident about the pedagogical aspect of games, partially because of their unfamiliarity of this media. Another study (Gerber & Price, 2013) showed that ten in-service literacy teachers had a positive change in their perceptions of digital games in English Language Arts classrooms, but they were skeptical about their colleagues and schools' willingness to game-based pedagogy. Therefore, it can be argued that individuals' attitudes and perceptions towards game-based learning may change depending on their exposure to games.

This study was limited by a relatively small sample size in a specific game context. However, the outcomes of the study have important implications for future research in game-based learning and implementation of educational games in art courses. The participants' narratives and reflections on their experience of using an educational game in an art history course could contribute to the research on digital learning games with a conceptual design.

Further research should examine how an art-based educational game can be integrated into hybrid or blended learning by getting teachers involved throughout the gameplay experience. Second, further research is needed to explore how teachers' experiences of game-based learning could be better when they are provided with opportunities to participate in the game design process focusing on a specific game genre.

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APPENDIX A: INTERVIEW QUESTIONS

1. How many times have you used Lumiére in your classes?
   a. If only once:
      i. When was that?
      ii. Do you plan on using it the next time you teach that course?
      iii. Or would you use it again if you had the chance?
   b. If more than once:
      So, would you say that?
2. Why did you decide to use Lumiére in your instruction?
   If they were asked/required to use it:
      a. Would you have wanted to use it anyway? How come?
3. How did you use Lumiére in your class? Can you give some details?
   Follow-up questions:
      a. How much time did you allocate for the game during the semester?
      b. Was it optional or required for students to play it?
      c. Did you use it as a core part of your curriculum, or was it something supplementary to extend what you do in class?
      d. Did you talk to your colleagues about your plans to use Lumiére in your class? If so, how did they react?
4. Where did your students play the Lumiére?
   a. If in the classroom:
      i. How did they play it? Individually or in groups?
      ii. Did you give them any instruction before playing?
      iii. Did they just play, or was there a mix of play and lecture or discussion?
      iv. Once they finished playing, did you discuss the game in class? What did you talk about in those discussions?
      v. Did you refer back to the game in later class sessions?
      vi. What sort of feedback did you get from students on their experience in playing Lumiére?
   b. At home:
      i. Did you set benchmarks or tell students how long they should spend on it?
      ii. How much time do you think they actually did spend on it?
      iii. Did you get the sense that everyone played?
      iv. Did you allow students to play it together? Did you suggest or encourage them to do so?
      v. What did you do in class during the time that students were playing Lumiére as homework?
      vi. Did you talk about Lumiére in class before they played it?
      vii. How about during the time they were playing at home – did you talk about the game in class then?
      viii. Once they finished playing, did you discuss the game in class or refer to it in your lectures? What did you talk about in those discussions/lectures?
      ix. Did you get any feedback from students on their experience?
5. So, tell me about before students started using the game. What sorts of issues did you consider in planning how you would use it? What were you concerned about? How did you resolve those issues?
6. Did you play the game yourself prior to using it with your class?
   a. If no:
      i. Did you play Lumiére later?
      ii. Did you play the entire game?
   b. If yes:
      i. Did you play the entire game?
      ii. What were your reactions to the game?
7. Did you give any additional assignments related to the game?
   If yes: What were they like?
8. Do you feel that the game held the interest of students? Why or why not?

9. Was the game aligned with the expected learning outcomes for your course? Can you give me some examples?

    Follow-up questions:

    i. What were the learning outcomes in your course that you expected the game to address?

    ii. Were there any parts in the game that did not match your course learning goals?

    iii. Then, did you find that you needed to revise your syllabus to match what students learned in Lumiére?

10. What impact do you think playing Lumiére had on your students' learning?

    Follow-up questions

    i. What do you think students learned from the game?

    ii. Did the game help them learn specific facts about artworks or artists?

    iii. Do you think playing improved any particular skills?

    iv. Did that show up in other aspects of the class, like in discussions or essays?

    v. Did you give any sort of assessment specific to Lumiére?

11. What impact did the game have on student engagement?

    Follow-up questions:

    i. Were students more interested in the class than in semesters when you did not use Lumiére?

    ii. Did students seem more active in class discussions than normal?

    iii. Did students express more interest in art history or in taking additional classes than normal?

    iv. Did students ever complain about having to play the game?

12. What feedback did you receive from the students?

    Follow-up questions:

    i. How often did you get feedback?

    ii. Did you change anything based on their feedback?

    iii. What was your students' overall reaction to the game?

13. Tell us about any issues that concerned you while using the game. What did you do to manage them?

14. If you could go back in time, what would you do differently in terms of the implementation of the game?

15. What would encourage you to use the game? Why?

16. What would prevent you from using the game? Why?

17. Can you describe the technical challenges you encountered during the semester?

    Follow-up questions

    i. Did you get any help from someone?

    ii. Were you able to solve the problems in the end?

    iii. If not, what did you do?

18. Is there anything else you would like to add or comment on the previous questions?