

Chapter 13

Serious Film Games (S.FI.GA.): Integrating Game Elements with Filmmaking Principles into Playful Scriptwriting



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Introduction

Smart teaching and learning indicate the necessity to assimilate digital media and technologies to prepare students for the challenges of the digital age (Daniela, 2019). Smart learning is based on active student participation and readiness to learn, innovative pedagogical methods to facilitate the learning process, learning activities that aim to promote students' autonomy, as well as cooperation between student and teacher and their classmates. In smart learning environments, students research and investigate deeper and more extensively for the necessary knowledge, with temporal and spatial flexibility, by processing conflicting information, thinking critically, and focusing on deeper understanding (Spector, 2015). Students express opinions, propose solutions, reach to useful conclusions, share knowledge, and prepare for the next steps. Their personal knowledge is being utilized, personal differences of thinking have to be understood and recognized, and also, their emotions are of a great importance to be expressed (Hogan, 2011). Emotions are integral to learning. Teachers are companions and helpers; they enliven the learning process in a playful way. They do not function as infallible sources of knowledge but motivate their students to explore and work in a proficient, viable, adaptable, and continuous way. Within this scope, the authors are currently developing Serious Film Games (S.FI.GA.), a novel methodology that utilizes smart technology and playful learning for teaching the creation of short films. Besides providing students with the theoretical background on the history and evolution of cinematography, as well as with the technical knowledge for experimenting with state-of-the-art audiovisual techniques,

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S.FI.GA. is largely based on game-based learning (GBL) environments to engage students in the completion of learning objectives through playful educational activities. It functions as an intersection between electronic games and filming techniques aiming to highlight the building blocks of filmmaking and study the artistic practices for their realization, while facilitating students to take up an active, critical stance on the creative process and explore their own authenticity.

The part of S.FI.GA. presented in this chapter deals with the act of scriptwriting through an interactive, educational electronic game. More specifically, the game “Just Ahead of Me” was designed by the authors and tested by students of the Elements of Film Directing & Acting course at the Department of Audio and Visual Arts of the Ionian University in Corfu, Greece, who played the game, filled in an evaluation questionnaire, and participated in semi-structured interviews. The purpose of this research, which accounts for addressing the game to this specific focus group, was to collect data that will facilitate the optimization of the game’s design before its incorporation as a module into the S.FI.GA. methodology. The game is structured in seven rounds, which address different stages in creating a storyline. In each round, players must first select one of the available cards, which represent different narrative archetypes, and then develop the plot based on their selection. This level of interactivity between the cards and the final outcome is complemented by a second level of interactivity between players: once a card is selected by one of them, it cannot be selected by another. It was the researchers’ main drive for conducting this research to investigate whether students will be able to shift the focus of their script and essentially adjust their creative thought to a different card than the one they had initially counted on.

Theoretical Perspectives and Basic Principles

As a whole the S.FI.GA. methodology works as a kind of social research, based on the students’ stories, and attempts to offer answers to the narrative questions “what,” “where,” “when,” and “how” (Tashakkori et al., 2021). However, it is not always so easy to find the “why.” Therefore, the main emphasis is on finding useful data elements (Teddlie & Tashakkori, 2009, pp.68–69) concerning the way they structure their stories and how they realize and put together the central dramatic elements. In this context, the creation of the game was based on three basic principles.

First Principle: Respect for the Personal and Private Reality of Each Student

The process of the game is a personal and private reality of each student. Everything that happens during the game represents “reality” at that moment, allowing students to escape from the constraints of everyday life and to experiment with new facts and/or situations (Loh & Sheng, 2015). Players actively engage with the game, as

their stories mostly are self-directed. Their involvement intrigues their interests and helps to express the authenticity of their thoughts. They act spontaneously, and this is a mirror of their broader aesthetic, historical, and cultural context and influences (Czauderna, 2018). Their own way of scriptwriting is composed of a cognitive spontaneity, as everyone is involved in a unique, individual way of developing their story, as well as of a social spontaneity supporting specific individual and social characteristics, actions, and behaviors, often with a sense of humor, developing imaginary characters and their actions, usually accompanied by the revelation of various emotions. All student behavior is fully in line with the StoryLab (Knudsen, 2018, 2020) principle of authenticity, which is one of the three basic principles of filmmaking. The filming follows the writing of the script, which is a consequence of the game.

The goal of educational games is to help active participation in the learning process and thus produce learning that extends beyond the gaming context (Zheng & Gardner, 2017, p.2). They cultivate critical thinking, interaction, cooperation in problem-solving, and enhancing of skills (Koltay, 2011). In its whole the S.FI.GA. methodology constitutes an interdisciplinary field. “Just Ahead of Me” acts as a means to inventive description with the purpose of facilitating students to handle various situations, to move within spatiotemporal fields, to acquire the ability to a well-defined self-expression, to seek solutions, and to overcome problems. The essential factors are the parameters that shape the development of their story and make the narrative roles understandable and the ways in which their stories take place in the context of a reality-focused view. It is a card game, in which cards act as milestones creating challenges, it is also an open path that leads to the solution of their dramatic question in their stories, and it can also be seen as a puzzle game. Puzzle games are usually used in the classroom for the cognitive, emotional, and social development of students. Stories created by students are influenced by the given cards in the game rounds. Cards trigger players toward experimentation, exploration, prediction, planning, and interpretation of actions.

Second Principle: Passing Through Character Integrity on Students’ Scriptwriting

The goal of the game is to limit the choice of passive strategies commonly adopted by students, when they are faced with problems and obstacles. It is a challenge for educators to lead students to engage playfully in situations they easily characterize as unfamiliar, arguing that these situations can never happen. When some unexpected or uncommon situations finally come to reality, students become stressed, and they feel unable to confront. They need to become familiar with the possible occurrence of the unexpected and be prepared to face the unpredictable and non-existent (Papadopoulou, 2018). Besides, predefined series of orderly steps drawn from

a current repertoire of actions in order to confront unexpected situations make students run off from any creative process (Papadopoulou, 2019).

Through its mechanics our game helps students reconsider the actions of their characters on a continuous basis. Their stories have to keep going on; on the one pole, the changes through cards are in some way embodied and students' thoughts or suggestions are registered, and on the other pole, students become "competitive" and fight against the proposed change and try to handle the challenge, to transform or overcome it. It is through that duality that the card game aspires to become more interesting and intriguing.

Receptivity to new experiences is characteristic of unconventional, creative, imaginative people who are willing to get involved in a change. The concept of locus of control (Lefcourt, 1976; Marsh, 1986) comes from Rotter's theory of social learning, which he formulated in 1954 (Rotter, 1954). This theory references two categories of individuals in terms of the degree to which they believe that events in their life are under their control (internal statement) or under the control of others, persons or forces (external statement). Thus, dealing with situations is a characteristic of the individual's personality. Internal-statement people are usually willing to take on risky projects as opposed to external-statement people who do not want to engage in risky activities. According to Rotter (Rotter, 1982, 1990), internality and externality are the two poles of a continuum. People with high internal control expect a reinforcement of the outcome of their behavior mainly due to their own decisions and actions (Rotter, 1990). They also have the ability to control their behavior (Zuroff & Rotter, 1995), seek to influence others, and want to know all the information related to the specific situation they are dealing with. On the other hand, people with high external control expect a reinforcement of the outcome of their behavior due to the events determined by powerful others, fate or luck, etc.

Third Principle: Readiness for Change, Openness, and Innovative Mood

Players formulate the information given by cards using their creative mood, try to overcome obstacles, and complete their stories. They can handle the unexpected and find the solution in an imaginative way by making and extending correlations. This way of thinking is generally useful in many situations in which students are not looking for information in an obvious way and in a specific place (Kirriemuir, 2006). In our discussions about the development of their story, we look and discuss why an action or a move of their characters was chosen over another (van der Meij et al., 2020).

It is crucial that any unexpected card suggestion reshapes the development of their story without enticing them to support something, which is not representative of them or their hero's character. Overturning in their script can be characterized as an influence, which means that it is not solely about compliance, but can also lead

to innovation. This attitude reflects the genetic model by Moscovici (1976) in the theory of social influence and social change. In the theory of social influence and social change, there are two conflicting models, the functionalist model and the genetic model. In the functionalist model, the individual does not resolve the conflict effectively, and its ability to successfully manage conflict situations is weakened (Moscovici, 2005). In the genetic model, individuals or groups do not conform to the majority view and articulate an alternative argument, manner, or behavior. This means that they are led to unusual correlations or less obvious sideways. It is crucial that they can be detached from preexisting frameworks and evoke new views and perspectives. Students have to consider testing and articulating alternative arguments. Thus, they are open to changes and led to new perspectives.

The purpose of imposing limitations and rules on the card game is to raise discussions in order to invent a strong character. Alternative ways to approach what is a strong, solid, and/or efficient character are mostly found within the wide range of possibilities given by imagination, in the mind level. It is anticipated that the new challenges of the card game awaken the situation awareness. It is a key objective in the S.FI.GA. methodology that students recognize the fact that the ways, in which people interact in situations, as well as the correlation between variables, differ due to the varying context and cannot be practically predicted. The action and reaction have never self-evident consequences.

Storytelling and Creativity Methods

Having the above three principles in mind, we wanted to approach our part of this game from the exact same point of view. Storytelling plays a really crucial role in this game, running through its basic core. The players have to use storytelling and creative writing techniques, in order to create their own characters and stories through the game's process. Therefore, in the storytelling part of the project, we decided to use and connect with StoryLab's (Skills Training for Democratized Film Industries) main methodological tool: ethnomediaology. Ethnomediaology is an interdisciplinary approach inspired by ethnomusicology and autoethnography. It involves the active and immersive participation of researchers in the research culture and process, using this active personal engagement as a basis for knowledge generation, data gathering, and evaluation (Knudsen, 2020). StoryLab was created on the notion that filmmaking is not just about cinema. StoryLab is based in the following three core values:

1. **Integrity:** Integrity points out the fact that the training schemes are mentor-based, in which equality of the relationship between mentor and mentees, professionals and communities, and researchers and participants is an integral part of the nature of discussions and collaborative engagements.
2. **Authenticity:** Authenticity indicates a commitment to anchoring story development in the feeling, emotional, intuitive, aspirational, dream, memories, and

needs of the individual participants in workshops. No agendas and expectations are set by outside agents, and all stories developed are closely aligned with these core attributes.

3. **Openness:** Openness signifies the nature of the working space in which professionals, researchers, mentors, participants, mentees, and communities engage with the practical processes of story development. This working space is an open “clean slate” working space in which all participants engage in freshly developed ideation and not predefined narratives or previously ideated projects (Knudsen, 2018).

We believe that this approach can provide all the required tools in order to use these methods of creativity, storytelling, and filmmaking in the educational environment. StoryLab’s core values provide us with the necessary tools to approach storytelling from a different and more intimate perspective. They also provide us with more options for our data gathering and evaluation. We also consider that the model that we are developing works as a channel system between the tutors and the students. That is the reason for the development of the card system. The card system allows us to contribute our thoughts and give a “creative push” to the students so that they start developing their stories. Moreover, the act of stating your ideal card with a direct message to the game master can create this environment of integrity between the students and the tutors.

Authenticity is a really crucial part of this pilot experiment. We believe in the power of stories and we believe that the true power of the medium is not trapped in big production companies but inside the ideas and emotions of the writers that do not work following specific motives and requirements of the industry. This idea can help us to research deeper in the true power of storytelling: by analyzing these stories, we can provide a better explanation of the everyday life and emotions of the focus groups we are working with. In an educational environment, this element can be very important for teachers in order to understand the issues and the problems of their students through their stories. Also, the students can use this “open slate” way to create their own stories as a way to release pressure and also to discover their creative side.

The openness point of view that defines the environment of researchers and students working together to create stories is really important especially during the troubled years of the pandemic. This game is designed to work in both physical and digital environments, and its core value is to create an open space for exchanging ideas and thoughts between the students and between the students and the researchers. Even in times of spatial restriction, even such environments, realized on digital platforms, can create a space for creativity and playful improvisation for the students that is really needed.

Game-Based Learning Principles

In the game design part of the project, we implemented game-based learning (GBL) principles to encourage narrative fiction and to structure narrative levels. GBL is differentiated from gamification in that it does not merely utilize game elements, such as progress points and achievement badges, in order to make the task at hand more attractive and thus strengthen players' incentive to engage in it, but rather adopts fundamental game principles, such as rules and structure, or even involves the integration of an intact game, in the learning process, in order to achieve the learning objectives (Plass et al., 2019). In other words, whereas gamification provides the means to embellish nongame activities with compelling game mechanisms, GBL expresses complete strategies to redesign the classroom activities as games.

When redesigning a learning activity to the form and standards of a game, the curriculum is broken down into its basic elements, which are mapped onto game actions and reactions, a system of rules, closed and autonomous, based on choices and consequences (Perrotta et al., 2013). The game mechanics formed within must be carefully chosen to address the intended learning goals. Plass, Homer, and Kinzer refer to the design of such learning interactions within a game as "learning mechanics," which can be effective only when aligned with the learning goals (Plass et al., 2015). In that process, motivation, i.e., the ability of GBL systems to keep learners content and engaged, which is also their most cited benefit, is not the only feature to be considered. GBL can also be seen from a cognitive perspective, which shapes the way content is represented; from an affective perspective, which influences players' emotions; and from a sociocultural perspective, which creates opportunities for social interactions (ibid). The instructor taking up the role of the game designer may move freely along the continuum between gamification and GBL techniques and into the notion of "playful learning" that focuses on the realization of learning experiences as playful tasks designed to include one or more, peripheral or core, game elements (ibid).

We decided to avoid the use of leaderboard-based elements, as they have been sometimes reported to unintentionally produce negative dynamics due to excessive competition between players (Reiners et al., 2014). We also did not want to adopt the full-scale mechanics of a specific game, because it would be too restricting for both students and instructors. Instead we created a hybrid narrative puzzle based on features of two genres: pen-and-paper role-playing games (RPGs) and card games. The former provided the framework for structuring the curriculum into chapters and tasks, whereas the latter added the elements of chance and unpredictability that were responsible for the game's challenging identity.

In the RPG genre, players control a character, who is defined by a set of attributes and a sequence of actions (Miller, 2004). When played with pen and paper, the game is a formalized verbal interaction between a group of players and a referee, with the intention of producing a narrative (Rilstone, 2000). The referee, known as Dungeon Master (DM), controls the fictional world, in which the fictional characters

controlled by the players have complete or nearly complete freedom of choice. Both the DM and the players are storytellers: the former is responsible for creating the plot, playing different roles, and providing with challenging tasks, whereas the latter are responsible for pursuing the plot, interacting with the different roles, and carrying out the tasks; the former controls the story in any direction, whereas the latter move in any direction within the story. Thus, the game has no winner or loser; instead players evolve by competing themselves in a dynamic flow of narrative information (Winter & Pickens, 1989).

The instructor acts in a similar way to the storyteller, creating the learning space for learners to explore, providing them with educational tasks, exciting their curiosity, retaining their volition, and ensuring the completion of their objectives (Reiners et al., 2014). Similarly, the game designer is a kind of storyteller as well, a “narrative architect” who sculpts worlds filled with items for players to touch, grab, and interact with (Jenkins, 2004). All possible actions that players can perform in the game world, all possible meanings that game designers imply in their design, constitute the game’s space of possibility (Salen & Zimmerman, 2004). In instructional game design, the game world represents the curriculum to be taught, and the space of possibility ensures that all intended motivational, cognitive, affective, and socio-cultural goals are achieved. Educational tasks become challenging quests, and learning progress unlocks the next chapter of the plot. The curriculum units form a chain quest that combines all key experiences of the learning process (Kingsley & Grabner-Hagen, 2018).

Learning Objectives

The basic learning objective of this endeavor refers to overcoming a challenge and furthermore embracing the elements of change, randomness, and unpredictability as the means to creativity and authenticity. “Just Ahead of Me” is proposed as an educational practice of studying characters and their actions. Depending on their content, form, and frame, the narrative elements ignite discussion, raise problematic, and trigger inspiration in the context of a wider classroom attempt to study and understand problems that arise in a world of deep recession, insecurity, and uncertainty about the future. The game-based activity aims to enhance the scriptwriting process by providing students with challenges designed to prevent them from being trapped in narrative biases. The goal is to monitor and study how characters contribute to action but also how action contributes to form characters (Shilomith, 2005). Different categories of acts are identified, such as an order act, an omission act, and a planned act. Motivations, complexes of circumstances, causes, purposes, and impulses are studied (Prince, 1987; Baroni & Revaz, 2016; Bal, 2017).

The card selection system, as the game’s core mechanic, provides the basic nodes of the narration. Players take turns in making the first move. Thus, at the start of each round, a rudimentary guidance is given; however, the story itself is written by the students exercising their freedom within the imposed limits. After completing

the game, they are rewarded with supplementary material to study. Time is given for potential additions and changes to their script, triggered by the additional material, which acts as a lever to reexamine their thoughts. The goal for this methodology is to be adopted by students as a creative process, as a generator of activities, which transforms structures, relationships, and behaviors.

Generally, the use of educational games helps students to learn objects and methods and, particularly in our case, to develop problem-solving skills, by using their desire to play (Warren & Dondlinger, 2008). Apart from boosting motivation toward the subject matter, the educational game activities enhance engagement to the learning process by providing students with the opportunity to reinforce previous knowledge, attitudes, and behaviors (Schuch, 2017), representing them in a more comfortable and enjoyable environment (Jackson & McNamara, 2013). In “Just Ahead of Me,” a practice is launched that is capable of creating new ways of understanding and acting without the fear of the wrong answer. Through the game we aim to achieve increased students’ concentration, attention, observation, as well as the activation of their imagination, curiosity, and critical thinking. The feeling of control is to be alternated with selfless adaptability: acting within one’s individual cosmos and unfolding its fate partially due to extrinsic events. The purpose of the cards, of their unexpectedness, is to disrupt, to divert the plot away from its predetermined outcome. The optimal aim for students is to expand their creative thought without being overly influenced by the challenges posed by the cards, i.e., to not completely change their intention and focus on something they do not want to include in their story. On the one hand, they are diverted toward something else that redirects their attention, while on the other they handle the differentiated situation to slightly modify their previously shaped story. It is a kind of experience modeling tool to let the characters and their actions follow the challenging path of the cards.

“Just Ahead of Me” is not a game with narration, but rather a game about narration. We created the setting to be filled with the students’ narrations. We divided the curriculum into milestones that represent the key stages of scriptwriting: imagining the main character in a fictional universe; defining the dramatic question, the logline, and the synopsis of the story; formulating the three acts; and adding a turning point right before the end. Milestones were mapped onto game elements: a hero in a specific time and place, equipped with a token and setting off for a quest against an antagonist. These game elements are not just objects for interaction, but rather “lyrical ideograms,” sperms of myth, and archetypes acting upon collective imagination (Caillois, 2001). The structure of the narrative is there, waiting to be filled with words, a sequence of symbolic actions waiting for learners to form their own awareness of it.

Kapp defines a vicarious experience through four elements: characters, plot, tension, and solutions. From a pedagogical perspective, these are mapped, respectively, onto learners, narrative, milestones, and learning objectives (Kapp, 2012). In a game system, the activity connecting all these threads is to make choices and to take actions in a way that is meaningful (Salen & Zimmerman, 2004). Constructing meaning does not necessarily depend on a positive outcome. GBL systems provide learners with a safe environment to experiment, try out ideas and strategies, repeat

and optimize their actions, and of course fail in the process. In that sense failure is widely considered to be an advantage for the learner and therefore encouraged by the game designers (Reiners et al., 2014). Failure is an opportunity for improvement (McGonigal, 2011). Challenge is also crucial for the game's learning outcome. Researchers of Csikszentmihalyi's flow theory (1990) have argued that the interaction between challenging tasks and applied skills is a predictor of engagement and as such has a both direct and indirect positive effect on perceived learning (Hamari et al., 2016).

We aligned with the GBL principles mentioned above and designed the game so that choice making is a fundamental element of the game's mechanics. We used cards to define the space of possibility and a turn-based selection system to create some competition. In essence, players do not compete with each other, but with themselves: once their intended card is lost to another player, they have to quickly redesign the plot of their story to match a card that is still available on the deck; if they are the last to select, they will need to cope with the only card left. Each encounter with a game object may lead to a radical change of state. The challenge to predict the outcome and the potential failure in keeping everything under control become essential parts of the gameplay.

Research Methodology

A significant aspect of the proposed storytelling approach is the way in which the data was collected and processed. Based on Prof. Erik Knudsen's paper "Research Glossary For Creative Practitioners A Discussion Paper," we based our data collection, outcomes, and impact of this research on a combination of traditional methods such as surveys with audiovisual data collection (Knudsen, 2016). Our experiment was conducted in two phases: the first one comprised playing the game and then filling in an evaluation questionnaire, whereas the second one took place 5 days later and included semi-structured interviews. Qualitative data were collected from both sessions through video and audio recordings that monitored the participants' responses and body language during all stages of the process (see [Appendix](#)). The main impact of the research was captured through the questionnaire, which used a 1–5 Likert scale for quantifying the students' qualitative feedback, whereas the semi-structured interviews elaborated further on the preliminary results. Moreover, the stories themselves, the final artistic outcomes delivered by the players when completing the game and in some cases further processed between the two phases, constitute an additional pool of data. This cross-disciplinary approach of data collection provided the necessary information to refine the final design of our game and address it to specific learning groups.

More specifically, the group of research participants consisted of eleven (11) students, 7 male and 4 female. During the first phase, one participant had to leave due to an emergency; thus he was excluded from the process. The authors moderated the sessions by explaining the rules of the game, controlling the sequence of

timed events, providing any necessary clarifications in each round, and conducting the interviews. All protocols for processing personal data were followed. In the first phase, the actual game lasted for 2.5 hours, whereas in the second phase, the participants were separately interviewed for 10 minutes each. Both sessions took place online.

The main purpose of the evaluation process was to collect data that will facilitate the optimization of the design process. In the first evaluation phase, the researchers designed the EQ with ten statements revolving mainly around two issues: the emotional response to the game and the completion of the learning objective through its core mechanic. The statements were formulated in a mixed positive and negative way to protect from wild-card guessing. The participants were asked to use a 1–5 Likert scale ranging from “strongly disagree” to “strongly agree” in order to assess their experience in terms of the following statements:

- I enjoyed the game.
- The game was difficult to complete.
- The process was useful for the development of the script.
- The cards did not help to trigger my imagination.
- The card picking system helped my scriptwriting process.
- The cards did not provide enough options.
- The cards addressed enough topics.
- The required time for each round was not enough.
- The online version of this game was satisfactory.
- I would participate again in an interactive scriptwriting game.

The post-evaluation phase consisted of semi-structured interviews aimed at providing clarifications on the EQ results. The questions, which served as the basis for the interviews, addressed the participants’ comments and suggestions on the experience, whether they further developed their story, whether they studied the complementary material, and how they would use such a game in the classroom. Depending on the answers, the interviewers dynamically adjusted the course of the interviews and prompted the participants to further elaborate on their thoughts in order to shed light on specific issues in focus.

Game Description

The rules of “Just Ahead of Me,” presented to the players at the beginning of the game, are:

- The game is completed in seven rounds.
- In each round players select one card each.
- Only in the first round players select three cards without any restrictions.
- Prior to their selection, players must decide within 2 minutes and send in a private message to the game moderator the card they intend to select.

- The selection process takes place openly.
- The selection order is defined randomly at the start of the game and is shifted one step each round.
- Every card can be selected only once; then it is no longer available.
- Within specific time after making their selection, players must create and send to the game moderator a text subject to each round's specifications.
- The text must be connected to the respective card.
- After completing the game, players gain access to supportive material and fill in an evaluation questionnaire about their experience.
- At a later time, players will participate in a semi-structured interview to discuss their experience.

The order for the selection of the cards was set at the beginning of the game by rolling online digital dices. In the first round, players have to choose three cards to describe the main protagonist of their story. It is only in this round that the players do not have to worry about someone else picking their ideal choices first. The available cards are:

1. Powerful
2. Shy
3. Obsessive
4. Clumsy
5. Cold
6. Reckless
7. Charming
8. Arrogant
9. Stubborn
10. Guiltful
11. Sensual
12. Consistent

For the first deliverable, the players need to complete in 10 minutes a psychological profile for their main hero. This profile is a questionnaire provided by the game masters. When they finish with the psychological profile, they gain access to supporting material that will help them to complete the next round. The first supporting material they gain access is a lecture about Aristotle's poetics in modern screenwriting (see [Appendix](#)).

In the second round, the players need to choose the beginning of their story and place their hero in time and space to start their narration. The available options are:

1. Dead end
2. Shopping window
3. Square
4. Basement
5. Office
6. Desert
7. Boat

8. Refuge
9. Cafeteria
10. At the doctor's
11. Hall

After secretly sending their ideal card choice in a direct message to the game master, the card selection process takes place. Every card that is selected is removed from the deck. As their second deliverable, the players have 10 minutes to create a document with the description of their story's universe. They need to contain information of the era, time characteristics, social contracts, and other elements in 1 paragraph of minimum 75 words. When finished they gain access to the new supporting material, which is a lecture regarding Vogler's approach of the "Hero's Journey" (see [Appendix](#)).

In the third round, the players have to define the main problematic that drives their narrative forward by choosing one from the following cards:

1. Lack
2. Secret
3. Boundaries
4. Duty
5. Right
6. Conquest
7. Beauty
8. Attention
9. Safety
10. Obstacle
11. Pleasure

Same process takes place here as in all other rounds: the players communicate to the game master their ideal choice via direct message and then select their actual cards according to the selection order. As this round's deliverable, they need to provide the "dramatic question" of their story in 5 minutes. The dramatic question represents the main problem of their hero. When this question is answered, the story finishes. Upon completion of their task, they gain access to a lecture about Carl Jung's collective unconscious and archetypes in (see [Appendix](#)).

In the fourth round, the players have to choose one token that will help them to answer their dramatic question. The choices are the following:

1. Keys
2. Bag
3. Cage
4. Book
5. Rope
6. Talisman
7. Picture
8. Pills
9. Clock

10. Glasses

11. Cellphone

The deliverable of the fourth round, for which they have 10 minutes, is a logline. The logline is the shortest description (one or two sentences) of their whole story. They need to refer to the story's protagonist and to the main issue and then provide a "hook" to excite the audience's interest. As soon as they finish, they gain access to a 13-minute tutorial explaining the power of symbols and tokens in the film *Parasites* (2019) (see [Appendix](#)).

In the fifth round, the players have to decide for the main feature of the hero's antagonist. This element is really important for the next stages of this game and will help them finish the narration of their story. The card choices are the following:

1. Patron
2. Mask
3. Nightmare
4. Boredom
5. Enigma
6. Contempt
7. Fall
8. Change
9. Coincidence
10. Authority
11. Mirror

After the card selection process, the players have 10 minutes to create the synopsis of their story. For the synopsis we require a much more detailed description of the final story. The minimum length is 1 paragraph of 75 words. After the players send their synopsis, they gain access to three articles regarding Martha Rosler's photography (see [Appendix](#)).

In round six the players have to decide for the core element of their hero's final test. The available choices they have are:

1. Pause
2. Letter
3. Dagger
4. Defeat
5. Teddy bear
6. Money
7. Journey
8. Fire
9. Perfume
10. Envelope
11. Jewel

As their deliverable, the players have 20 minutes to create a narrative description in three acts. They need to deliver three paragraphs, each one dedicated to one act

of their story. This material provides us with the full picture of their story's beginning, middle, and end. After that the players have access to a 1.5-minute recorded video of a platform-type video game (see [Appendix](#)).

In the final round, the players come across something unexpected. They do not need to select a card, since all options are the same for everyone: 11 cards with "turning point" written on them. Thus, the players need to think of the final climax of their story, but instead of ending it, they have to come up with a turning point. They have 10 minutes to write a paragraph describing that unexpected final event added just before the end. The final turning point is quite substantial for a story, since it can intensify the viewers' attention or make them completely lose their interest.

Discussion of Results

Phase 1: Evaluation Questionnaire

The first phase of the result analysis dealt with the data collected from the evaluation questionnaire (EQ) that was filled in by the participants in the first experimental phase right after the completion of the game. The use of the Likert scale to codify the degree of their agreement or disagreement with the statements under examination facilitated the quantification of their qualitative feedback. First, the evaluation scores of the negatively formulated statements were inverted to match the scaling of the positively formulated ones. Then, the mean average score of each statement was calculated. The highest rating (4.1/5.0) was observed in the "I enjoyed the game" and "I would participate again in an interactive scriptwriting game" statements. Particularly regarding the enjoyment indicator, all participants except for one agreed or strongly agreed that they enjoyed the game. Both these statements constitute a finding, which indicates that in general the participants accepted the game very positively as a pleasant experience that would interest them in the future as well. The statements "The process was useful for the development of the script" and "The online version of this game was satisfactory" were rated also highly with a mean of 3.9 suggesting that the methodological approach was successful in terms of the educational goal set by the researchers, whereas the lack of physical presence did not impede the actual process. This finding can contribute to the discussion on utilizing both game principles and online technologies to design efficient educational programs. Further statements that can be interpreted as positive, since they scored a mean of 3.0/5.0 and above, are "The cards did not help to trigger my imagination" (3.7 in inverted form), "The card picking system helped my scriptwriting process" (3.5), and "The cards addressed enough topics" (3.0). These results imply that the core essence of the game's mechanics, i.e., taking alternating turns to select unique cards that serve as the fundamental knots for the narrative structure, did indeed play a beneficial role in exciting the participants' creative skills. Last, three statements,

namely, “The required time for each round was not enough,” “The game was difficult to complete,” and “The cards did not provide enough options,” ranked below a mean average of 3.0/5.0 (2.8, 2.6, and 2.6 in inverted form, respectively). A t-test analysis was performed to compare the means of each one of these statements against the respective means from the “enjoyment,” “imagination,” and “scriptwriting process” indicators. No significant difference ($p > 0.05$) was found between any of these data sets.

The basic gameplay mechanism that was utilized by the authors to stimulate the players’ creative thought by forcing them to adjust the predetermined momentum of their story to the dynamically changing circumstances of the game’s unpredictable unwinding is the fact that depending on the selection order of each round, they may not get the card of their choice. The ratio between the amount of times that a player selected the card they initially wanted and the total amount of times that they made any card selection was defined as “successful selection ratio” (SSR) and calculated from the players’ deliverables. It turned out that only 17 out of 50 times (10 players x 5 selections each) did players actually end up with the cards they wanted resulting in a 34% SSR. This rather low percentage combined with the high rating of the enjoyment indicator suggests that the difficulty in controlling all aspects of the storyline does not thwart the positive feelings derived from the experience. On the contrary, it may be interpreted as a contributing factor to the positive evaluation of the statements regarding the card selection process and its effect on players’ creativity. Unfortunately, since the SSR data was collected from the players themselves during the game and not from the anonymous EQ, no further correlations could be explored between the SSR factor and individual indicators. This issue will be addressed in future research implementations.

The scope of this research was not to test the efficiency of a methodology in its whole, but to extract some preliminary results that will help optimize its design. Even though the number of participants and of the involved statements is limited, the findings provide useful insight for refining the game’s aspects. According to the assessment and the analysis conducted, the high-rated elements of the game appear to have had a positive impact on players’ creativity, yet the exact nature of that impact is not clear. Similarly, the low-rated elements seem to have been perceived as exciting challenges rather than frustrating difficulties, yet the data collected from the first experimental phase alone do not suffice to support this generalization. The second experimental phase provided essential qualitative data to further elaborate on the ways that the game’s structure and plot contributed to the completion of its educational goal.

Phase 2: Semi-structured Interviews

The second experimental phase included semi-structured interviews of the game participants. The most salient finding is that all subjects (10/10) referred to the game as a very helpful means to coming up with ideas and structuring them into a

narrative. The card selection mechanic seems to have played a vital role in this process. According to the participants' comments, the restrictions posed by the cards' content helped them think in a fast and spontaneous way, whereas losing a desired card to someone else and having to adapt to the content of a new card motivated them and pushed them to find other options, go deeper into their story, and change their plan entirely or build on their initial concept by adding details that they wouldn't have thought of. One student reported that getting a different card than planned proved actually better for her story; another one even stated that he was a bit disappointed when getting the card he initially wanted. Comments like "Every time I have to change my story again and again but I like it! This helps me challenge myself" and "I would never have written something like that if it wasn't for this project, but I am very happy this happened, because I was forced to think of this" suggest that the game's mechanism facilitated the participants to question their limits and transcend themselves to draw their ideas.

Another commonly mentioned issue is the constraint of time. Half of the players (5/10) characterized the game as stressful due to the limited time for completing the tasks at hand, and one of them felt that she did not have enough time to deliver a complete story. However, all these players also claimed that this condition was fruitful, fun, and challenging. They felt motivated to make quick decisions that led them to imagine and finish their story in a short time. Some participants felt this time pressure throughout the whole game, while others only in specific parts of it, such as in building the hero's psychological profile or deciding which card to choose. Time management was mentioned by another player as well, but in a different way: he thought that the game had a slow flow caused by the poor coordination of timed events.

Only one player made changes to his story after the end of the game. He did not change any of his cards, but rather interpreted one of them in a slightly different way. He told the interviewers "This whole time I had the story on my mind." Some of the other subjects made very specific that they felt no need to concern themselves again with the same stories, since they were the outcome of a spontaneous brainstorming in the context of a game, which is now over, and they actually work as they are. Still, three participants are interested in further developing their works in the near future. Four participants studied the complementary material that was provided as reward after the game's completion and said it gave them food for thought about their story. Two participants suggested changes in the game itself: one asked for the addition of game elements, such as more dice rolls for extra cards, and the other for breaking down the game's structure into more rounds. Last, all participants that were asked agreed that the game can be used in formal education, because it is fun, interactive, and well-structured, yet some pointed out that special consideration must be paid to the subject matter, and the long-term commitment required from the players.

Conclusion

The digital game “Just Ahead of Me” was designed to enhance the scriptwriting process through playful learning and then tested for optimization and integration into the S.FI.GA. filmmaking methodology. Principles of game-based learning and film studies were combined resulting in a hybrid narrative role-playing card puzzle, which guides players through the key stages in composing a storyline. A turn-based card selection system was applied as the core learning mechanic aimed to train players in using their imagination to confront the unexpected.

In terms of the game part, subjects agreed that it was a fun and helpful experience that pushed them to quickly come up with ideas. Gameplay mechanisms such as the limited time, the card options, and the interactivity of the selection process did not thwart their creativity, but instead were accepted as challenges that motivated them to elaborate on their thoughts. Regarding the storytelling part of the game, it is really important that all participants managed to produce a complete story as their final outcome. This element is crucial for story ideation, in order to transcend pre-determined models or industry trends and develop a narrative through emotional expression and fruitful thought in an open environment.

Based on the results of this research, the authors intend to add more game elements, such as rolling the dice at the start of every round. The rounds themselves can focus in more depth on aspects of storytelling, such as the existence of a strong opponent. Further ways of interaction between players, such as collaborative tasks or attacks on cards, will be investigated. More participants will expand our research sample and allow for more valid results. Last but not least, the therapeutic and social aspects of the project will be explored. We shall attempt to study students’ stories that address various addiction issues. Opponents will be created by asking students to assign them with opposed social characteristics to the ones of their heroes. Stories will be created, in which the hero will have to face groups of people and either comply with their own point of view as a necessary choice to invoke social change or decide that the denial of the majority view is a proof of their innovative process of thinking and not simply a misconception of reality.

Appendix

Complementary Material

- Round 1: lecture about Aristotle’s poetics in modern screenwriting:
<https://drive.google.com/file/d/1O1x595rDpZKxnhSvN5TAqFy-b9IE4ZNO/view?usp=sharing>
- Round 2: lecture regarding Vogler’s approach of the “Hero’s Journey”:
https://drive.google.com/file/d/1wSirgPHZdf3_oewcwTyrx9pAFMw2PLjk/view?usp=sharing

- Round 3: lecture about Carl Jung's collective unconscious and archetypes in scriptwriting:
<https://drive.google.com/drive/folders/1YE8S1cUMpd2cW8KW6VL8yLeUao4eSUw6?usp=sharing>
- Round 4: tutorial on the power of symbols and tokens in the film *Parasites* (2019):
<https://drive.google.com/file/d/1Vn4UEz29MfSOBTyP75md6Q8Q4qq4LCTi/view?usp=sharing>
- Round 5: articles regarding Martha Rosler's photography:
https://drive.google.com/drive/folders/1LsSEqj3QP_19DYlxCeai66wnl1ajd4zN?usp=sharing
- Round 6: video game:
<https://drive.google.com/drive/folders/1H5xZcptOulVUkLmnlvIEVIZgVIxoRYXP?usp=sharing>

Video Recordings

- Session 1: Game
https://vimeo.com/500553092/9bf81f33b9?fbclid=IwAR1evD3HHY7PUAhPicoAHARpHNR3T15us2_oejEYM3ZDuW8lxVyoTECELI
- Session 2: Interviews
https://vimeo.com/500603307/289397a41b?fbclid=IwAR0pmu2pTb5qSrStX65ogFAtieTRmfGDMhalkaC9AKsAbFonz_ntsHmlOI

References

- Bal, M. (2017). *Narratology* (4th ed.). University of Toronto Press.
- Baroni, R., & Revaz, F. (2016). *Narrative sequence in contemporary narratology*. The Ohio State University.
- Caillois, R. (2001). *Man, play, and games*. University of Illinois Press.
- Csikszentmihalyi, M., & Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. Harper & Row.
- Czauderna, A. (2018). Academic game design education: A comparative perspective. In S. Göbel, A. Garcia-Agundez, T. Tregel, M. Ma, J. B. Hauge, M. Oliveira, T. Marsh, & P. Caserman (Eds.), *Serious games. 4th joint international conference, JCSG 2018, Darmstadt, November 7–8, 2018 proceedings* (pp. 9–12). Springer.
- Daniela, L. (2019). Smart pedagogy for technology enhanced learning. In L. Daniela (Ed.), *Didactics of smart pedagogy: Smart pedagogy for technology enhanced learning* (pp. 3–22). Springer.
- Hamari, J., Shernoff, D. J., Rowe, E., Coller, B., Asbell-Clarke, J., & Edwards, T. (2016). Challenging games help students learn: An empirical study on engagement, flow and immersion in game-based learning. *Computers in Human Behavior*, *54*, 170–179.
- Hogan, P. C. (2011). *Affective narratology. The emotional structure of stories*. University of Nebraska Press.

- Jackson, G. T., & McNamara, D. S. (2013). Motivation and performance in a game-based intelligent tutoring system. *Journal of Educational Psychology, 105*, 1036–1049.
- Jenkins, H. (2004). Game design as narrative. *Computer, 44*(53), 118–130.
- Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education*. Wiley.
- Kingsley, T. L., & Grabner-Hagen, M. M. (2018). Vocabulary by gamification. *The Reading Teacher, 71*(5), 545–555.
- Kirriemuir, J. (2006). The librarian as video game player. *New Review of Information Networking, 12*(1–2), 61–75. <https://doi.org/10.1080/13614570701498262>
- Knudsen, E. (2016). Research glossary for creative practitioners a discussion paper.
- Knudsen, E. (2018). *Finding the personal voice in filmmaking*. Palgrave Macmillan.
- Knudsen, E. (2020). *StoryLab information*. Retrieved from <https://www.storylabnetwork.com/ethnomediaology/>
- Koltay, T. (2011). The media and the literacies: Media literacy, information literacy, digital literacy. *Media Culture & Society, 33*(2). <https://doi.org/10.1177/0163443710393382>
- Lefcourt, H. M. (1976). *Locus of control: Current trends in theory and research*. Erlbaum.
- Loh, C. S., & Sheng, Y. (2015). Measuring expert performance for serious games analytics: From data to insights. In C. S. Loh, Y. Sheng, & D. Ifenthaler (Eds.), *Serious games analytics. Methodologies for performance measurement, assessment, and improvement* (pp. 101–133). Springer.
- Marsh, H. W. (1986). The Rotter locus of control scale: The comparison of alternative response formats and implications for reliability, validity and dimensionality. *Journal of Research in Personality, 20*, 509–528.
- McGonigal, J. (2011). *Reality is broken, why games make us better and how they can change the world*. Penguin.
- Miller, C. H. (2004). *Digital storytelling: A creator's guide to interactive entertainment*. Taylor & Francis.
- Moscovici, S. (1976). *Social influence and social change*. Academic Press.
- Moscovici, S. (2005). *The invention of society. Psychological explanations for social phenomena*. Polity Press.
- Papadopoulou, A. (2018). Art didactics and creative technologies: No borders to reform and transform education. In L. Daniela (Ed.), *Didactics of smart pedagogy* (pp. 159–178). Springer.
- Papadopoulou, A. (2019). Art, technology, education: Synergy of modes, means, tools of communication. *Education Sciences, 9*(3), 237. <https://doi.org/10.3390/educsci9030237>
- Perrotta, C., Featherstone, G., Aston, H., & Houghton, E. (2013). *Game-based learning: Latest evidence and future directions*. National Foundation for Educational Research.
- Plass, J. L., Homer, B. D., & Kinzer, C. K. (2015). Foundations of game-based learning. *Educational Psychologist, 50*(4), 258–283.
- Plass, J. L., Homer, B. D., Mayer, R. E., & Kinzer, C. K. (2019). Theoretical foundations of game-based and playful learning. In *Handbook of game-based training* (pp. 3–24).
- Prince, G. (1987). *A dictionary of narratology*. University of Nebraska Press.
- Reiners, T., Wood, L. C., & Dron, J. (2014). From chaos towards sense: A learner-centric narrative virtual learning space. In *Gamification for human factors integration: Social, education, and psychological issues* (pp. 242–258). IGI Global.
- Rilstone, A. (2000). Role-playing games: An overview. The Oracle: Essays.
- Rotter, J. B. (1954). *Social learning and clinical psychology*. Prentice Hall.
- Rotter, J. B. (1982). *The development and applications of social learning theory*. Praeger.
- Rotter, J. B. (1990). Internal versus external control of reinforcement. A case history of a variable. *American Psychologist, 45*(4), 489–493.
- Salen, K., & Zimmerman, E. (2004). *Rules of play: Game design fundamentals*. MIT press.
- Schuch, A. (2017). Digital games as a means of raising awareness about ageism and gender discrimination: Three principles for teachers and game developers. In M. Romero, K. Sawchuk,

- J. Blat, S. Savago, & H. Quellet (Eds.), *Game-based learning across the lifespan* (pp. 131–150). Springer.
- Shilomith, R. K. (2005). *Narrative fiction: Contemporary poetics*. Routledge, Taylor Francis Group.
- Spector, J. M. (2015). *Foundations of educational technology: Integrative approaches and interdisciplinary perspectives* (2nd ed.). Routledge.
- Tashakkori, A., Johnson, R. B., & Teddlie, C. (2021). *Foundations of mixed methods research. Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Sage.
- Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research. Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Sage.
- van der Meij, H., Veldkamp, S., & Leemkuil, H. (2020). Effects of scripting on dialogues, motivation and learning outcomes in serious games. *British Journal of Educational Technology*, 51(2), 459–472. <https://doi.org/10.1111/bjet.12851>
- Warren, S., & Dondlinger, M. J. (2008). Designing games for learning. In *Handbook of research on effective electronic gaming in education*. Idea Group Reference: IGI Global.
- Winter, S., & Pickens, J. (1989). *Advanced dungeons & dragons: Dungeon master guide*. TSR.
- Zheng, R., & Gardner, M. (2017). *Handbook of research on serious games for educational applications*. IGI GLOBAL.
- Zuroff, D. C., & Rotter, J. B. (1995). A history of the expectancy construct in psychology. In J. B. Dusek (Ed.), *Teacher expectancies* (pp. 7–36). Erlbaum.