ΠΡΑΚΤΙΚΑ

11ο Συνέδριο για την Ανοικτή και εξ Αποστάσεως Εκπαίδευση: Εμπειρίες Προκλήσεις Προοπτικές

Τόμος 4, Μέρος Α

26 – 28 Νοεμβρίου 2021

Επιμέλεια ΑΝΤΩΝΗΣ ΛΙΟΝΑΡΑΚΗΣ

SET 978-618-5335-08-3
ISBN 978-618-5335-12-0

Serious Film Games (S.FI.GA.): An Educational Approach of Scriptwriting through a Challenge of Uncertainty

Emmanouel Rovithis, Iakovos Panagopoulos, Agnes Papadopoulou, Andreas Giannakoulopoulos

Serious Film Games (S.FI.GA.): An Educational Approach of Scriptwriting through a Challenge of Uncertainty

Serious Film Games (S.FI.GA.): Συγγραφή Σεναρίου στην εκπαίδευση και η πρόκληση της αβεβαιότητας

Emmanouel Rovithis
Laboratory Teaching Personnel
Department of Audio & Visual Arts
Ionian University
emrovithis@ionio.gr

Iakovos Panagopoulos
Academic Scholars
Department of Audio & Visual Arts
Ionian University
panagopoulos@ionio.gr

Agnes Papadopoulou
Assistant Professor
Department of Audio & Visual Arts
Ionian University
a.papadop@ionio.gr

Andreas Giannakoulopoulos
Associate Professor
Department of Audio & Visual Arts
Ionian University
agiannak@ionio.gr

Abstract
In the framework of the proposed approach "Serious Film Games" (S.FI.GA.), play and cinematography are combined to aim the study of randomness, risk and uncertainty, in an online teaching environment for the process of scriptwriting. Students and graduates of the Pedagogical and Didactical Sufficiency Program (PDSP) of the Department of Audio & Visual Arts participate in a playful activity, which requires them to select cards and use their content to create the backbone of a story. The card selection process, which is largely influenced by the element of chance, aims to push the students into quick and inventive shortcuts between the narrative elements, as well as towards a constant critical reflection against their stereotypes and preconceptions. This paper presents the game's second case study, which builds on previous feedback to further elaborate on the issue of uncertainty and its role in creating challenging game-based learning environments. The results suggest that chance, risk, and uncertainty are positive contributors to an exciting and creative learning experience, whereas the constraint of time causes anxiety that is perceived by most as a positive motivator.

Keywords: *serious film games; game-based learning; uncertainty; scriptwriting; distance learning; time of crisis*

Περίληψη
Στο πλαίσιο της προτεινόμενης προσέγγισης (S.FI.GA.) η παιγνιοποίηση και κινηματογράφηση "συνενώνονται" με στόχο τη μελέτη της τυχαιότητας, της πρόκλησης και της αβεβαιότητας. Φοιτητές και απόφοιτοι, οι οποίοι παρακολουθούν το ειδικό πρόγραμμα Πιστοποίησης Παιδαγωγικής και Διδακτικής Επάρκειας του Τμήματος Τεχνών Ήχου και Εικόνας (ΠΠΕΤΤΗΧΕ), συμμετέχουν στο παιχνίδι και συγγράφουν ιστορίες, σενάρια που θα κινηματογραφηθούν. Το διαδικτυακό περιβάλλον μάθησης συνδύαζε την χρήση των τεχνολογικών μέσων και δημιούργησε τις συνθήκες, ώστε οι συμμετέχοντες να παίξουν απρόσκοπτα το παιχνίδι. Οι

"προκλήσεις", οι τυχαίες σχέσεις, στις οποίες καλούνται ν' αντιδράσουν, καθώς, η διαδικασία επιλογής καρτών στηρίζεται στην τύχη, συνθέτουν μια σειρά επιλογών, χωρίς βεβαιότητες για το πώς θα κινηθεί η ιστορία. Περισσότερο τονίζεται η μετάβαση, παρά η αρχή, τα κεντρικά σημεία και το τέλος. Οι μετέχοντες στο παιχνίδι ωθούνται σε μία διαδικασία μπρος-πίσω ανάμεσα στους ήρωες, στους τόπους και στα πράγματα. Οι αποφάσεις τους επηρεάζονται από τον περιορισμένο χρόνο που διαθέτουν. Στη συγκεκριμένη εργασία, αναλύεται η δεύτερη φάση του παιχνιδιού, η οποία στηρίζεται στις ανατροφοδοτήσεις των συμμετεχόντων σε σχέση με την αβεβαιότητα και τη σημασία της στη δημιουργία παιχνιδικών περιβαλλόντων μάθησης. Η έννοια του ρίσκου είναι στενά συνδεδεμένη με την τυχαιότητα, τις πιθανές εκδοχές, δημιουργώντας "μοντέλα" ανάγνωσης της πραγματικότητας. Η πιθανότητα, ο κίνδυνος και η αβεβαιότητα συνεισφέρουν θετικά σε μια συναρπαστική και δημιουργική εμπειρία μάθησης, ενώ ο περιορισμός του χρόνου προκαλεί άγχος που γίνεται αντιληπτό από τους περισσότερους ως θετικό κίνητρο.

Λέξεις-κλειδιά: *σοβαρά εκπαιδευτικά παιχνίδια; παιχνιδοκεντρική μάθηση; αβεβαιότητα; συγγραφή σεναρίου; εξ αποστάσεως εκπαίδευση; εποχή κρίσης*

Introduction

Living under conditions of uncertainty, the elements of chance and probability acquire another dynamic. In school, reflection on this dynamic becomes important, as it can shift primary intuitions about things and influence attitudes and behaviors. Teachers and students often respond "on the basis of established opinions" starting from a point "sufficiently defined and minimally controversial". However, the authors suggest that this commonplace of perception should be examined and questioned, a process which presupposes interpersonal communication, contact and mutual understanding.

Undoubtedly, the pandemic crisis has burdened this task with significant difficulties. Faced with the unexpected threat, tutors must be persistent in their efforts to understand, to know and to be in solidarity. The design of a methodological discussion framework is necessary to cope with the unexpected by exposing, explaining, revealing the ways to obtain the requested commonplace. In parallel, distance learning strategies must exploit the benefits of available digital media to confront technical challenges and realize learning environments that facilitate efficient and novel learning practices.

Drawing upon this conceptual space, the Pedagogical and Didactical Sufficiency Program (PDSP) of the Department of Audio and Visual Arts of the Ionian University has been developing the Serious Film Games (S.FI.GA.) educational program as an innovative method for the practical integration of play and cinematography. At the heart of this approach lies the process of scriptwriting, for which a distance learning game-based activity was designed. The game "Just Ahead of Me" is a multi-player card game facilitating the teaching of screenwriting by involving and familiarizing players with the concept of uncertainty. The game addresses the preliminary investigations before writing the final script of a short film. Players select cards that express different choices in the composition and development of their narratives' structural nodes (main event, protagonists, competitors, place, time, and plot). However, the process of selecting the cards is largely based on chance: players plan their story to match their preferred path, but the dice decides whether they will follow it or diverge to another one. Through this dynamic process participants are invited to consent and adjust to the unspecified and the uncontrollable.

The game was first tested in December 2020 in an online session with ten (10) students of the Elements of Film Directing & Acting course at the Department of Audio and Visual Arts of the Ionian University in Corfu, Greece. The game session was followed by two research phases, one immediate with questionnaires and one some days after with semi-structured interviews, to gather quantitative and qualitative feedback. The purpose of collecting this data was to optimize the game's design. The results are discussed in a previous publication by the authors (Papadopoulou, Rovithis, & Panagopoulos, 2021). In short, the game's mechanics based on chance were positively accepted as a motivator towards creativity.

This paper focuses on the second trial of the game, which took place in January 2021. This time, fourteen (14) students of the Pedagogical and Didactical Sufficiency Program (PDSP) of Audio and Visual Arts of the Ionian University in Corfu, Greece, participated in the game and the subsequent research sessions. Our main purpose was to further investigate the element of chance before moving on to other aspects of the game. Thus, we altered specific game rules and questionnaire statements. In this paper we elaborate on the notion of uncertainty in terms of theories of risk, the scriptwriter's perspective, and game-based learning principles. Consequently, we present and discuss the research results, and consider future developments.

The Game
First, let us provide a short description of the game, "Just Ahead of Me", in terms of rules and content, as well as an overview of its current implementation.
Rules
1. The game is completed in 7 rounds, called Episodes.
2. Each Episode has a topic, which represents a node in a narrative.
3. In the first Episode, players select 3 cards without any further restrictions.
4. In each of the remaining 6 Episodes, players select 1 card according to the process described below.
5. At the start of each Episode, players secretly announce their desired card to the Game Moderator.
6. Then they roll the dice to decide the order of the card selection. Greater numbers select first, same numbers reroll to resolve the tie.
7. Once the order of selection has been decided, the card selection process takes place openly.
8. Once a card is selected by a player, it is no longer available.
9. When the card selection process of each Episode is completed, the Game Moderator announces the respective task to be carried out. Tasks include writing texts that are clearly related to the selected card and the Episode's topic.
10. The card selection process is repeated for every Episode.
11. Once all Episodes are completed, players gain access to a pool of resources related to the narrative nodes.
Content
· Episode 1: the Hero
Available cards:
"Powerful", "Shy", "Obsessive", "Clumsy", "Cold", "Reckless", "Charming", "Arrogant", "Stubborn", "Guiltful", "Sensual", "Consistent"
· Episode 2: the Universe
Available cards:

"Dead-end", "Shopping window", "Square", "Basement", "Office", "Desert", "Boat", "Refuge", "Cafeteria", "At the doctor's", "Hall", "Peak", "House", "Forest", "Station", "School"

·   Episode 3: the Conflict

Available cards:

"Lack", "Secret", "Boundaries", "Duty", "Right", "Conquest", "Beauty", "Attention", "Safety", "Obstacle", "Pleasure", "Holy", "Sacrifice", "Gain", "Revenge", "Power"

·   Episode 4: the Medium

Available cards:

"Keys", "Bag", "Cage", "Book", "Rope", "Talisman", "Picture", "Pills", "Clock", "Glasses", "Cellphone", "Bag", "Wire", "Cloth", "Coffee", "Syringe", "Flashlight"

·   Episode 5: the Antagonist

Available cards:

"Patron", "Mask", "Nightmare", "Boredom", "Enigma", "Contempt", "Fall", "Change", "Coincidence", "Authority", "Mirror", "Kinship", "Oblivion", "Unknown", "Divine"

·   Episode 6: the Trial

Available cards:

"Pause", "Letter", "Dagger", "Defeat", "Teddy-bear", "Money", "Journey", "Fire", "Perfume", "Envelope", "Jewel", "Friend", "Delicacy", "Cliff", "Pipe", "Toy"

·   Episode 7: the Outcome

Available cards: "Plot Twist"

Implementation

The game's second testing session took place in January 2021 with 14 participants (f:12 – m:2), students of the Pedagogical Sufficiency Program of the Ionian University Audio and Visual Arts Department. The same process was followed as in the first experiment: the participants played the game and subsequently answered a questionnaire. Some days after, they took part in one-on-one semi-structured interviews. In that way, we gathered both quantitative and qualitative data for our analysis.

Our purpose in this session was to focus more deeply on the element of chance. Thus, drawing on the results from the game's first testing, we performed some changes in the game. More specifically:

1. Some participants had complained about the process of rolling the dice only once at the start of the game. Once the order of selection was set, places shifted by one in each round. This had caused frustration to the players who had initially landed in the last places, as well as to those who had started from the top and then got to the very bottom. Since they knew in advance that their card options would be limited, they lost their interest in the card selection process. To address this issue, we decided that the dice should be rolled at the start of each round. In that way, all players will have the same chances every time a card is at stake, which will hopefully retain their excitement.

2. Some participants had complained that the element of chance in the game was too chaotic. We searched the literature to find ways, in which randomness is integrated in game-based learning systems. We found that the uncertainty in challenges enhances motivation (Kapp, 2012), and that, as far as players' rewarding is concerned, the estimation for optimum chance percentage is 50%. (Howard-Jones & Demetriou, 2009) We decided to follow this approach in controlling the total chance percentage, while introducing players gradually to uncertainty. Therefore, in the first three rounds,

all cards are double; they can be selected twice before being removed from the deck. This condition raises the possibility that players will be able to get their desired card. However, this changes in the next three rounds, where the available cards are as many as the participants and there is only one of each. Once selected by a player, a card is no longer available, a condition, which reduces the chance that a player ends up with their desired card (Fig. 1).

Fig. 1 Example of the Card Selection Process
(Episode 5: "the Antagonist" – 7 participants have made their selection)

Regarding the online implementation of the game, we considered the fact that our game should be technically feasible through simple means. Especially in times of crisis, distance learning practices must be available under as many circumstances as possible. The game session, as well as the interviews, were hosted in Zoom, a user-friendly video-conference platform. For the creation of the cards and the general game environment we used Microsoft PowerPoint, as a first approach before moving to a more advanced gaming environment in the future. For rolling the virtual dice we used Google Dice, a simple application accessible through a browser. Last, we used SurveyMonkey to create the questionnaires.

Theoretical Framework
Risk exposure
In the process of writing a script, our main goal is for students to write with a "strong" good spirit, and to function without following a conventionally formulated way. By rolling the dice and selecting cards, players immerse into an internal criticism of the limitations that arise. The game is based on uncertainty; the story is in constant flux, forcing the significance of each event to be judged on the basis of continuous reconnection. Challenges accumulate and students take the risk of searching for the best solution. Yet, within this risk lies justice: the cards are shared evenly to everyone.

We are interested in reconsidering a world of socially common beliefs and/or preconceptions about the acceptance that some are luckier. Thus, a way is needed that is fair for all.

Cubes (dice) were a common play in ancient cultures (Egyptian, Chinese, Greek, Roman). It was an attempt to check on one's luck or fate. After all, destiny, is a mix of risk, danger, luck, in confronting the uncertainty. The English word 'hazard' comes from the Arabic word "al zahr" which means dice (Bernstein, 1998: 13). Risk is associated (Yoe, 2019) as a concept with uncertainty as to the outcome of an action. Risk is associated with making a decision and acting.

Aven (2003) attempts to classify risk definitions based on their conceptual content. He considers risk as loss, an unpleasant event, and combines it with probability or uncertainty or even the correlation of all the above. There can be no meaning in risk without uncertainty. Aven (2010) emphasizes the relationship between fact and uncertainty, in order to state the difference between what is risk and how it can be measured by considering probability as a means to measure risk. Huang (2013) considers risk as a scene in the future, which is associated with some adverse events.

Althaus (2005) refers to risk as a cultural phenomenon, a social phenomenon, a means of securing profits, a concept, a historical fact, a behavioral error (therefore rules and limits are set here), an act of faith, an issue of reflection. In our game, risk is experienced as a matter of consideration, which requires thought and reflection. A safe environment for experimentation is created, a playful process with an uncertain "outcome", away from the routine of learning activities. By nature, the game mechanics urge players to take risks, to get away from any untasteful reality through their story, and this provides food for thought, discussion and reflection.

Risk as a philosophical issue is examined on the one hand from the perspective of realism, that is, it is characterized as an objective and existing situation, independent of the observer, and on the other from a relativistic perspective, that is, the risk depends on the way one perceives the world. In an attempt at a holistic approach to risk, Kadvany (1997) considered risk as a whole, through the management of which people can gain the potential to provoke social criticism and social change. At school we often refer to situations that allow for "objective criticism", whereas in the cinematic universe there is room for every kind of improbability. Yet, uncertainty is inherent in a realistic description of reality. In school, the terms "likely" or "unlikely" are often used to express degrees of belief in situations and events. These intuitive ideas and attitudes can be used by teachers to help children develop a mature attitude using the concept of probability as a tool to compare the probability of different events in a world full of uncertainties (Aven & Kessenich, 2019). A set of elements that are affected by randomness is created, therefore one does not wonder about typologies and categorizations. This leads students to true fiction, which catalyzes any unfortunate attempt to render reality, which is ultimately a false reality. For example, the description of a landscape, which is enclosed in the story and designed, means, at the same time, that it is being reconstructed due to the special references to cultural and historical situations. So, issues arise due to options, focus, correlations and this is the biggest contribution to form an idea to a story.

The uncertainty of the scriptwriter

If you ask a professional filmmaker what makes a good film, they will answer that the most important element is a good script. The process of scriptwriting, even for a short film, may take years in order to reach a desirable level. The reason that this process takes so much time is that as soon as one has a final draft of the script, the director or the producer have to search for funding based on it (Beker, 2017). So, the script will

have to be in the final and most complete version in order to be successful in the funding process. This process is extremely important for our students to understand and therefore one of our main considerations during our classes. In the funding process and the pre-production of the film the script will have to change multiple times until it reaches a level that will allow the creators to move to the production phase. The reasons for these changes are mostly based on budgeting issues or the fact that the production company, which supports the film, deems alterations necessary, in order to secure the success of the film in festivals and distribution agents (Thurlow, 2008).

It is thus clear that a scriptwriter needs to be adaptive and open to changes in the whole process of the creation of the script. Different directions may need to be taken, premises to be changed, scenes to be cut, locations to be altered, etc. in order for the script to be approved. So, scriptwriters shouldn't become protective and attached to their idea since, in order to reach a production point, it will require multiple changes and the final draft may be completely different from the original idea. This kind of adaptation skills and learning how to work in an "uncertain environment" are extremely important for scriptwriters today in order to achieve their goals in the industry (Kooperman, 2011).

During the stage of creating the main premise and the first draft of the script, a scriptwriter has also to be open to new ideas and exploration, not only with a colleague, who they write the script together with, but also with their inner self and personal emotions (Panagopoulos, 2020). Many scriptwriters tend to have a partner when they write their scripts since they need a person that will challenge their ideas and help them to move the storytelling process forward. To pass through the "blank page fear" in the beginning of the process and to avoid getting stuck in the same stage afterwards, scriptwriters use ideation and brainstorming techniques. During this process they need to stay open and explore their inner feelings and ideas. Feelings that follow us for many years and need to be expressed. As Knudsen states, in his book Finding your Personal Voice in Filmmaking:

…the journey we embark on is probably driven by the same necessities and somethings that we experienced as children, nuanced and shaped over time by the cloak of experience and maturity. We may even feel, or be attached to, ongoing feelings from our childhood; feelings that have never left us or have always been with us or feelings that have never been fully incorporated into, or resolved, in our lives. Could it be that as artists, we are circling around the same issues, the same themes, the same somethings that have been with us since the beginning of our time on earth? (Knudsen, 2018, p. 24)

The above notion of expressing our inner felling through storytelling or art in general can be used as a powerful tool for educational purposes. Ethnomediaology, an interdisciplinary approach inspired by practices in Ethnomusicology and Autoethnography, 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). The above tool is used during ideation workshops organized by the StoryLab International Film Development Research Network in different places and diverse communities across the world (Panagopoulos, 2021). Ethnomediaology is trying through their workshops to create an open environment for the participants and the tutors/researchers to exchange ideas and stories and to learn from each other. It is also important that the participants will not follow the rules and expectations from the industry, but instead work with original and fresh ideas based on their feelings. So, this new working space

is an open 'clean slate' working space in which all participants engage in freshly developed ideation and not pre-defined narratives or previously ideated projects (Papadopoulou & Panagopoulos, 2021).

Playful uncertain choices

Even though the term "gameplay" is hard to define, one thing is for certain: gameplay has to do with player's choices. These choices can be categorized into (Rollings & Morris, 2003):

- options whose timing is critical and depends on the context,
- options that make little difference whether one takes them or not,
- options that are always worth taking,
- options that are never worth taking at any point in the game, and
- options that should sometimes be taken, and sometimes not, depending on other factors.

It is clear that choices are fundamentally defined by the outcome they produce. A certain outcome would make any single consideration of a choice in a gameful environment meaningless. Making a choice presupposes perception and interpretation, revision and reflection, measuring the risks, and ultimately attempting to predict the consequences; making a choice is inextricably bound to face the uncertainty.

In his influential "Homo Ludens", theorist Johan Huizinga connects uncertainty with the element of tension (Huizinga, 2014). The "striving to decide an issue and so end it" is essential to the activity of play, as it sets the path to the resolution of the conflict, which keeps players engaged. From the interaction between players and the game system, between all possible choices and the rules that govern them, emerges the notion of meaningful play. Salen and Zimmerman assign meaningful play to the game designer's own endgame, the goal of successful game design (Salen & Zimmerman, 2004). They break it down into two separate but related aspects. On one level, the meaning of an action taken is shaped by the system's response. The outcome is specific, measurable, definitive; this aspect of meaningful play is called descriptive, since it describes what actually happens. On another, parallel level, meaningful play refers to the desired impact of the larger game context. All actions, outcomes, and their correlations are interwoven into that holistic fabric. This side of meaningful play is evaluative: it requires from us to assess and decide, which choices are meaningful enough within the designed system. It lets us reflect and repurpose, rework and reshape, upon the discernible relations of the game elements.

Instructional game design starts from being evaluative, then proceeds to being descriptive, and then evaluative again and so forth, not in cycle, but in an ascending spiral, in which reflection of a lesson becomes the preparation for the next one. The curriculum is mapped onto the game content, scaffolding onto level design, learning objectives onto game mechanics. The building blocks of the latter are player's actions. In (Djaouti et al, 2008) it has been attempted to identify the fundamental elements of gameplay. A set of "Game Bricks" is provided. Their possible combinations express the tasks, rules and goals of videogames. Borrowed from this set, four (4) such actions, seen as pairs, compose our game: "Random" and "Select", "Match" and "Write". Uncertainty is embedded in our game's structure. Players are free to select, but their freedom is limited by chance. Then they need to match randomness with thoughts, symbols, and other narrative elements and write them down "on the paper". They need to adapt and stay true to the game rules; but it also goes beyond that.

Games are based on models of the real world, manifesting themselves as dynamic representations of -real or imagined- spatial and temporal contexts (Kapp, 2012). As such, they provide learners with permission to fail, encourage them to think of out-of-

box, and foster a sense of control to create rich learning experiences. This control is ensured by the game rules, which are known from the start and pave the ground for players' performance. Yet, the "Magic Circle", which encompasses all possible choices and actions, is an imperfect boundary (Juul, 2008). Just as in real life, actions are constantly negotiated. In our game, boundaries are crossed in the last Episode. Players can no longer apply the strategy, to which they adapted during the previous rounds. They are now faced with a "Plot Twist" on both gameplay and narration level. Once again, they come across an uncertain outcome, a new challenge forged by hidden information and randomness (Malone & Lepper, 1988). Challenges, resulting in players' response and the system's feedback, are at the center of the learning experience (Plass et al., 2015). Challenges are precursors of learning and flow, not only via increased engagement, as is long thought, but also per se, as the state of anxiety and arousal that follows, when pre-meditated strategies are combined with trial-and-error (Hamari et al., 2016).

A degree of unpredictability is recognized as one of the core mechanisms of Game-based Learning (Perrotta et al., 2013). But the exact degree that will optimize the learning process is yet to be investigated. One approach presenting three case studies on uncertain rewards confirms that uncertainty can transform the emotional experience of learning by improving engagement, information encoding, and later recall, and concludes that the optimum percentage is 50% (Howard-Jones & Demetriou, 2009). Our experiment described below seems to agree with that assertion.

The Case Study of "Just Ahead of Me"
Questionnaires
Compared to the first experiment, we excluded two Likert-scale type statements and replaced them with a statement specifically addressing the game's potential for educational use, and with a question about the number of desired cards that players managed to get. Given the small size of our sample and the aforementioned differences between the two research sessions, we acknowledge that at this point only preliminary conclusions can be drawn. However, we hope that our case studies will serve as the basis for further investigation.

After the implementation of the changes, the questionnaire included the following ten (10) statements to be evaluated through a 5-point Likert scale (except for Q3). The statements were formulated in a mixed positive and negative way to protect from wild-card guessing.

Q1: I enjoyed the game
Q2: The game was difficult
Q3: In how many cases did you get the card you wished for?
Q4: I found the process useful for creating my script
Q5: The cards did not help my fantasy and creativity
Q6: The cards did not have enough choices
Q7: The time to complete each Episode was not enough
Q8: The online version of the game was satisfactory
Q9: I would participate again in an interactive scriptwriting game
Q10: The game is not appropriate for educational application

First, we inverted the score of the statements that were negatively formulated, to bring all statements to a common scaling. In this paper, we will henceforth refer to the inverted form of all negative statements for the reader's convenience. Then, we calculated the average score provided by all players for each statement, as well as the

average score provided by each player for all statements. We also calculated the mean of all averages as a sign of the game's general acceptance. The maximum possible rating in the Likert scale was five (5); thus, in our analysis we considered three distinct scoring ranges:
a) "low score", which refers to the range up to the 2.5 median,
b) "middle score", which ranges between 2.5 and 4.0, and
c) "high score", which extends from 4.0 and above.
One striking finding is that no statement was rated with a low score; four statements fell into the middle score category, and five out of nine (5/9) categories gathered an average greater than 4.0 points. A similar case stands for the players' average ratings: no players rated the statements with a low score, half of the players (7/14) expressed a middle score average, whereas the other half (7/14) rated the statements with an average of 4 points and above. The game's general acceptance lies at an average score of 3.78 points.
Compared to the first experiment the situation has improved in many aspects. The game's general acceptance has risen from 3.42 to 3.78. Regarding the players' ratings, only two out of ten participants (2/10) in the first experiment, which constitutes a 20% percentage, had the average of their evaluations in the high score range, whereas in the second experiment 7 out of ten participants (7/10), more in terms of number and percentage (50%), delivered an average rating of 4 points and above. Similarly, only two out of ten statements (2/10, percentage: 20%) were rated with a high score in the first experiment, whereas in the second experiment this number rose to five (5/9) and the percentage to 55%. Furthermore, the highest average rating exhibited by a statement in the first experiment was 4.1 points. In the second experiment, the highest average rating of a statement was 4.28, with a total of four out of five (4/5) statements in the high score range rated above the 4.1 maximum of the first experiment. Last, in the first experiment three out of ten (3/10) statements ranked below the threshold of a 3.0 points average, whereas in the second experiment there was only one (1/9) such statement.
Focusing on the statements, the highest average (4.28) refers to the "I found the process useful for creating my script" statement. Slightly below, at an average rating of 4.21, one can find three statements, namely "The game's online implementation was satisfactory", "I would participate again in an interactive scriptwriting game", and "The game is appropriate for educational application", followed by the "I enjoyed the game" statement rated with a 4.07 average. The lowest average (2.57) was observed in the "The time to complete each Episode was enough". The three statements completing the middle score range were "The game was easy", "The cards expressed enough choices", and "The cards helped my fantasy and creativity", rated with an average of 3.07, 3.64, and 3.78 points respectively.
Another important factor is the ratio between the number of times that a player selected the card they initially wanted and the total amount of card selections. This ratio, defined as "Successful Selection Ratio" (SSR) is essentially an indicator of the extent, to which the process of chance has influenced each player's scriptwriting. In total, seventy (70) card selections took place; fourteen players (14) selected five (5) cards each. Forty-one times the players managed to select their desired card, which results in a 58.5% SSR. Focusing on the individual stages, from the first to the fifth, the SSR percentages were 85.7, 85.7, 35.7, 42.8, and 42.8 respectively. There was no player that didn't end up with a desired card at least once. Thus, the following five groups were formed: one (1) player with 20% SSR (1/5 desired cards), three (3) players with 40% SSR (2/5), seven (7) players with 60% SSR (3/5), two (2) players

with 80% SSR (4/5), and one "lucky" player with 100% SSR, who was not subjected to any chance impact. Extracting the mean of the average ratings of these five groups produced similar results: 20% SSR = 4.0, 40% SSR = 3.77, 60% SSR = 3.69, 80% SSR = 3.83, 100% SSR = 4.11. (Fig. 2) In fact, ratings from the high score range are found in all SSR categories, with the highest ones (4.55 and 4.33) in the 40% and 60% SSR groups respectively. Due to the presence of just one participant in the 20% and 100% SSR groups, we merged them with the 40% and 80% SSR groups respectively to perform an analysis of variance, which did not reveal any significant difference ($p > 0.05$). Due to the limitations of our sample, we did not proceed with further statistical analysis between the SSR groups and the respective ratings of individual statements. However, we tracked the lowest ratings (1 and 2) in individual statements to investigate, whether they are connected with specific SSR groups.
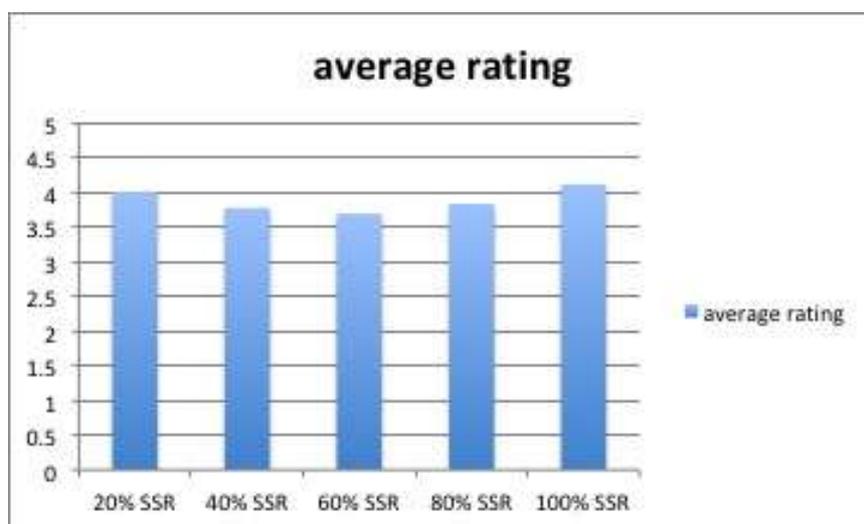

Fig. 2 Average Rating per SSR Group.

The participant (60% SSR) with the lowest average in their rating (2.55) has negatively evaluated the "enjoyment", "difficulty", "time", and "willingness" related statements. Nevertheless, the "usefulness" and "imagination" related statements are scored with 4 points, implying that the crucial factors must be the time constraint, or something else to be revealed in the analysis of the interviews. The participant (40% SSR) with the second lowest average rating (2.77) has negatively evaluated the "difficulty", "card options", "time", and "education" related statements, increasing the possibility that the element of time has had a significantly negative impact on some of the participants. Indeed, the "time" related statement has gathered the lowest ratings from all participants (2.57 - the only one below the 3-points threshold). However, the majority of the participants has not evaluated negatively the remaining statements. Typical examples of such behavior are a subject with 80% SSR, who rated the "difficulty" and "time" related statements with a score of 2, but their total average rating was 4, and a 60% SSR subject, who rated the "time" related statement with 1, but the total average lies at 3.77.

Semi-Structured Interviews

The feedback from the participants' interviews clarified some of the findings and provided insight into possible future developments. Most of the interviewees commented that they liked the game very much and found it interesting and creative. This positive stance was reportedly due to two main factors, namely the card selection

process and the time constraint, a finding which is aligned with the results from the interviews of the first experiment.

The cards were characterized as resourceful and helpful in that they fostered creativity and fantasy. Even when someone lost a multitude of desired cards over other players, their thought adjusted to the new circumstances. Reconsidering one's options did not act in a restrictive way; on the contrary, it was mentioned as an element of entertainment. "I really liked it, when someone got my card first", "It's better to have some restrictions, than being told to do whatever you like", "I didn't expect to manage the completion of a story, let alone its on-the-fly alterations" were some of the comments supporting the positive impact of the card selection process.

Regarding time constraint, almost all participants felt its pressure, but most of them regarded it as interesting and "doable". Some of them even thought it was ideal for recording one's first thoughts in a direct and intuitive way. "It is ok to feel a bit stressful" was reported as a challenge towards creativity. However, there were a couple who felt uncomfortable, especially at the beginning of the game. One participant expressed her wish to turn back time and change her initial choices, and another one commented that the short time made the process "risky".

Yet, being quick and flexible in plotting a narrative was described by most as the main dexterity related to the game's educational aspect. One participant said that she wishes she had played such games at university, while other two are willing to try it with their adult students. Most other interviewees felt that the game can be applied in primary or secondary education, but in a simplified and more specific version. The distance learning condition was reported to enhance concentration, whereas the interactive element of competing with others for the same cards was judged as team-bonding: "You feel as part of a group struggling against the same difficulties". However, a salient negative feedback is related to the balance between the game's entertaining and educational aspects. One participant felt that there was too much work to be produced, which thwarted the element of fun. She approved the process as a scriptwriting exercise, but not as a game.

Suggestions by the participants included organizing players in teams, making the hero-building process more intimate, switching stories with others to complete, providing a warm-up tutorial, breaking down the episodes into more detailed stages, and realizing a software edition with more interactive elements, such as audiovisual stimuli and an automated dice process.

Discussion

The improvement of the results compared to the ones from our first experiment implies that our changes were successful. The element of uncertainty, quantified as SSR percentage, was close to 50%, which matches the optimal percentage suggested in the –nevertheless scarce– literature. Players found the game creative and challenging, whereas high ratings are to be found in all different SSR categories. The risks posed by the element of chance did not create insecurity, but rather eagerness to complete the challenge and create an interesting narrative. The stories remained "unstable" until their final formulation that seemed to have satisfied all participants. Logic in the sense of a personal view based on stereotypes and preconceptions was set aside. Decisions were made that would otherwise not be thought of. The randomness of the cards pushed the students into a back-and-forth process between the heroes, the places and all other narrative elements. Due to the equal chance for everyone at the start of each round and the progressive vagueness of the storyline destinations neither privilege nor authenticity were recognized the uncertainty of how the story will unfold

undermines the "secure" causality in the minds of the participants, creating spots of disbelief. External factors influence the development and encourage students to fabricate the events of their story in a mediated way. This might create a mess, but it rewards them with training in what new information means, what attention will be given, how they will react.

The element of time seems to have been the most stressful factor. However, only a few participants mentioned it as a negative constraint. The majority felt that time limits gave shape and rhythm to an intuitively extensive creative process. Anxiety seems to have pushed –at least most of those who reported it– forward. Anxiety is caused by uncertainty due to the need of preventing the unwanted event from happening. Hansson (2010) distinguishes these different situations: when an unexcepted event occurs and when not. It is fundamentally different when someone makes a decision in uncertainty than with the knowledge of the possible implications. Apter in Reversal Theory (Apter, 2007), states that risk creates anxiety in some people, who want to avoid it, as it concerns self-protection, while in others there is the opposite stance, which favors the view of risk as a stimulant of pleasant emotions. Based on the arousal of this sense, the practice of integrating the game process of continuous turning points with scriptwriting techniques has proved satisfactory. The novelty of this approach is to create a suitable synergy of these arts, and thus guide participants towards realizing a short film based on their narrative as their final assignment. In the whole process of the semester students should be aware of and appreciate that by studying the variants in situations, they enrich their perception of the occurring events. Misconceptions affect the way decisions are taken and risk is closely linked to chance. Risks taken in the social reality signify a unique view of the world.

A third important point, besides chance and time, is interactivity. This occurs on many levels: between players and players, between players and the game moderator, between players and the system, and between the game moderator and the system. Even though most participants claimed that they had a great time and are willing to play again themselves or with their own students, there were a lot of suggestions regarding the inclusion of interactive modes that will facilitate a faster flow and a direct communication between individuals or even whole groups. This is not a negative finding per se, but it surely highlights the challenges of distance learning. The need is stressed that tutors will consider the –sometimes out-of-the-box– utilization of popular new media, and also be open to novel practices, in order to attract and retain the students' attention, while compensating for the lack of face-to-face contact. New generations are used to fast-paced audiovisual stimuli. Bridling state-of-the-art technologies emerges as an essential asset for tutors in the face of modern educational challenges. Regarding our game, we are aiming to develop a stand-alone software version of "Just Ahead of Me" that will incorporate the students' suggestions, and to test its technical feasibility and educational efficiency.

Last, it is striking that the "imagination" and "card variety" related statements did not score as high as the "usefulness", "enjoyment", "willingness", "online", and "education" related statements. This implies that, while the game mechanics were found quite satisfactory, the game's content could do better. Having investigated the inclusion of uncertainty in the game mechanics, we are aiming to proceed with the thorough investigation of other fundamental aspects, such as the content of the cards itself.

Conclusion

As part of the Pedagogical and Didactical Sufficiency Program (PDSP) of the Department of Audio and Visual Arts of the Ionian University we have been developing the Serious Film Games (S.FI.GA.) educational program aiming to integrate the fields of Game and Cinematography. In that context, the game-based learning scriptwriting activity "Just Ahead of Me" was designed and tested twice, in December 2020 and in January 2021, in respective online play and research sessions due to the pandemic restrictions. Distance learning was facilitated by online platforms, such as Zoom, SurveyMonkey, and Google Dice. In terms of mechanics, players construct a story through the selection of cards, which define the orientation of the narrative content. The card selection process brings players in front of challenges, as they do not always end up with the card they initially wished for. In that way, they are trained to adapt to the unpredictable, to take risks, and to familiarize themselves with the element of uncertainty as the means to understanding and creativity.

We drew upon the feedback gathered from our first experiment to optimize the game's design. Thus, we included the process of rolling the dice at the start of each round, and introduced our players progressively to the element of chance. We succeeded to an extent in controlling the uncertainty in card selection near the "optimum" 50%. The results from our quantitative and qualitative data analysis showed an improvement of the game's acceptance on both player and statement level. The game was found interesting and creative by our participants, its function and online implementation appropriate for educational purposes, the card selection mechanic challenging and inspiring, and the time constraint difficult, but in most cases in a positive way. We hope that our research will pave the way for more game-based learning approaches of cinematography, as well as interactive distance learning practices that will enhance creativity in instructional and fun ways.

References

Althaus, C.E. (2005). A disciplinary perspective on the epistemological status of risk. *Risk analysis 25 (3),* 567-88. doi:10.1111j.1539-6924.2005.00625.x

Aven, T. (2003). *Foundations of Risk Analysis: A Knowledge and Decision-Oriented Perspective.* Chilchlester: John Willey and Sons.

Aven, T. (2010). *Misconceptions of Risk.* Chilchlester: John Willey and Sons.

Aven, T. & Kessenich, A.M. (2019). Teaching children and youths about risk and risk analysis: what are the goals and the risk analytical foundation. *Journal of Risk Research 23(1)*:1-14. doi:10.1080/13669877.2018.1547785.

Apter, M.J. (2007). *Reversal Theory: The Dynamics of Motivation, Emotion and Personality.* Oxford: Oneworld Publications.

Beker, M. (2017). *Write to Shoot: Writing Short Films for Production*. London: Routledge.

Bernstein, P. (1998). *Against the Gods. The remarkable story of Risk.* New York: John Willey and Sons.

Djaouti, D., Alvarez, J., Jessel, J.-P., Methel, G., & Molinier, P. (2008). A gameplay definition through videogame classification. *International Journal of Computer Games Technology, 4.* doi:10.1155/2008/470350.

Hansson, S. O. (2010). Risk: Objective or subjective, facts or values. *Journal of Risk Research 13(2)*:231-238. doi:10.1080/13669870903126226.

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.

Howard-Jones, P. A., & Demetriou, S. (2009). Uncertainty and engagement with learning games. *Instructional Science, 37(6)*, 519-536.

Huang, C. (2013). Experimental Riscology: A New Discipline for Risk Analysis. *Human and Ecological Risk Assessment 19*, 389-399.

Huizinga, J. (2014). *Homo Ludens - a Study of the Play-Element in Culture.* Routledge.

Juul, J. (2008). The Magic Circle and the Puzzle Piece. In S. Günzel, M. Liebe, & D. Mersch (Eds.) *Conference Proceedings of the Philosophy of Computer Game* (pp. 56–67). Potsdam: University Press.

Kadvany, J. (1997). Varieties of Risk representations. *Journal of Social Philosophy 28 (3)*, 123-143.

Kapp, K. M. (2012). *The gamification of learning and instruction: game-based methods and strategies for training and education.* John Wiley & Sons.

Kemp, N. (2020). Distance learning and global demand. *International Higher Education, 103,* 5–6

Knudsen, E. (2018). *Finding the Personal Voice in Filmmaking*. Switzerland: Palgrave Macmillan.

Knudsen, E. (2020).StoryLab Information. Retrieved from https://www.storylabnetwork.com/ethnomediaology/

Kooperman, P. (2011). *Writing Short Film Scripts: A Student Guide to Film-Making*. Insight Publications.

Malone, T.W., & Lepper, M.R. (1988). Making learning fun: A taxonomy of intrinsic motivations for learning. In R.E. Snow & M.J. Farr (Eds.), Aptitude, learning, and instruction: Vol. III. Cognitive and affective process analyses (pp. 229–253). Mahwah, NJ: Lawrence Erlbaum Associates.

Panagopoulos, I. (2020). Flickering Souls Set Alight. Screenworks, 11.1. https://doi.org/10.37186/swrks/11.1/1

Panagopoulos, I. (2021). Returning to your Roots: Use of Mobile Shooting in an Ethnomediaology case study with the Tejon Native American Tribe in California. *Frames Cinema Journal(18)*, 115-135. doi:10.15664/fcj.v18i1.2252

Papadopoulou, A., & Panagopoulos, I. (2021). White Space, Blank Class: A Filmmaking Approach in Education. In L. Daniella & A. Visvizi (Eds.), *Distance Learning in Times of Pandemic: Issues, Implications and Best Practice.* Routledge.

Papadopoulou, A., Rovithis, M., & Panagopoulos, I. (2021). Serious Film Games (S.FI.GA.):Integrating game elements with filmmaking principles into playful script writing. In L. Daniella (Ed.), *Smart Pedagogy of Game-based Learning.* Springer.

Perrotta, C., Featherstone, G., Aston, H., & Houghton, E. (2013). *Game-based learning: Latest evidence and future directions*. Slough.

Plass, J. L., Homer, B. D., & Kinzer, C. K. (2015). *Foundations of game-based learning. Educational Psychologist, 50(4)*, 258–283.

Rollings, A., & Morris, D. (1999). *Game architecture and design.* Paraglyph Press.

Salen, K., & Zimmerman, E. (2004). *Rules of play: Game design fundamentals*. MIT press.

Thurlow, C. (2008). *Making Short Films: The Complete Guide from Script to Screen,* Second Edition. New York: Berg.

Yoe, C. (2019). *Principles of Risk Analysis, Decision Making Under Uncertainty.* CRC Press.