

**James Relf**  
**ID: 001055894**

Supervisor: **Tom Cole**

**An Investigation into the Effectiveness of Using Deep Games as a Learning Vehicle for the  
Human Experience**

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## **ABSTRACT**

Video games are effective vehicles of learning as they facilitate a space for new experiences and reflection of said experiences (Barach, 2021). Deep games are a branch of video game, not about entertainment but more so about communicating the human experience through gameplay and imprinting those experiences on the player (Rusch, 2017). Therefore, the aim of this project is to measure the effectiveness of deep games as a learning vehicle for the human experience. To achieve this aim, a product, set in the context of the Russian Revolution 1917-1923 and will specifically focus on the lives of peasants living during the famine of 1921, was iteratively created and tested, where the data from the testing was gathered qualitatively. Furthermore, the data gathered was analysed using thematic analysis to draw accurate conclusions. Moreover, to ensure the integrity of the research legal and ethical issues have been considered including, the use of personal information and the data extracted from research, as well as creative commons licenses when using third-party assets. Analysis of the experiences of all participants demonstrated that to a greater extent deep games are effective learning vehicles for the human experience.

## **PREFACE**

This dissertation has been written to fulfil the graduation requirements for the Games Design and Development BSc course at the University of Greenwich in London. Due to the specification of this course, the dissertation also complies with the British Computing Society accreditation requirements and the National Qualifications Framework. This dissertation was written from January to April 2023.

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# 1 INTRODUCTION

## 1.1 Background

Deep games are about conveying something more than just facts to the player, they are games with purpose and meaning that give the player a lens into a human experience and make that experience tangible through gameplay (Rusch, 2017). A human experience being what it means to be human (Rusch, 2017). An example of a deep game is *Papers, Please* (3909 LLC, 2013). *Papers, Please* can be defined as a deep game because it is a game that exhibits the human experience of automation and making decisions that are never clear cut, right or wrong; it is about boring, menial labour and making difficult choices. Furthermore, it is also about oppressive regimes and what it is like to live under them. The context these themes are set in is, as presented in game, the player being a border immigration officer in an eastern bloc-like country, set in the 1980s. The gameplay consists of the player monotonously checking documents, frequently making difficult choices about what happens to characters they meet and supporting their family. These things are closely linked as doing the “right” thing for a character might not always work out as the “right” thing to support your family. Hence, *Papers, Please* is a deep game where small decisions could have a massive impact on not only themselves and their families, but the world around them too.

The context of this human experience is set during the Russian Revolution 1917-1923 and focuses on the lives of peasants who suffered during the famine of 1921. The famine was primarily caused by War Communism, a group of policies that were designed to mobilise the failing industrial and agricultural industries of Russia (Smith, 2002). These policies caused a famine in the summer of 1920 and it is estimated that 6 million people died from not only starvation but scurvy, dysentery and typhus (Smith, 2002). The questions that can be facilitated in a deep game by means of critical play are: how are people able to survive the famine; and why is survival important. Critical play means to create play environments and activities that represent one or more questions about aspects of human life and will provide the player with an essential viewpoint (Flanagan, 2009). In this instance, the player will be provided with an essential viewpoint to of the victims of atrocities and their lives. Furthermore, a game is also able to answer these questions and enable the player to retain these answers, as they facilitate deep reflection and learning whilst imprinting experiences of the lessons learned (Barach, 2021). Moreover, games are a highly appropriate vehicle for triggering and supporting reflection (Khaled, 2018). Reflection is important because it enables a deeper understanding of what can be learned from each experience (Kolb, 1984). Typically, game play is essentially a process of learning, in which players interact with the game to learn rules and play strategies, then adapt and improve play skills to make progress in the game (Lindley and Sennersten 2008). However, the type of learning that this research is investigating, is the player using game play to learn about the human experience; the game play itself is

a vehicle for learning. Therefore, the aim of this research is to investigate the effectiveness of deep games as a learning vehicle for the human experience, with immense suffering and survival as the human experience to learn about, the context of which is to be set during War Communism.

Using techniques uncovered by this research, metaphors (Rusch, 2017), to exhibit real stories from peasants living during the times of War Communism in a short series of mini-games, this research will be evaluated through participants who have played the mini-games for a specified period or until the mini-games' completion. Data from the participants will then be gathered qualitatively due to this being an effective method to understand the human experience (Silverman, 2021). The data will then be analysed using thematic analysis to measure the effectiveness of using deep games as a learning vehicle.

## 1.2 Aim and Objectives

The aim of this project is to measure the effectiveness of deep games being used as a learning vehicle for the human experience. To measure this, the following objectives must be achieved:

- **Objective 1:** The production of a literature review. This will be done through means of researching; deep games to provide a definition of what a deep game is, how to create one and how deep games can be used to teach and make players think about something other than facts; how games (not serious games) can be used as learning vehicles and the qualities of a product that enable learning; the famine of 1921 and the people who experienced it. The literature review will provide context for the final product and can also be used in the evaluation stage of the project, as a marker the participants answers can be compared to.
- **Objective 2:** The production of a requirement analysis for the prototype and final product. This can be done by investigating and evaluating existing deep games through means of breaking down said games to their core themes, to understand how the mechanics and systems work in game, and what features of the game characterise said game as a deep game. Existing deep games that will be investigated include Papers, Please, Dys4ia (Newgrounds, 2012) and Shadow of the Colossus (Sony Interactive Entertainment, 2005). The requirement analysis will take the form of must have, should have, could have, won't have (MoSCoW) and will feature mechanics and systems from the aforementioned games.
- **Objective 3:** The further production of a requirement analysis with the identification of appropriate evaluation methods to ensure the testing phases, of the prototype and final product, yield data that can be used to evaluate and enhance the product in its purpose as a learning vehicle. This can be achieved through the development of a questionnaire, which will be informed by research into qualitative or quantitative data gathering methods, as well as practice-led research through the testing of small prototypes.



- **Objective 4:** The use of the literature review in objective 1 to form mechanics that will provide the foundations for the mini-games and use of the requirement analysis in objective 2 to produce a working prototype that has been tested, using the testing methods developed in objective 3. This will ensure that the systems in the prototype are suitable and effective for the final product. The product will be tested and evaluated in a continuous 2-week cycle of development and testing. This will provide a concrete foundation that the final product can be developed from.
- **Objective 5:** To produce and develop a deep game containing the mechanics derived from using a specific viewpoint to show a certain part of a certain system, which happens at a certain time and place, to teach the player something more than just facts. This can be achieved by using the literature review in objective 1 to place the final product in the context of the famine of 1921. The mechanics and systems the final game will use will be formed by using the results from testing the prototype product. The final game will undergo a continuous 2-week cycle of development and testing, like the prototype. At the end of the final testing phase a final product will be complete and ready to be played and evaluated.
- **Objective 6:** To produce an evaluation of the final product using the questionnaire developed in objective 3. This can be done by selecting a group of people to test the final product and then collecting data from said group of people about what they learned when playing the game. The data will then be recorded and used for analysis of the final product which will show to what extent did the final product has achieved the aim of measuring the effectiveness of deep games as a learning vehicle.

### 1.3 Methodologies Used in the Project

One of the methods, used in this investigation, for gathering qualitative data is instant messenger interviews (IM). IM allows for the investigation to reach a wider, potentially worldwide, audience of people through the internet as well as providing full anonymity for participants, allowing for good ethical research practice. Another advantage of using IM is that all answers from the participants are already in a text format meaning, time spent transcribing the interviews will be dramatically decreased. However, there are some disadvantages of using IM. For example, emotion and body language cannot be observed and so this data is lost. Furthermore, the interviewer must wait for the typing process indicator to before starting to type to avoid interrupting the participant (Cole and Gillies, 2022). Overall, IM is an effective research methodology as it allows for the researcher to reach a broader audience whilst anonymising all participants, meaning that a more complete data set can be obtained which leads to a more concrete evaluation.

Another method used in this investigation is thematic analysis (TA). TA provides allows the researcher to identify, report and analyse themes within data (Braun and Clarke, 2006). This is useful as the IM

interviews cannot be easily quantified without the loss of important data and so TA allows the researcher to be flexible when looking for themes in the interviews. The themes capture important parts of the interviews allowing the data to be easily broken down and used as part of an evaluation. The types of themes that are used in this project are semantic and are only looking at the surface of the dataset due to the loss of the participant emotion through IM. Overall, TA is a useful method for analysing the IM interviews as it allows the researcher to flexibly break the interviews down into themes that allow for useful analysis without losing valuable data.

## 1.4 Overview of report

The subsequent parts of the report contain; a **literature review** which aims to provide context and understanding of the topic area, justification as to why the topic is worthwhile and the best ways to achieve an effective product; a **review of other products** which aims to provide examples of how other games have used the techniques discussed in the literature review to demonstrate an effective product; a **requirement analysis** based off the product review which aims to provide a complete list of requirements, in the form MoSCoW, that must be met to make an effective final product; the **design of the game** section discusses the iterative design process and design influences of the final product; the **development of the game** section documents the development of the final product and explains how the final product is using the techniques discussed in the literature review to make it an effective product; **legal, social, ethical and professional issues** section discusses whether the project would be impacted by said issues and what can be done to mitigate any problems; an **evaluation** that discusses and reviews the final product and results from testing; a **conclusion** that summarises key thoughts about the project. There is also an **appendix** which contains full documentation of the project as well as the full set of data from the results of the final product.

## **2 LITERATURE REVIEW**

### **2.1 Introduction**

This literature review gives key context to the issues that are raised by this problem. The first issue is deep games, how they create meaningful experiences, what they are and how they can be created. The sources on deep games come from Doris Rusch, Mary Flanagan and Rilla Khaled. The second issue raised by this project is learning, what constitutes meaningful learning and how it can be applied to games. The sources for learning are from David A. Kolb and Paul Barach. The third issue is what were the human experiences for Russian peasants during war communism and the famine of 1921. The sources for war communism are S. A. Smith and Orlando Figes. The fourth issue is how qualitative data can be used to collect data and measure how effective the learning of a participant. The source for qualitative research is from David Silverman, Jane Agee, Virginia Braun and Victoria Clarke.

### **2.2 Deep Games**

#### **2.2.1 Making Deep Games: Designing Games With Meaning and Purpose – Doris Rusch**

Video games have many genres. The names of these genres describe the type of gameplay that the player will find in the game. Deep games, however, is a genre title that tells the player that the gameplay has deep meaning. Doris Rusch (2017) defines deep games to be games that encapsulate the human experience and make said experience tangible through gameplay. Meaning, any deep and intricate thoughts and feelings humans have throughout life – hope, despair, loss, joy, anger, survival – can be represented through gameplay. For example, Rusch uses game design as a vehicle for self-expression and self-exploration. This results in an intensely personal experience that may contain nuanced details the player will inevitably be uninterested in or miss entirely. Therefore, it is important that the game contains insightful and transformative moments, to ensure those nuanced details do not go missed and that the player can understand and empathise with the game. This constitutes a deep game.

Deep games are the ideal medium to represent the human experience of peasants surviving the famine of 1921. Questions such as: can people survive in a famine; how do they survive; and what does it take? These can be facilitated and answered in a deep game. Rusch states that Games enable communication of deep messages; they can make someone think and feel deeply. However, the factor that separates games, from the other forms of media, is that in a game the player embodies part of the narrative too. Deep games facilitate a world where the player is constantly thinking and learning about the game environment and so they are ideal for use in this project.

Rusch states that the first place to start is with the theme. The theme is the most direct route to the essence of the topic and therefore provides inspiration for deep game ideas. However, due to the usually broad and vague nature of themes, a theme needs to be dissected into the elements of its abstract structure for it to be turned into gameplay mechanics. Identifying the theme in its abstract structure is the first step to designing a deep game and can be done by consulting with the *Inner Game Designer* (IGD). The IDG is a method for provoking deeper search and thought into the theme, asking, why? Until there is a structure of elements that makes up the theme. The next step is to represent those elements in the gameplay mechanics. Rusch states that this is accomplished using the tool of metaphors. To be effective, a metaphor needs to encapsulate the meaning of the theme through precise and coherent representation of the elements that make up the theme. This is what Rusch defines as a multidimensional, structural metaphor. Rusch gives an example of such a metaphor through the theme of *life is a mess*. The concept of mess is broken into dimensions – participant, parts, linear sequence, stages and purpose – that can be derived from physical reality. The participant: the person in the mess. The parts: a messy apartment. The linear sequences and stages: the mess builds up increasingly; the breaking point of the person in the mess; the clean-up or attempted clean-up. The purpose: to clean up the mess whilst tackling the conflict of the desire for change but it requires the completion of an overwhelming task. This example maps all the dimensions of a metaphor to physical constructs and shows that metaphors will only work if they are used to make sense of the theme and are not just arbitrary. Therefore, to design a deep game, Rusch states that a theme must be broken into its elements and structured metaphors are the tools used to represent those elements in the design of gameplay mechanics.

### **2.2.2 Critical Play: Radical Game Design – Mary Flanagan**

Similar to deep games, critical play is built on the idea that games have the potential to represent themes in their mechanics and systems that are deep-rooted and meaningful. Critical play is defined by Mary Flanagan (2009) as play environments and activities that represent one or more questions about the aspects of human life. The questions the game mechanics ask could be abstract questions, what is the purpose survival? Or what does it mean to feel alive? Or concrete questions, why did Lenin impose War Communism on Soviet Russia? How did people survive War Communism in Soviet Russia? This provides an essential viewpoint that allows the user to critique certain aspects of the game's mechanics and what those mechanics could represent. Critical play is characterised by careful examination of social, cultural, political and personal themes. A part of this project is to focus on a social and political theme of people surviving the famine. Therefore, according to Flanagan, critical play aims to provide a framework for designers, to design a game that provides a viewpoint from where the gameplay mechanics can ask and answer specific questions, to invoke meaningful play for the player.

### **2.2.3 Questions Over Answers: Reflective Game Design – Rilla Khaled**

Part of the aim that this project has is the player learning about a specific experience, which prompts the question how can this be implemented in the design of the final game? The answer is reflection. Rilla Khaled defines reflection as the mental process that occurs when previous experience is no longer an effective tool to deal with new encounters. This makes games a highly appropriate vehicle for reflection as throughout a game, such as *Shadow of the Colossus*, the player is consistently put into different boss encounters where upon killing the boss the player is shown a cutscene of the boss' death, forcing the player to reflect upon their actions. However, reflection in this case is used to improve the player's skill in the game, whereas Khaled is posing that reflection can be used to evoke meaning, judgements, propositions, belief, opinions or feelings from the player. Khaled points out that critical thinking is part of reflection, but what is usually meant is critical reflection, which is an interrogative process where someone will critically assess the validity of their presuppositions on how their beliefs and problems are posed or defined. Critical reflection enables a player to question the meaning of their in-game experience to gain a deeper meaning.

Khaled's methodology for implementing critical reflection into a game is three-fold; clarity over stealth, in focusing on design that promotes clear and intentional learning rather than accidental learning, a player will understand how and why they learned something and can reflect upon this by contrasting their game-derived knowledge with knowledge used in daily life; disruption over comfort, games that are disruptive by challenging a player's status quo create opportunities for players to be thoughtful and create memorable moments for players to reflect upon; reflection over immersion, reflection is not about escapism but revisiting previous beliefs with a high degree of self-awareness, this requires a game to acknowledge or even break the "fourth wall" to a certain extent to allow active interpretation from the player.

For a game to effectively make a player ask questions, the game must demand self-awareness, action and individual agency from the player and conscious learning. Therefore, the game that empowers the player to commentate and take ownership of their own experience has effectively implemented critical reflection.

## **2.3 Learning in Games**

### **2.3.1 Experimental Learning: Experience as the source of learning and development – David A. Kolb**

The learning that a player will experience in a game, takes place within the different stages or levels of a game. A form of learning that can aid this is experimental learning. Experimental learning, as defined by David A. Kolb (2014), is a form of learning that focusses on learning from life experience as opposed

to traditional learning which commonly takes place in a lecture or classroom. Experimental learning is based on a person's experiences which are observed and reflected upon, by the person, to form abstract concepts, beliefs and generalisations. Those abstract concepts, beliefs and generalisations are then tested in new situations, where new experience is gained and the cycle repeats. Kolb defines that experience is at the centre of experimental learning, as an experience gives life, texture and subjects personal meaning to abstract concepts whilst simultaneously providing a concrete reference point to test and validate said abstract concepts. Therefore, through enabling the player to have different experiences within the different stages of the game that trigger reflection, formation of concepts and testing of the new concepts, the player will obtain sufficient learning from the game.

### **2.3.2 Designing and integrating purposeful learning in gameplay: What will it take to ensure sustainable learning and effectiveness outcomes? – Paul Barach**

Paul Barach (2021) states, games can be powerful vehicles of learning as they provide fun and facilitate deep reflection and learning whilst imprinting experiences of the lessons learned. The key to sustain learning in a game is reflection. Games that provide as much time for reflection as they do the gameplay are effective in enabling the player to sustain the knowledge they have gained through play. Furthermore, requiring the learner to retrace their experience of the game through the questions of what happened, what did you see, how did it make you feel, what did you experience, did it evoke memories or previous learning experiences, inspires the player to have more reflective insights of the game. But, the learning that Barach is discussing is more related to the player learning the systems of the game to improve their skills at the game, rather than the systems being tool themselves to teach the player about a human experience. However, reflection is tool that supports learning, regardless of what learning is taking place; as Barach states, games that enable reflection within its systems, facilitate deep learning.

## **2.4 The Famine of 1921**

### **2.4.1 The Russian Revolution: A Very Short Introduction – S. A. Smith**

The human experience that this project is focussing on is living and surviving through the famine of 1921 as a rural peasant. Therefore, an understanding of how this famine occurred is needed. S. A. Smith's The Russian Revolution is being used in this report. War Communism can be seen as a major cause of the famine. Smith defines war communism as a series of policies set in place to mobilise industry and agriculture to meet the needs of the ongoing civil war. Some the policies that affected the rural peasants included grain requisitioning, military style discipline on workers and rationing of essential consumer items. The policy that majorly affected the rural peasants was grain requisitioning, where the government, by force, would take a percentage of grain, or other agricultural product, produced by farmers. This was worsened for the peasants as the loss of Ukraine, the poor conditions of the railway transportation and profiteers, who abused the system to charge excess prices for grain

causing high inflation, forced the Bolshevik's main concern to become the food supply. This meant that a tighter grip of the food supply was needed and actions to enforce this included a 'food dictatorship', where any surplus of grain produced, over a certain percentage, was to be requisitioned too. An estimated 6 million peasants died, not only from starvation but from scurvy, dysentery and typhus.

#### **2.4.2 A People's Tragedy: The Russian Revolution 1891-1924 - Orlando Figes**

The peasants suffering during the famine was enormous. Orlando Figes describes, in *A People's Tragedy*, the peasants suffering and what their environment was like during the famine. Skeletons of adults and children lay down in the streets. Many villages were abandoned as the people living there packed up their things and made their way to train stations to get to the nearest town in search of food. Figes states that hunger turned some people into cannibals. Cannibalism was a common phenomenon during the famine; mothers boiled the flesh of corpses to feed their children; one man caught for eating children confessed that there was a cafeteria in his village that served children; there were also cases of parents killing their own children, usually the daughters, to feed to their family. Figes also states that cannibalism was more than just acts of moral depravity but was also acts of compassion. Many people who saw their relatives dying would be driven to do anything and legitimise it. Many cannibals created moral codes which justified eating the flesh of the dead, 'the soul has left the body, which now remains as food for worms in the ground'. Figes presents accounts of peasants who were left in dire circumstances, where many died and some resorted to cannibalism. It is through these accounts that we can contextualise the extent of these peoples' suffering.

## **2.5 Qualitative Research**

### **2.5.1 Qualitative Research 5<sup>th</sup> Edition – Edited by David Silverman**

Qualitative research allows for research to find out about people's experiences on a more personal level. David Silverman defines the aims of qualitative research to be understanding the human experience; treating interviews and focus groups as providing direct access to the content of people's heads; foregrounding the empathetic skills of the researcher. This is useful for understanding a person's experience of a deep game, when asking open-ended questions that are difficult to quantify. For example, a player's understanding of the complex mental conditions of the people going through war communism are different to their understanding of facts and statistics about war communism, the former requires a more detailed answer to fully understand, one that would be difficult to quantify. Silverman also states that qualitative research strives for finding subjective meanings. This is useful because deep games use metaphors as their mechanics which can have subjective meanings and depends on the player's point of view. Therefore, qualitative research allows for the player's understanding of a deep game to be documented and used in an evaluation of the deep game.

### **2.5.2 Developing Qualitative Research Questions: A reflective process – Jane Agee**

One of the main methods of conducting qualitative research is through asking questions to player in interviews. Jane Agee states that the best way to structure a question is to ensure it is clearly stated and overarching. This ensures that there is potential for developing new, more specific questions throughout the process of the interview. This is useful as it allows a complex answer from the participant to be broken down into concise points that can be more effectively analysed.

### **2.5.3 Using Thematic Analysis in Psychology – Virginia Braun and Victoria Clarke**

Thematic analysis offers a flexible approach to analysing qualitative data. Thematic analysis according to Braun and Clarke is a method for identifying, analysing and reporting patterns within data this makes it especially useful for analysing qualitative data that discusses what a person learnt and how it impacted them. According to Braun and Clarke one of the most important parts of thematic analysis is the use of themes. Themes are something important about the data that relates to the research question and represents some level of pattern or meaning within a response. Themes can be semantic or latent; semantic themes are identified at the surface of the dataset; latent themes are identified as conceptions that make up the semantic part of the data. As to what counts as a theme, that is down to the researcher. Braun and Clarke state there is no hard answer such as if a theme occurs 50 percent of the time, then it counts but anything below 50 percent does not count. Therefore, it is important that thematic analysis is performed thoughtfully.

To do this Braun and Clarke demonstrate a six phase process to follow; the first step is to familiarise yourself with the data by reading and re-reading or transcribing the data if necessary whilst noting down initial ideas; the second step is to generate codes within the dataset and collect data relevant to each code; the third step is to collate each code to a potential theme and gather all the relevant data to a potential theme; the fourth step is to review whether the data or the theme is potentially problematic, then review the theme against the dataset to develop a thematic map of analysis; the fifth step is to refine the specifics of each theme and to generate clear definitions and names for each theme; the sixth step is the use of a selection of compelling extract examples to relate back to the analysis and literature in a final report.

## **2.6 Key Elements to Use in the Design and Implementation**

The elements of this literature review that are key components in the design and implementation of the final product include the following:

- **Deep Games:** The foundation for this project is deep game as they allow games to be created with meaning and purpose. This is especially useful for breaking down the accounts of peasants' lives that are stated in **section 2.4.2** to create metaphors, to shape the gameplay mechanics of the final product.



- **Critical Play:** Critical play allows the developer to provide an insightful viewpoint to the player to ask and answer questions to provide meaning to the player.
- **Reflection:** Reflection can enable a player, to learn about an experience, by encouraging introspectiveness from the player. Disruption can also cause reflection, leading to meaningful gameplay.
- **Experimental Learning:** This framework to enables the player to learn more than just the mechanics of the game, but what the mechanics mean. This means that aspects of the game are designed to trigger the player to test prior knowledge and reflect on the outcome which enables learning.
- **The Famine of 1921:** S. A. Smith and Orlando Figes provide a background for the suffering of the Russian peasants which provides a frame and content for the design of the final product.
- **Qualitative Data:** The that is collected by this project is qualitative as it allows for the analysis of subjective data via Thematic analysis.

## 2.7 Conclusion

In conclusion, all sources included in this literature review are useful however there are some limitations. For example, though the accounts of the peasants are presented as they are, the arrangement and selection are under the influence of the designer. Another limitation is feelings of the peasants. The exact thoughts and feelings of the peasants remain largely unknown. Therefore, the designer needs to fill in the blanks using their own interpretation. Another limitation of this literature review is that in the time available the number of sources reviewed is limited, meaning that the final product created will not be as complete as it could be, given more time.

## 3 REVIEW OF DEEP GAMES

### 3.1 The Review Criteria

Based on the literature review the criteria for the product reviews are as follows:

- **Use of metaphors:** Doris Rusch states that the mechanics of deep games are metaphors of the elements that make up the theme of the game. Therefore, this criterion that a game will be reviewed upon will be its use of metaphors, if any are present.
- **Use of reflection:** Rilla Khaled proposes that if a game wants to be meaningful, then a way to achieve this is by using reflection. Mary Flanagan also expands on this with the critical play framework which implements questions into gameplay mechanics that the player will ask and answer themselves through play. This further encourages reflection. Therefore, this criterion will assess the games' use of reflection if any is present.
- **Use of choices:** Rilla Khaled also states that to implement reflection the player must be given choices to make, where there are no clear-cut solutions. David A. Kolb supports this with his framework of experimental learning, where part of the process is testing hypothesis based on prior knowledge. Therefore, this criterion assesses the games' use of choice if any is present.

It is important to note that only one of the above criteria needs to be met for a game to classify as a deep game.

### 3.2 Dys4ia – Anna Anthropy

Dys4ia by Anna Anthropy is an autobiographical game about her experiences with hormone replacement therapy. The gameplay consists of 4 levels that are based on Anna's perceived stages of hormone replacement therapy. Each level contains sequential mini games that describe Anna's mental and physical experiences.

#### 3.2.1 Metaphors

The use of metaphors is present throughout the game and can be seen whenever Anna is describing her feelings. This makes the game more meaningful as it allows insight into a completely private part of Anna's life. For example, the first mini game of the first level involves the player needing fit a strange shape into a gap in a wall. The shape will only fit with some finicky manoeuvring but when it fits, some text will then pop on the screen stating, 'I feel weird about my body'. It is then clear that the strange shape is Anna, and the wall represents societal norms. Overall, Dys4ia fully utilises metaphors like this, to create more meaningful and personal experience for the player, which presented in the game from start to finish.

### **3.2.2 Reflection**

Reflection in Dys4ia is when the game is disruptive. Dys4ia has many memorable moments what the player is made to feel uncomfortable. For example, one mini game that can evoke uncomfortableness is the “nipples” mini game. In this minigame text is displayed atop the screen that reads “My nipples are sensitive”. The player is then tasked with moving a pair of nipples out of the way of “irritants”. This is reflective gameplay as it gives the player insight to a specific experience that they can relate to their own real-life experience if they’ve had one.

### **3.2.3 Choice**

The only choice Dys4ia offers the player is which level to play. Other than that, the player receives little choice when completing mini games. However, this makes sense due to the game being a personal experience of Anna, so any choice that the player makes of their own volition would work against the game delivering meaning to the player, as that experience is no longer accurate to Anna’s.

## **3.3 Papers, Please – 3909 LLC**

Papers, Please is a game that exhibits the human experience of automation and making decisions that are never clear cut, right or wrong; it is about boring, menial labour and making difficult choices. Furthermore, it is also about oppressive regimes and what it is like to live under them. The gameplay consists of the player being a border immigration officer in an eastern bloc-like country, set in the 1980s. The Player checks documents, which gets more complicated as the game goes on.

### **3.3.1 Metaphors**

Metaphors have limited use in Papers, Please as all the deep themes are instead represented literally rather than metaphorically. Papers, Please represents the theme of the monotony of working under an oppressive regime, which is presented literally as the player continuously checking documents which gets increasingly more complicated as the game goes on. Although the themes present in Papers, Please are not represented metaphorically, they are still represented literally and create meaningful gameplay.

### **3.3.2 Reflection**

Papers, Please provides enables reflection for the player throughout gameplay. At the end of an in-game day, a screen is shown to the player of how much money they have earned and what their money will go towards. This gives the player a break from a constant cycle of checking documents to reflect on what just happened throughout the day and consider the choices they made. Therefore, Papers, Please enables reflection by placing the player in an environment that unravels itself as the game progresses, and for allowing down-time at the end of each in-game day.

### **3.3.3 Choice**

The meaningful choice the player has in *Papers, Please* is vast. For example, the player can choose to let a sex trafficked woman pass through the border as her documents are correct. The woman wants to be denied entry, so she has a chance to escape. However, if the player denies her, they will lose money which they need to support their family. These moral choices are constant throughout the game where doing the “right” thing for a character might not always benefit the player. This type of choice is meaningful as it forces the player to act on the basis that there is no correct choice, only a choice that will impact the self or those around.

## **3.4 Shadow of the Colossus (2018) – Team Ico**

*Shadow of the Colossus* is a game about an adolescent who journeys to a forbidden land to save the woman he loves. In this forbidden land the young man finds an ancient entity who will revive the woman he loves but at the cost of slaying 16 Colossi. Each enemy resides in a different part of the game world and the player must journey their way to killing each enemy in a specific order.

### **3.4.1 Metaphors**

The meaning behind *Shadow of the Colossus* is ambiguous but vast. This provides a template for the player to provide their own meaning. The metaphor, this report uses, is as follows: the danger of refusing to accept loss. The player represents a person refusing to accept the loss of a loved one. The game world represents the mind of the person refusing to accept loss. The Colossi represent pillars of the mind each one holding up a separate corner. The actions of the player represent a person self-destructing, which only releases inner demons that will cause the person to hurt others around them as well as themselves. The metaphor used by this report is less convincing however the game provides a template for metaphors to be projected onto by the player. Thus, creating gameplay that is meaningful and deep.

### **3.4.2 Reflection**

*Shadow of the Colossus* fully utilises reflection to create meaningful gameplay. For example, the process of killing a Colossus then going back to the starting area then finding the next Colossus is an entirely reflective process. The process causes the internal conflict of killing something seemingly “good”, to revive a loved one, making the player constantly question their actions throughout the game. This process is repeated 16 times. Therefore, *Shadow of the Colossus* utilises reflection to morally conflict the player to create meaningful gameplay.

### **3.4.3 Choice**

*Shadow of the Colossus* also gives the player some choice, but it will never change the outcome of the game. If the player feels like delaying the inevitable due to their internal conflicts, they are not on a timer to kill all the Colossi. Instead, the player can go off exploring throughout the world. However, the

only way for the player to complete the game is to kill all Colossi. Therefore, Shadow of the Colossus does give the player some choice in that they can reflect on their experience by choosing to just explore. But overall, choice is limited as the only way to complete the game is to kill all Colossi.

### 3.5 Key Elements to Use in the Design and Implementation

Through the reviews of other deep games, there are many things that can be considered in the design and development of the final game:

- **Dys4ia:** Dys4ia is structured in such a way that allows short gameplay scenarios to carry lots of meaning. This is useful due to the short timeframe of development for the game which won't allow for the development of a game that is longer than 10 minutes. Dys4ia also has an effective balance of gameplay mechanics that are metaphorical and literal in meaning. This is useful as it will allow the player to obtain the view of the physical actions of the peasants during war communism and their feelings whilst doing the actions. Dys4ia additionally has a simplistic visual style which is useful for the final game as it will allow for quicker design of visuals.
- Papers, Please offers the player meaningful choice throughout the game. This is something that should be implemented in the final game as it would give the player a more personal experience and could offer a wider range of data from players.
- Shadow of the Colossus uses reflection as a mechanic for the player to obtain deep meaning from the game. This can be used in the final game to the same effect allowing for players to be actively interpreting whilst playing the game.

## 4 REQUIREMENTS ANALYSIS

### 4.1 Description of the Game

The game depicts a day in the life of a Russian peasant family trying to survive the famine of 1921. The game is 2D, consists of 2 levels, each level contains 4 – 6 minigames, each minigame lasts 5 – 30 seconds. The levels are themed after each family member, the dad and the mother. The minigames are structured so that there is a mix of minigames that portray the emotions, feelings and thoughts of the characters, this is represented metaphorically, and minigames that represent the physical actions of the character, this is represented literally. All things represented in the game are influenced by **section 2.4.2**.

### 4.2 MoSCoW

The following is a table of must have, should have, could have and won't have of features that will make up the final product:

#### 4.2.1 MoSCoW

- **Must have:**
  - Title screen.
  - Menu screen.
  - 2 levels. (Originally 4)
  - 10 minigames lasting 5 – 30 seconds. (Originally 25 – 30 minigames)
  - Some minigames have metaphorical meaning.
  - Some minigames have literal meaning.
  - Simplistic visual style. (Originally 8-bit)
  - Ambiguous gameplay (not all levels).
  - Metaphors.
  - Reflection as disruption and critical play.
  - Transition scenes.
  - Sound (moved after testing)
  - Credits.
- **Should have:**
  - Background sound.
  - Some meaningful choice in some minigames.

- **Could have:**
  - Text (minimal).
- **Won't have:**
  - Multiple endings.

### **4.3 Conclusion**

The requirements list may change depending on how the development process evolves. For example, some mini games will be cut reducing the overall length of the game. However, measures have been taken to reduce development issues, this includes using a simple visual style and only one ending to each character. Overall, the list of requirements is manageable, and the final product will be completed upon a completed must have section.

## 5 THE DESIGN OF FAMINE, 1921

### 5.1 Initial design and the Main Design Influences

Initially the game was set to be a series of short mini games depicting the life of a family living during the famine of 1921. The family was to consist of a Dad, Mum, daughter and son where each character has their own set of minigames. The core concept of the game was to demonstrate the immense suffering people during this time experienced.

#### 5.1.1 Design Influence – Dys4ia

The overall structure of the game was heavily influenced by Dys4ia. Figures 1 and 2 show the similarities between the structures of both games. The minigames structure was used for Famine, 1921 it would allow dense subject matter to be evenly spread throughout a game, without being overly complicated to make.

The use of text in Dys4ia is particularly important as the text, most of the time, is describing how Anna Anthropy is feeling during the level. This was used in Famine, 1921 to not only provide description of the characters feelings but also bridge the gaps between the levels to make the narrative of the game more cohesive.

The minigames in Dys4ia tell the story of Anna Anthropy's experience of transitioning and are in chronological order. This heavily influenced Famine, 1921 as the Dad and Mum's stories shown in the minigames are told in chronological order. This design choice was made because the game is showing "a day in the life" of a peasant family, with the change of playing the levels in either order.

The major differences between Dys4ia and Famine, 1921 are the art styles and the use of colour. This is because the tone of Famine, 1921 is morbid and so a bright colour pallet would not reflect the absolute misery the characters are feeling. The visual style in the MoSCoW list in **section 4** has been changed as an 8-bit style was not achievable. Adobe Illustrator (2023) was used to create a simplistic visual style instead, see **appendix b**.



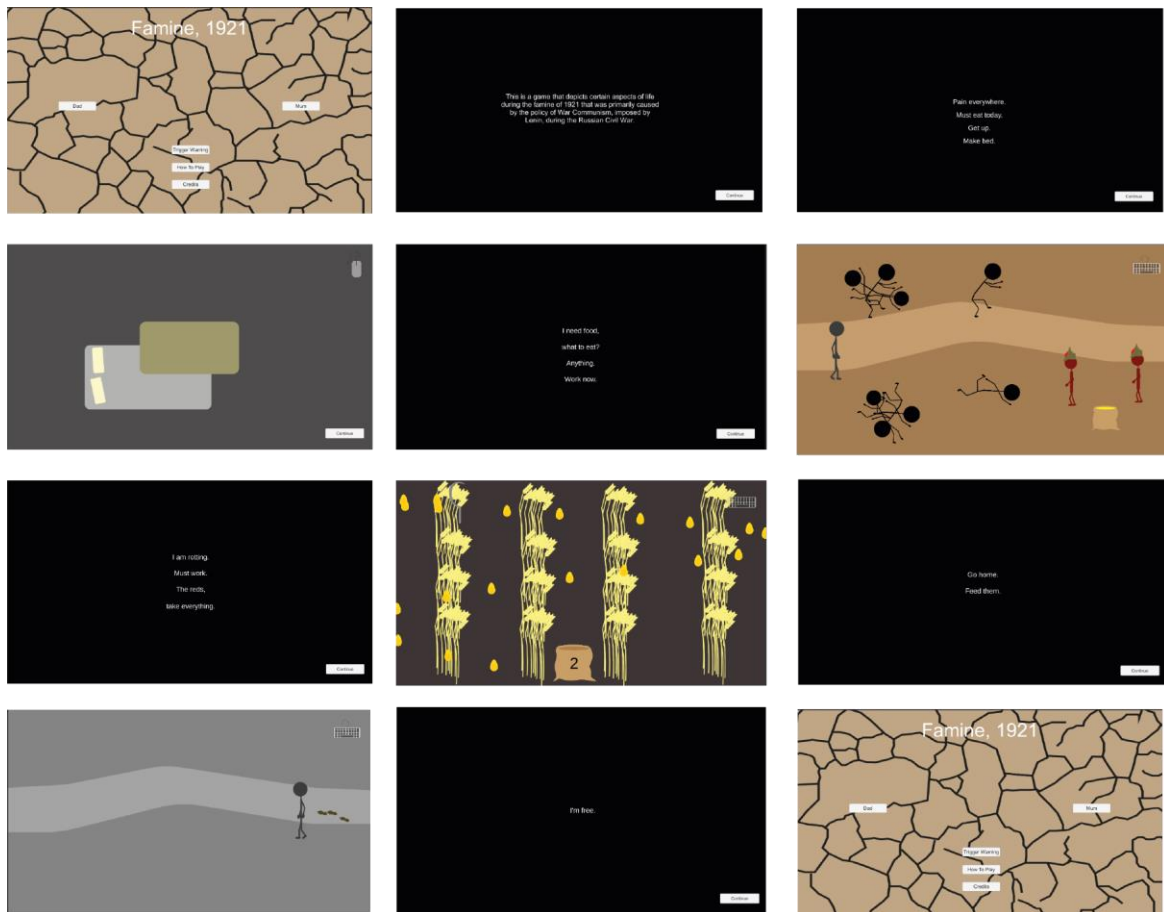


Figure 1:Dad level.



Figure 2:Dys4ia level 2

### 5.1.2 Design Influence – Making Deep Games

Another major design influence was Doris Rusch's *Making Deep Games* (2017), where using metaphors to design gameplay mechanics enabled the thoughts and feelings of the Russian peasants during the famine of 1921 to be at the centre of the gameplay. For example, as seen in figure 3 below is the *candle* minigame from the mother's section of minigames. This minigame uses the metaphor of a candle burning down that can be snuffed out at any point, to represent the mother's choice as to whether she wants to kill her daughter to spare her daughter the pain of living as well as getting to feed herself. The context of the metaphor is based on **section 2.4.2** of this report. Furthermore, the level's background shows a dark and mouldy green representing the terrible conditions of the houses the Russian peasants lived in.



Figure 3: *comfort minigame*.

### 5.1.3 Design Influence – Critical Play

Critical play by Mary Flanagan also influenced the design of the game to a certain extent. For example, Critical Play was used to ensure the gameplay posed abstract or concrete questions to players. Figure 4 shows the *grain-catcher* minigame shows the futility of the Dad's situation by disallowing the player to catch more than 2 pieces of grain, leaving the player questioning the point of the family's existence.



Figure 4: grain-catcher minigame.

#### 5.1.4 Design Influence – Critical Reflection

Rilla Khaled's Critical Reflection allowed players to obtain deeper meaning and knowledge from the game. This also links with Paul Barach's ideas that reflection is a major tool for games as it enables deep learning for the player. Reflection was incorporated into gameplay as disruption. Figure 5 shows the *lie* minigame where the player is forced to lie to their daughter whilst simultaneously tying her up. The disruption in the level comes from the player being forced to lie to a malnourished child.



Figure 5: lie minigame.

## 5.2 The Design Process and Iterative Testing

The design process for the minigames took influence from Making Deep Games and used the *Inner Game Designer* (IGD) to break down the topic into themes that can be used to create the multidimensional metaphors used in *Famine, 1921*. For example, the *candle* minigame in figure 3 uses a burning candle attached to the head of a child to represent the theme of *life is burning out fast*. The dimensions of the theme are – the participant, parts, linear sequence, stages and purpose. The participant is the mother who is considering killing out of kindness. The parts are a burning candle attached to a child's head. The linear sequence and stages are candle starts tall but is burning; candle is reducing quickly; a decision must be made before it is too late; the breaking point of the Mother to make a decision; the decision is made; the candle is snuffed, or the candle burns out. The purpose is to save a young child from unnecessary pain, potentially providing food for yourself and your partner, whilst tackling the conflict of the need for something better for your child but it requires you to kill that child. By using the IGD to break down the topic into themes, the *candle* minigame was able to use one of the themes to create deep and meaningful gameplay. The IGD was not only used for the *candle* minigame but all other minigames as well, see **appendix b** for more examples.

The first and second phases of user testing showed that most players understood the core of the game and what it was trying to show. However, certain aspects of visual detail were unclear or completely misunderstood. The red guards in the *walking to work* minigame were completely misinterpreted by some players who didn't realise they were guards. To solve this, historically accurate hats were added to the sprites to make them more guard-like. Another design issue was due to the lack of visual information, certain details were being lost. One player didn't understand that the Dad eats the bodies when he walks over them. This was caused by the minimalistic visual style and lack of animation. To solve this, audio was added into the game, which gave the game another layer of depth and filled some visual holes. Another design issue was that some players didn't understand the goal or even why there was a famine. This was due to the lack of context the player was given. This was solved by adding a text screen to the start of the game that gives the player the context they need to build a base for their learning. Overall, the design of the minigames and visuals seemed to be effective due to most participants understanding the core concepts of the game but there were some major issues with aspects of the games' overall design.

## 6 THE DEVELOPMENT OF FAMINE, 1921

### 6.1 The Development Process

To implement all the designs and achieve a playable prototype the game went through four different phases. The first phase was to design the minigames. This process was heavily influenced by the development process of Warioware (Craddock, 2018), which entailed team members drawing minigames on sticky notes and doing a test where if the game could be instantly recognised then it would be further developed. This process applied to the development of Famine, 1921, where sticky note designs contain the mechanics for the game, the visuals needed to represent it and the gameplay loop. The next phase of the design was the blocking. This entailed each entity of the sticky note minigames being visually blocked and programmed to create the minigames in a basic form. The next phase, all sprites were created using Adobe Illustrator (2023) to create the visual aspect of the sprite, then edited in Adobe Photoshop (2023) to turn the sprite into an importable file. During this was also when the levels were stuck together to form a prototype that could be played start to finish. The next step was to create some coherence within the levels as the game was too vague to be understood. This is when the scene connecting screens were added to the game, allowing for some text to add a voice to the characters. The finalisations of the game were made after two testing phases. See **appendix b** for examples.

The main issue that arose from the first iteration of testing was the issue of players playing the game. This was resolved by adding a UI image in the top right corner of the screen to indicate what device should be used as the method of input. A “how to play” page was also added with instructions on what to do when the player sees a certain UI image, see **appendix b**.

The second iteration of testing was plentiful with results. A common piece of feedback was to add audio. Some levels were being misunderstood by players due to lack of visual feedback from the game. This was amplified by the zero audible feedback from the game. For example, in the *walking to work* minigame, the player can walk over the dead bodies to eat them. This was not being picked up by players so to fix this an audible chewing sound was added every time a player walked over a dead body. Audio was then added throughout the game adding another layer of depth to the game that helped when communicating the themes. Clarity of the goal of the game had not been communicated to players well enough so to solve this, a screen at the start of the game was added giving the game some much needed context so that the players had a foundation to build upon whilst playing the game, see **appendix b**.

### 6.2 Technical Problems

There were a few technical problems during development, some were not fixed, and some were incorporated into the gameplay.

The first example is the use of many scenes in the project. To save time some minigames were recycled to be used for both levels, the *bed* minigame is an example of this. However, the two levels are doing the same thing but are included in the game in 2 different scenes. This was due to when the continue button was pressed, to go to the next level, the scene the button was set to could not be changed during gameplay. This problem was not solved, so multiple scenes were used that contained the same information increasing the file size of the final game.

Another technical problem was the guard AI which used a `Vector3.LookAt()` method to track the player's location. This caused the sprite of the guard to rotate in accordance with the player's location and was never fixed.

Another technical problem was moving the covers in the *bed* minigame. The idea for the minigame was for the player to click and drag the covers over the bed and then have the covers snap back to their original location. This was achieved but in an unintentional way where instead of the covers snapping back once the player let go of the mouse, as soon as the player clicked on the covers the covers would snap back to their original location. Furthermore, the covers were difficult to move resulting in what looked like broken mechanics, but it was the desired effect.

### **6.3 Unimplemented Features**

As stated in the MoSCoW in **section 4**, the game was to have 4 different levels, that included the Dad, Mum, Daughter and Son which included around 5 – 7 minigames each, with each minigame lasting 5 – 30 seconds. However, this is not how the final game turned out. The Daughter and Son levels had to be cut from development and the Dad and the Mum would have 4 and 6 minigames respectively mainly due to time constraints. The minigames do however last between 5 – 30 seconds. Furthermore, the plans to have an 8-bit graphics were changed to a clip-art visual style due to a lack of ability to create 8-bit visuals that represented the gameplay clearly.

## **7 LEGAL, SOCIAL, ETHICAL AND PROFESSIONAL ISSUES**

### **7.1 Legal Issues**

A potential legal issue for this project is to do with the use of 3<sup>rd</sup> party assets. *Famine, 1921* does use 3<sup>rd</sup> party assets, mainly consisting of audio clips, so it is important that all 3<sup>rd</sup> party assets have the correct licences to be commercially used. These licenses include creative commons licenses such as Attribution, Attribution-ShareAlike, Attribution-NoDerivs. These licences ensure that any of the third-party assets used can be used commercially (Creative Commons, 2022).

### **7.2 Social Issues**

A potential social issue is the safeguarding of young participants. To mitigate this problem, persons under the age of 18 will not be considered for participation in this study, primarily due to the nature of the content of the game.

### **7.3 Ethical Issues**

One ethical issue is how the research for this project is conducted. *Famine, 1921* contains potentially problematic subject material for players. To mitigate this a trigger warning was added in-game to ensure that anyone who played the game, would be informed of the content the game contains. Furthermore, participants of the investigation an information sheet would need to sign an information and consent sheet about the game, before they played.

The consent forms also allow for the recording of the participants' written answers to the interview they would take part in after playing the game. However, this unearthed another ethical issue of participant confidentiality. The consent forms, to be valid, needed the participants name. To mitigate this all data from the interviews was anonymised and the data from the consent forms is kept in accordance with the Data Protection Act 2018.

### **7.4 Professional Issues**

A professional issue to consider is that the project must comply with the British Computing Society accreditation criteria. Some of the criteria includes: 2.1.1 Knowledge and understanding of facts, concepts, principles & theories, 2.1.2 Use of such knowledge in modelling and design, 2.1.6 Recognise legal, social, ethical & professional issues, 3.2.2 Defining problems, managing design process and evaluating outcomes, 3.2.3 System design (British Computing Society, 2022). The project complies with 21 out of the 22 criteria.

## 8 EVALUATION

### 8.1 Thematic Analysis Results

After conducting 7 interviews and performing thematic analysis on the dataset, 2 themes have been extracted. The first theme is the extent of the effectiveness of the game. The second theme is the limitations of the effectiveness of the game. The themes look at the minigames that worked and did not work, respectively; the participants interpretations of the themes of the game; the participants reactions to the game. This achieves the aim of measuring the effectiveness of deep games as a learning vehicle. See **appendix c** for interview screenshots.

#### 8.1.1 Theme 1: The Extent of the Effectiveness of *Famine, 1921* as a Learning Vehicle for the Human Experience

Participants were asked which in which minigames were their opinions and learning shaped. Over the course of playing 9 different mini games, 7 minigames were stated as having an impact on their opinions and learning. Those minigames included, the *shop*, *breakout-like*, *lie*, *walk to work*, *grain*, *candle* and *bed* minigames. Furthermore, some participants also mentioned that all Dad and Mum levels had some effect on their experience. Certain minigames were also mentioned multiple times in certain interviews. Participant 1 mentioned the *shop* and *breakout-like* minigames twice in their interview, stating that these games made the participant feel *shocked and horrified* and that they *felt responsible for some of the awful atrocities*. Over the course of the interviews, the *breakout-like* and *shop* minigames were stated 8 times each as being a contributor to a participants experience. Participant 4 stated that *every minigame added to the experience*, stating that it enabled them to learn *what it might have been like during this time, eating others to survive, and struggling*. This shows that although some minigames were more effective in shaping a participants experience than others, 7 out of 9 different minigames is a vast majority that helped shape the participants opinions of themes and learning of the human experience.

Participants opinions of themes and learning for the human experience were also considered. The opinions of themes and learning of the human experience that the participants formed throughout the game were such that all participants had at least 2 interpretations that aligned with what the game was trying to represent. For example, the themes that participant 6 states are starvation, cannibalism and depression. The themes that participant 7 states are people going through traumatic situations and how it affected their lives. This shows that, although the wording is different, both participants have come away from the game understanding that the game was showing them the human experience of the peasants during the famine of 1921. Another example of this can be seen when participants were asked about what they learned in *Famine, 1921*. Participants 3 stated that they learnt about the *struggle and the lack of food in 1921*. Participant 5 stated that they learnt about *the lengths that people had to go to*



*just so they can feed their family and that poverty was a big issue for most families [that] forced them to make inhumane decisions such as eating another person's body* to avoid starvation. Participant 2 learnt that *there was no happy ending for anyone*. This further shows that participants not only understood what the game was showing them, but they learnt about the human experience of the peasants as well.

Participants reactions to the content of the game are also considered. This is because the more visceral a reaction, the better chance for reflection, the better chance for sustained learning (Khaled, 2018). Participant 1's reaction to the game was shock and horror. Participant 3's reaction to the game was surprise, shock and gratefulness as it made them *realise how lucky they are*. Participant 5's reaction to the game was impactful as it created a contrast between life today and life back then. These reactions to the game support that the game disrupted players causing visceral reactions leading to deeper learning of the human experience.

### **8.1.2 Theme 2: The Limitations of the Effectiveness of Famine, 1921 as a Learning Vehicle for the Human Experience**

Though most of the game is effective in causing the participants to have learn or react, there were 2 minigames that were not cited as having caused any specific reactions. These minigames include the *dysentery* and *walk home* minigames. Reasons for this include the following: participant 1 stated that they felt the combination of the Dad's minigames created an overall arc that displayed the effects of a totalitarian regime not a singular minigame; the death and/or condition of the dad was not conveyed clearly enough in the *dysentery* minigame so there wasn't enough disruption to cause a reaction; the player might not have realised they can pick up the dead body in the *walk home* minigame, they might also not have realised that the dead body is the dad because, as previously explained, it wasn't conveyed clearly enough that the Dad died. This list of possible reasons shows that the minigames were not effective enough on their own to cause any learning or reactions from players but when taken into the larger context of the game they did evoke some meaningful learning.

Although all participants had overall interpretations that agreed with what the game was conveying, some participants had specific interpretations of the minigames that might not have been factually correct or misinterpretations or misunderstandings of specific minigames. For example, participant 5 stated that they learned that peasants could trade grain for body parts to eat. This is not the intended learning for this minigame as it might not be factually correct that this took place. Participant 6 misunderstood the *walking to work* minigame as they were unsure what it was trying to represent. This shows that some participants misinterpreted or misunderstood parts of the game due to the design of the game. This can be dangerous as the subject material is sensitive and needs to be accurately presented to the player to avoid the appearance of being insensitive to the people who died during the famine of 1921.

Some players had visceral reactions to the game, other players did not appear to have such reactions. For example, participant 2 states when asked about the impact of the game upon them that it taught them about the effects of famine. From this answer it can be inferred that the participant did not have such a visceral reaction to the game due to their short and non-descriptive answer. This shows that the game might not have evoked deep learning on this participant as they did not seem to have a visceral reaction.

## **8.2 Review of Methodologies**

The method of using instant messenger to conduct interviews was effective. This was found when asking people to play the game and have an interview as it could all be done in one space. Furthermore, using IM was much more enabling as participants could take part in the study from their own home in their own time. Moreover, as previously mentioned as a potential issue, waiting the typing process indicator was not an issue as all participants said what they need to in each message. Another major advantage was seen during the thematic analysis as the messages didn't need transcribing, which saved much time and allowed the process to be completed quicker. The one limitation to using IM is that the emotional information was somewhat lost. It could be inferred how the participant was feeling but there was never certainty. The emotional information was important in measuring the impact the game had on a participant and so perhaps the measurement of the extent of the effectiveness of the game could be more or less accurate with access to this information. However, using IM made the process of interviews straightforward and convenient which made it an effective tool.

The method of using thematic analysis to analyse the interviews was effective. This was found when performing the coding step for the dataset as it allowed the dataset to be broken down such without the loss of information. This made it easier for themes to be developed. One minor limitation of TA was the flexibility of the coding process, which made it difficult to identify initial codes to categorise the dataset. This made this partly due to lack of experience in using TA however, the process of coding was still time consuming. Therefore, TA was effective in breaking down the dataset and identifying themes but the initial process of coding the data was time consuming.

## 8.3 The Review of Famine, 1921

Famine, 1921 will be reviewed with the same criteria seen in **Section 3**.

### 8.3.1 Metaphors

Famine, 1921 utilises the use of metaphors throughout the game to convey deep meaning. For example, **Section 5** of this report talks about the *candle* minigame and how the candle is used to represent the daughters life. Another example includes the *bed* minigame which uses the metaphor of never being able to make the bed to show how physically weak the parents are. Both minigames use metaphors to provide a deeper look into the situation the characters are in enabling deep learning. However, metaphors do have somewhat of a limited use in the game. There are only 3 out of the 9 different minigames that are based upon metaphors. Overall, Famine, 1921 has a limited use of metaphors but the metaphors that the game uses are at the centre of the gameplay, which enables deep learning.

### 8.3.2 Reflection

Famine, 1921 heavily utilises reflection in the form of disruption and critical play. Disruption is represented in the *breakout-like* minigame where the player is forced to eat the dead Dad accompanied but chewing sounds. Another example of disruption is present during the *lie* minigame where the player is forced to lie to their daughter whilst simultaneously tying her up. Both minigames represent disruption as they force the player to face uncomfortable realities of the situation. Critical play is represented less in the game but is still there. In the *grain catcher* minigame the player is faced with not being able to collect any more than 2 pieces of grain in their sack. This forces the player to question why they can't collect any more grain, motivating the player to gain a deeper insight into the game. Overall, disruption and critical play are both utilised in the game to encourage the player to reflect on their experiences, enabling deep learning.

### 8.3.3 Choice

Famine, 1921 features little choice and the choice it does offer is not meaningful as it doesn't affect the outcome of the game. For example, the player can choose not to pick up the Dad's dead body at the end of the *walking back home* minigame, but the dad still ends up getting cooked and eaten. Another example of lack of choice is seen in the *lie* minigame where the player is taken away their choice to tell the truth to the daughter, to instead lie to the daughter. This lack of choice does remove some deep learning from the gameplay however, the choice that is taken away is usually replaced with disruptive gameplay instead, still allowing for deep learning to take place.

## **8.4 Improvements for the Future**

To improve this *Famine, 1921* for the future the first step would be to add the daughters side of story to the game. This would allow for another layer depth as the player would be playing from the perspective of a child. Another perspective to add could also be the Red Army's as they also experienced the famine and had to deal with the atrocities of civil war. Also, increasing the number of minigames could allow for more depth as more minigames means more chances for metaphors and reflection. Another improvement should be that more people are interviewed to test the game as more people could increase the accuracy of the results. Furthermore, asking the participants for a second interview 6 months after playing the game could also increase the accuracy of the results because deep learning is associated with the length of time knowledge has been retained. Overall, *Famine, 1921* is a complete state however, expanding the game would massively improve it as there are many more aspects of life during the famine that the game was not able to cover.

One other improvement is the consistency of the interview questions. One problem that occurred is that not all participants were asked the exact same set of questions, which caused difficulty when gauging a participants reaction to a specific minigame. This resulted in 4 of the 7 participants having notable reactions to the game, leading to less accurate information.

## 9 CONCLUSION

### 9.1 The Overall Success of the Project

This project has been, to a greater extent, successful because the main aim of the project has been met. From the evaluation in **section 8**, it can be concluded that deep games are an effective learning vehicle. This is strongly emphasised by all participants having at least 2 interpretations of the game that agree with what the game was conveying. Showing that participants learned about the human experience through *Famine, 1921*. Furthermore, some participants had visceral reactions to the game showing that the disruption present in the game was also effective. Meaning their learning of the human experience was also deep.

One major limitation in this project is that *Famine, 1921*, has been created from the designer's point of view, meaning, the participants interpretations of the game are influenced by the designer. However, the design influences for the context of the game, stated in **section 2.4**, are historians. Therefore, despite these limitations the investigation was successful as *Famine, 1921* taught participants about the peasants experiences during the famine of 1921, showing that to a greater extent deep games are an effective learning vehicle for the human experience.

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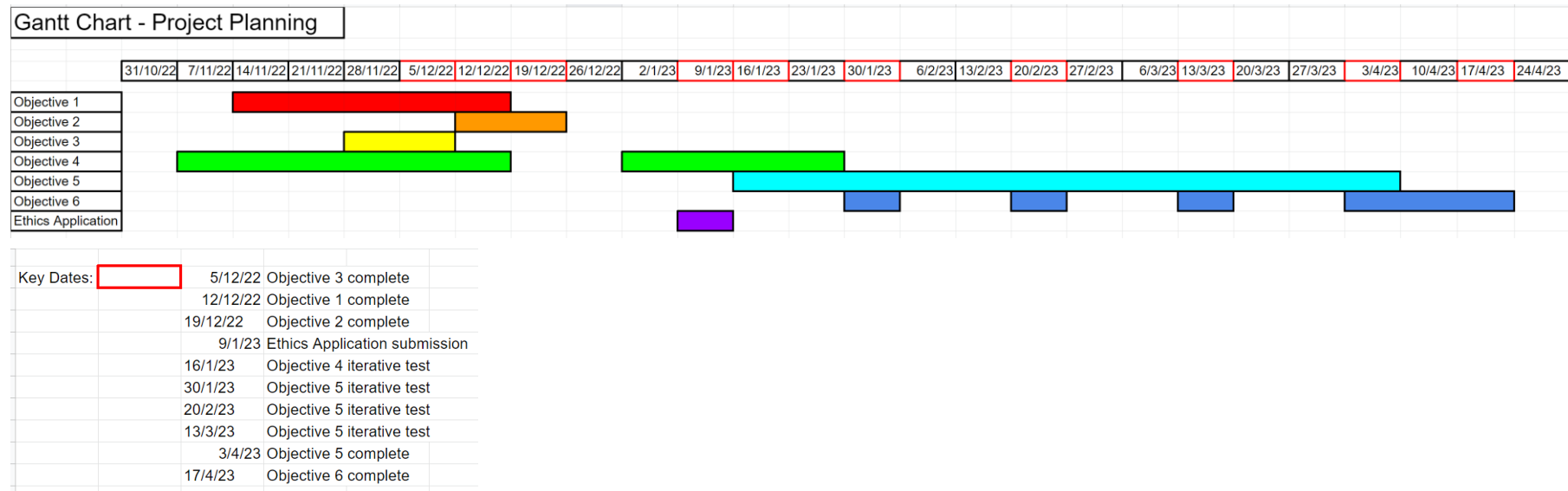
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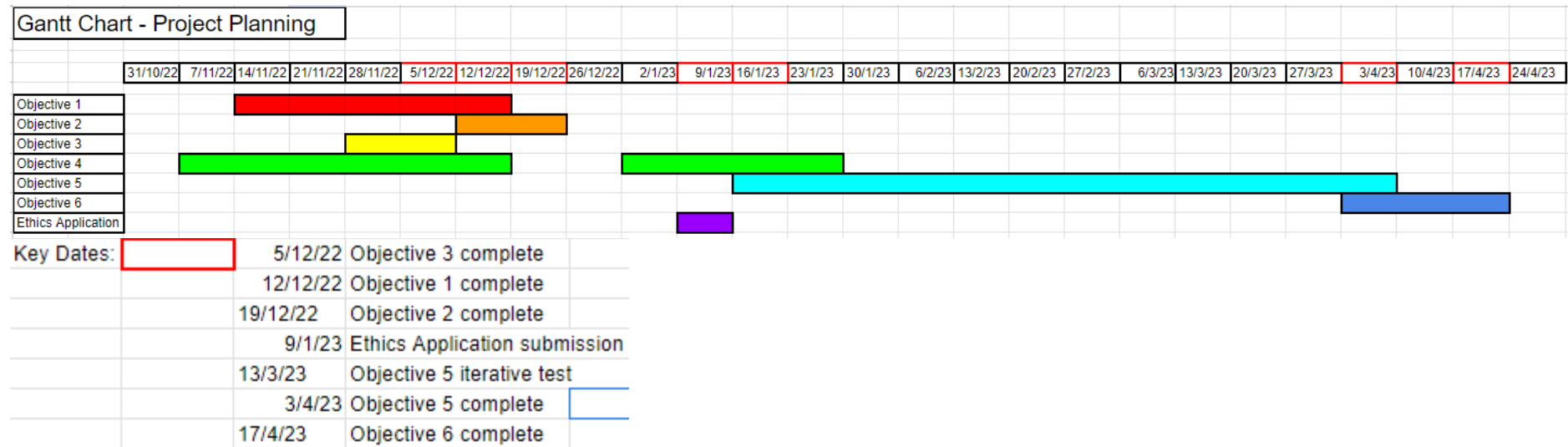


# Appendix A - Original Project Schedule

## 1 Original schedule



## 2 Revised schedule



## Appendix B – Development and Final Levels

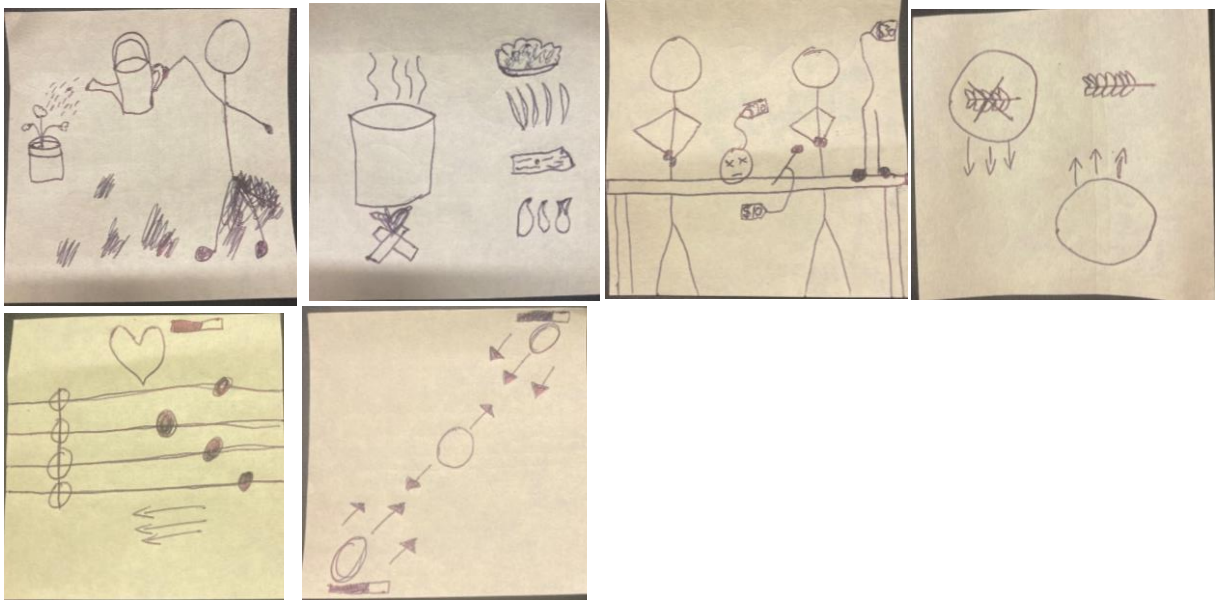


Figure 6: Sticky note prototypes - the only one that made it to the final game was the shop minigame.

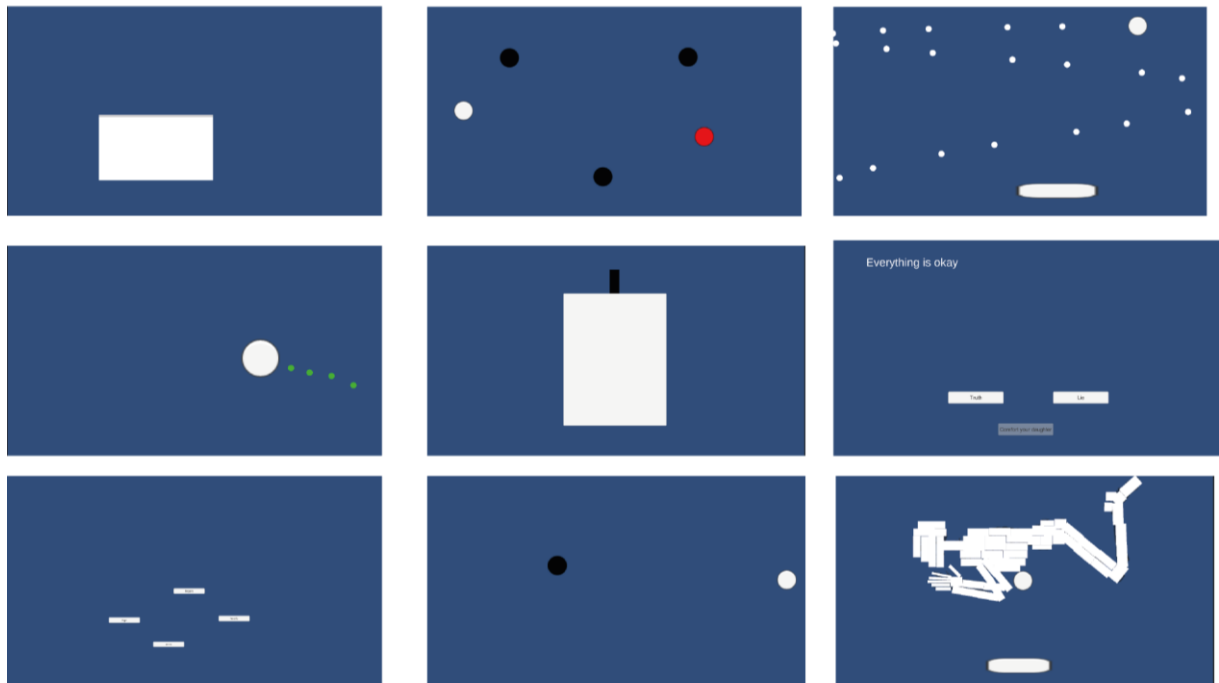


Figure 7: Blocked minigames.

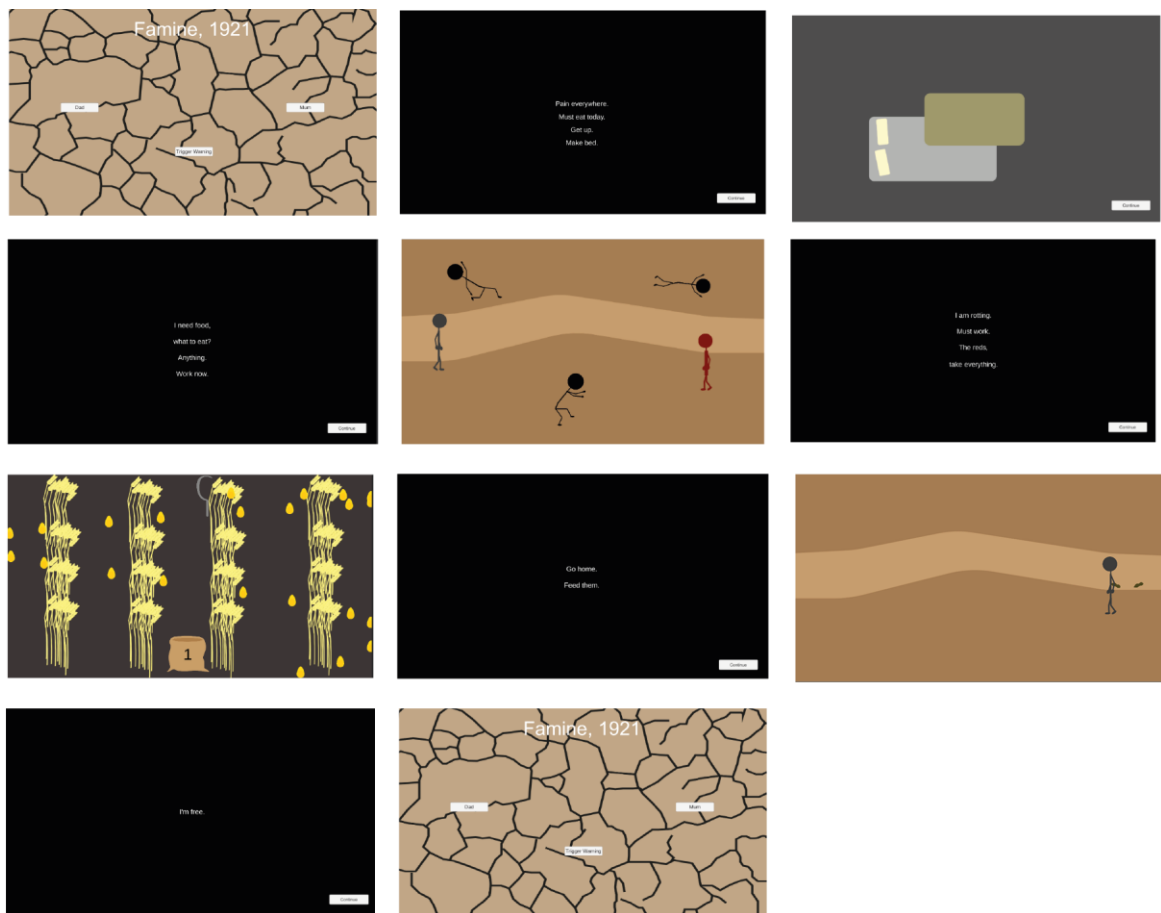


Figure 8: Dad 1st iteration minigames and transition screens.

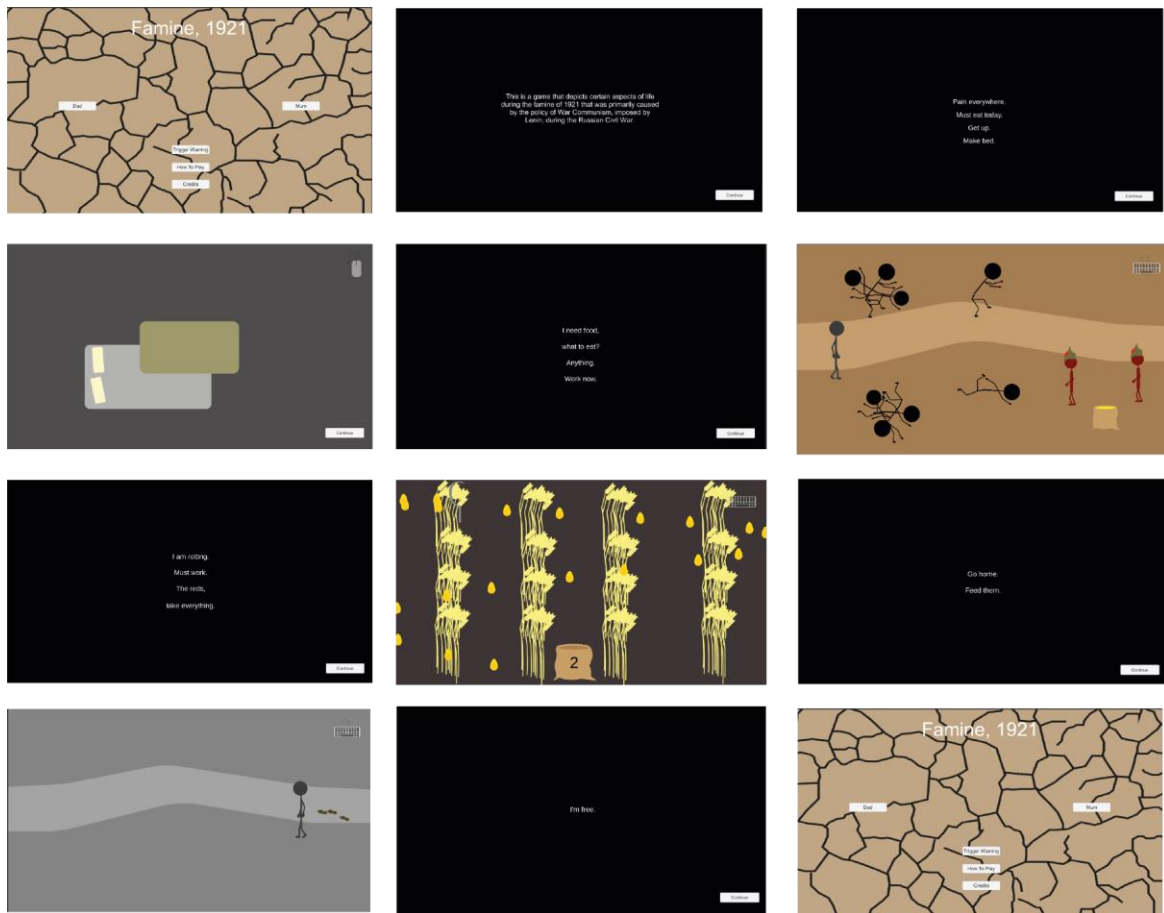


Figure 9: Dad final minigames and transition screens. Minigame names left to right: bed, walk to work, grain-catcher, dysentery.

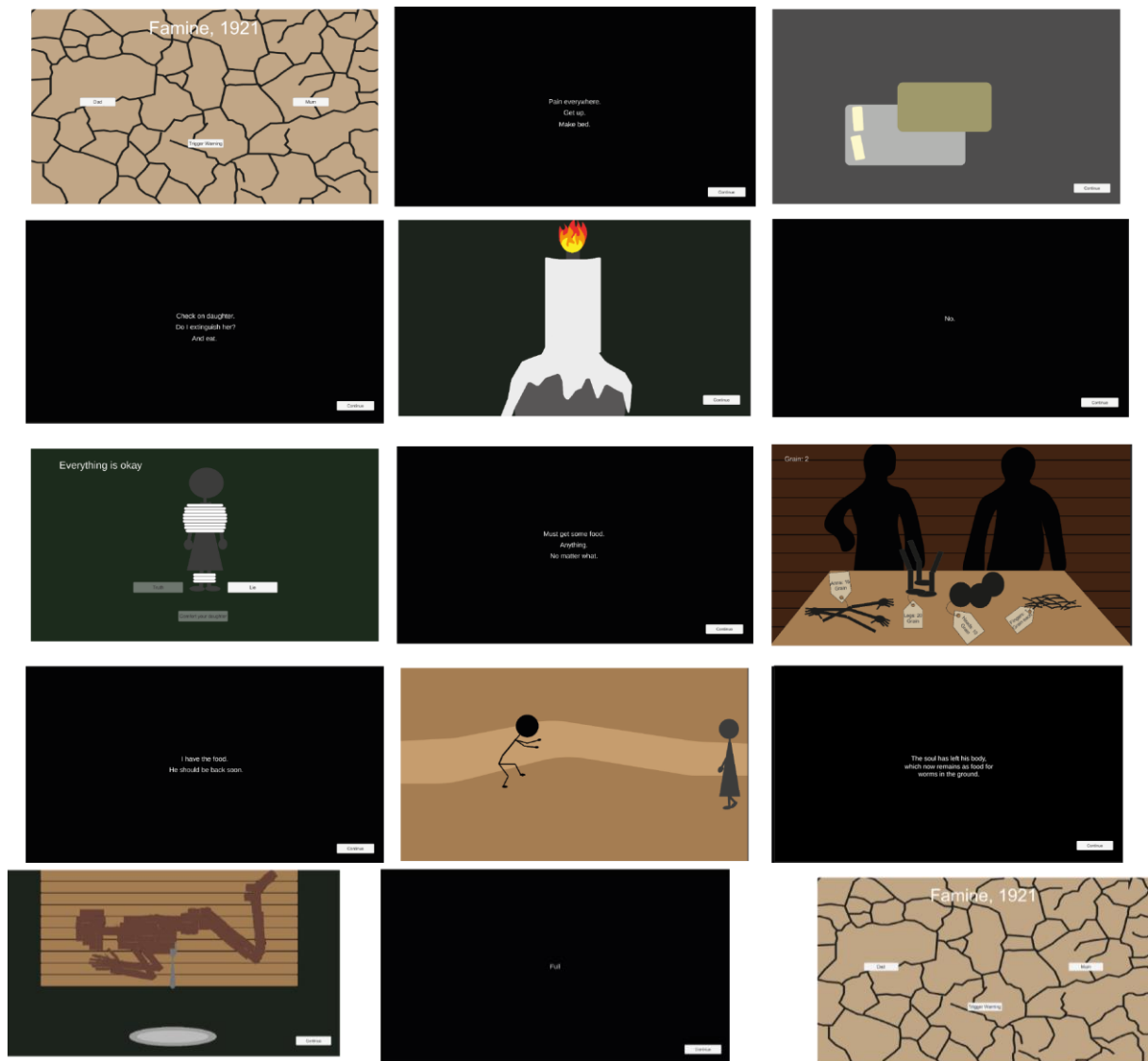


Figure 10: Mum 1st iteration minigames and transition screens.

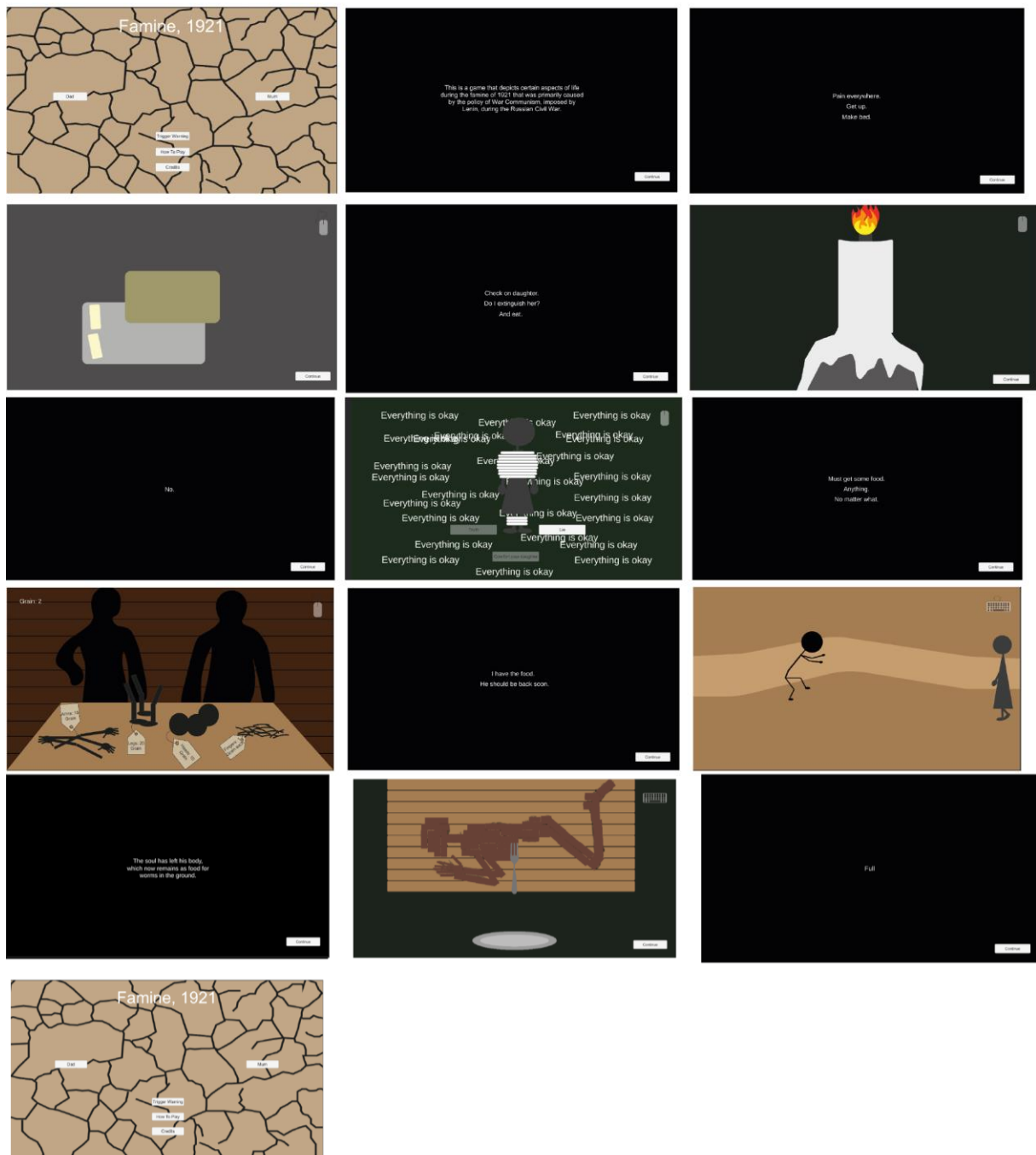


Figure 11: Mum final minigames and transition screens. Minigame names left to right: bed, candle, lie, shop, walk home, dinner.

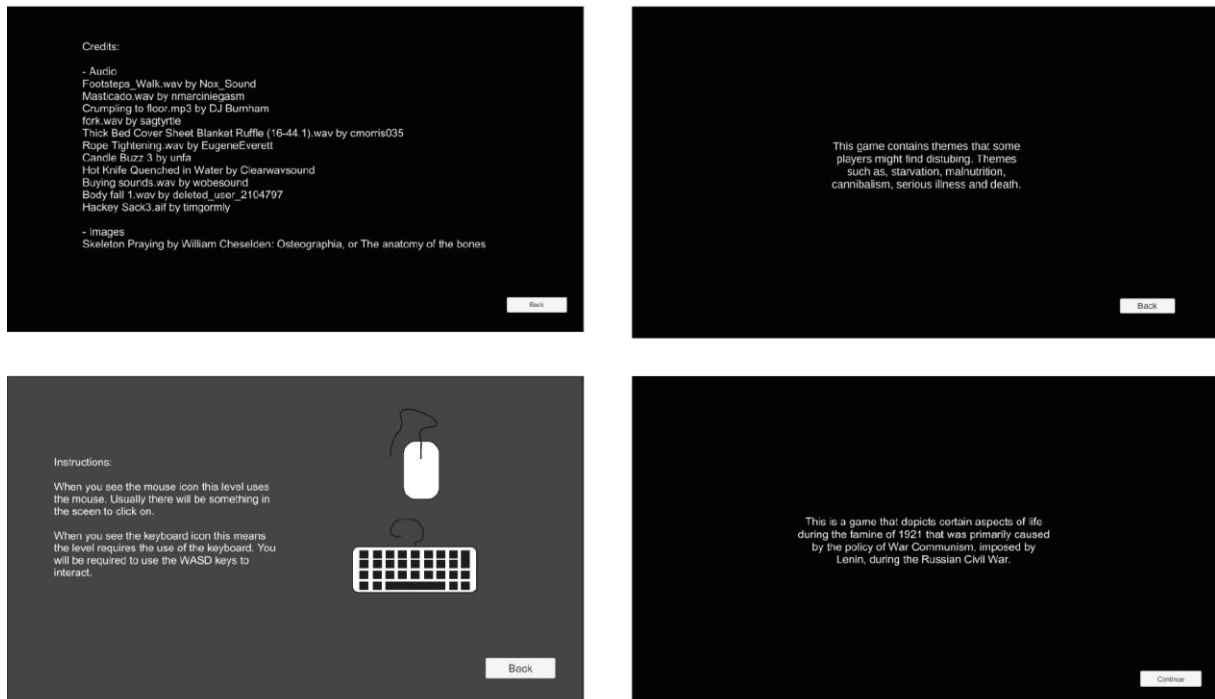


Figure 12: Menu screens.

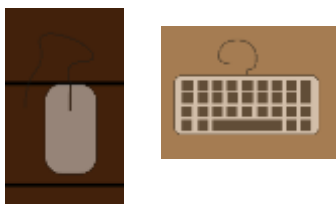


Figure 13: UI images for clarity on how to play each level.

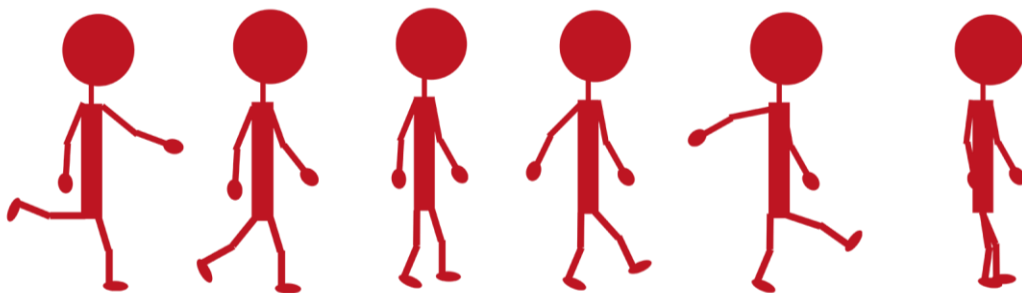


Figure 14: Prototype solder sprite sheet.

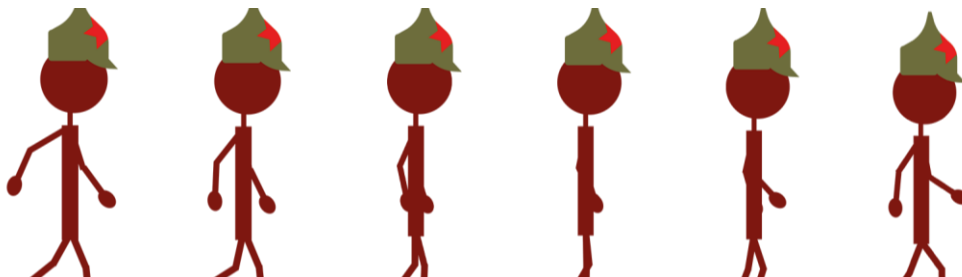


Figure 15: Final soldier sprite sheet.



## What did you NOT understand from playing the game?

14 responses

It wasn't very intuitive why there was the whole part with the bed and what was supposed to be done there. Also why was there a Truth option which did nothing when clicked. It kind of misleads that the player has a choice. It appeared that the game just wanted me to torture the hostage.

There are no instructions displayed from each level or from the main menu while playing through the game. For example, in the beginning I am unsure how to collect the food as i'm only able to drag the table. However if that is your aim to let people figure out the controls on their own otherwise, I think that is a good level design interaction as it seems there's not much difficulty going through each level.

The controls, the identity of the characters was hard to understand and the objectives of each mini game.

how to control the characters

What the red character in the dad playthrough was supposed to do

the spinning red dude, but everything else made sense

why I can only lie to my daughter

idk

some of the plot

the part where the dad was walking through people on the ground

why there is a famine

Why the mom was a control freak  
I did not understand the red spinning man

The goal.

Figure 16: Participant feedback – Misunderstanding.

## What did you understand from playing the game?

14 responses

I picked Mother. I understand she was keeping her daughter hostage. (however the game just froze at the point when "He" was coming)

The game has a good start of allowing people to understand the concept of famine back in 1921 as it makes people feel sad from what these characters have gone through (the mum and dad). Good story. You also included a trigger warning before people played the game which is good.

The setting, people to eating each other to survive. The way hunger makes you weak and disoriented. It conveyed that pretty well.

People were starving and desperate for food, they had to turn to cannibalism

that I was hungry and i had to feed my family even if that meant eating not traditional meat

during the time of the event taking place, food was hard to come by and eating humans was the only way to survive

The themes of famine and the type of damage it causes, tasks were simple to complete and told an interesting story, the perspectives of the Mum and the Dad differed especially in their conclusions

life is tough/rough

People were starving and had to work for nearly no food in Russia

Horror

I understand the message and the concept of the game

famine, eating my family

- That the characters suffer from a mental disorder
- The dad was struggling to provide the needs for the family
- The food was the last resource and it was very hard to find, therefore the family turned to cannibalism

People starving and going to extreme extent to get food.

Figure 17: Testing feedback – understanding.

## Any other thoughts or suggestions on how to improve the game?

14 responses

I liked the style and the drawings, however again - it froze at the point when "He" was coming and there wasn't an exit button so I had to quit through my task manager. Also it seemed as if at some parts of it, there was nothing to do but it took long for the "continue" button to appear.

I think it's going in the right direction. There's some coding issues with some of your levels like the bag collecting the potatoes. Maybe it's to do with the math function in your method when it's called from another public void for the bag to interact with the collision of the potatoes. Hopefully it will go through in the end. Good luck man!

Highlight the player characters somehow.  
Display the control a little. I think not knowing all the time makes add the atmosphere.  
Finally slow down the game. Display how weak the player is. If the corpse pinball was slower, could show how hesitant the player was to eat people.

for a total non game player, I would like a box on the screen that tells me what different commands do and what choices of actions I have

Maybe add some hints about what to do in the levels

it was super fun to play, not much to suggest, it was clear and smooth to play

The instructions could be communicated a bit clearer for some of the tasks/scenes. Dialogue was present between scenes, but some were vague and could've used more clarity

the artefact is like a film festival (French). It cant be improved

make the fork slower or the plate faster in that one game

add some music to add to the atmosphere

no thoughts

daughters perspective

Add sound

Sound feedback and UI feedback.

Figure 18: Testing feedback – improvements.

# Appendix C – Participant Information Sheet, Consent Form and Interview Screenshots

## PARTICIPANT INFORMATION SHEET

<b>Project title: An investigation into the effectiveness of using deep games as a learning vehicle.</b>
<b>The principal investigator for this project is: James Relf</b>
<b>Email: jr7656m@greenwich.ac.uk</b>
<b>Project/Participant outline</b> The project is to measure the effectiveness of using deep games as a learning vehicle. The participant will play a game consisting of a series of short minigames for 10 minutes. The participant will then be subject to an interview where questions about their experience will be asked.
<ul style="list-style-type: none"> <li>• This project is about measuring the effectiveness of using deep games as learning vehicles.</li> <li>• This project contains depictions of potentially distressing subject material such as famine, cannibalism, starvation, severe illness and death.</li> <li>• You have been approached to take part in the research because you are over the age of 18.</li> <li>• You will be playing a game consisting of a series of short minigames for 10 minutes. Then you will be subject to an interview.</li> <li>• Your data will be used to evaluate the effectiveness using deep games as a learning vehicle.</li> </ul>
<b>This project is supervised by: Tom Cole</b>
<b>More information about the project can be obtained by contacting Tom Cole</b>
<b>Email at: T.Cole@greenwich.ac.uk</b>
<b>You may withdraw from this project at any time until 24/04/2023</b>

Figure 19: Participant information sheet.

## PARTICIPANT CONSENT FORM

To be completed by the participant. If the participant is under 18, to be completed by the parent/guardian/person acting *in loco parentis*.

<b>Project title: An investigation into the efficiency of using deep games as a learning vehicle.</b>	
<b>The principal investigator for this project is: James Relf</b>	
<b>This project is supervised by: Tom Cole</b>	
<b>Supervisor's contact details (including e-mail address):</b> T.Cole@greenwich.ac.uk	
<ul style="list-style-type: none"> <li>• I have read the Participant Information Sheet about this study</li> <li>• I have had an opportunity to ask questions and discuss this study</li> <li>• I have received satisfactory answers to all my questions</li> <li>• I have received enough information about this study</li> <li>• I understand that I am/the participant is free to withdraw from this study:               <ul style="list-style-type: none"> <li>○ At any time (until such date as this will no longer be possible, which I have been told)</li> <li>○ Without giving a reason for withdrawing</li> <li>○ (If I am/the participant is, or intends to become, a student at the University of Greenwich) without affecting my/the participant's future with the University</li> </ul> </li> <li>• I agree to take part in this study</li> </ul>	
Signature (participant):	Date
Name in block letters:	
Signature (parent/guardian/other, if under 16): n/a	Date n/a
Name in block letters: n/a	

Figure 20: Participant Consent form.

**James R** Yesterday at 5:07 PM  
Are there any improvements to the game that could make an aspect of the game clearer?

[REDACTED]

I believe I may have interpreted the lying minigame differently than was intended, as I felt it was to tie her up, feed her comforting lies before eating her so the mother could survive.

**James R** Yesterday at 5:16 PM  
That's an interesting interpretation as although this was not the intended message, your interpretation is still valid. The intended interpretation was to lie to your daughter because telling her the truth would've killed her.  
do you have any questions for me?

[REDACTED]

What made you choose the Soviet famine over others in Communist China, North Korea or British India?

**James R** Yesterday at 5:21 PM  
For me this is just a personal preference, Russia interests me more than the other topics as I studied it in college.

[REDACTED]

I have no other questions.

**James R** Yesterday at 5:22 PM  
Excellent! this concludes the interview thank you for your time

**James R** Yesterday at 4:39 PM  
hi, thanks for playing the game, the interview has now started.  
In your opinion, what were the main themes of the game?

[REDACTED]

I believe that the main themes of the game were focused around the hardship of life under a totalitarian regime and the necessary evils of life during a famine.

**James R** Yesterday at 4:44 PM  
In what mini games were those themes present?

[REDACTED]

I believe that the mini games of the mother's cannibalism truly showcased the evils necessary for one to survive, notably buying fingers and the breakout ones. Whilst the overall journey of the dad story arc I believe best represented the brutal elements of totalitarianism.

**James R** Yesterday at 4:49 PM  
what did you feel like you learnt after having played the game?

[REDACTED]

I felt as though I was put in the shoes of people facing very difficult times, which I believe helped me understand why they would've made the decisions that they did. It also opened my eyes to some of the horrors they faced.

**James R** Yesterday at 4:52 PM  
how did this impact you?

[REDACTED]

I was shocked and horrified when faced with some decisions, through the form of interactive media I felt responsible for some of the awful atrocities

**James R** Yesterday at 5:01 PM  
what mini games made you feel this way?

[REDACTED]

Having to lie to my daughter and purchase limbs, as well as the breakout minigame

*Figure 21: Participant 1 interview.*

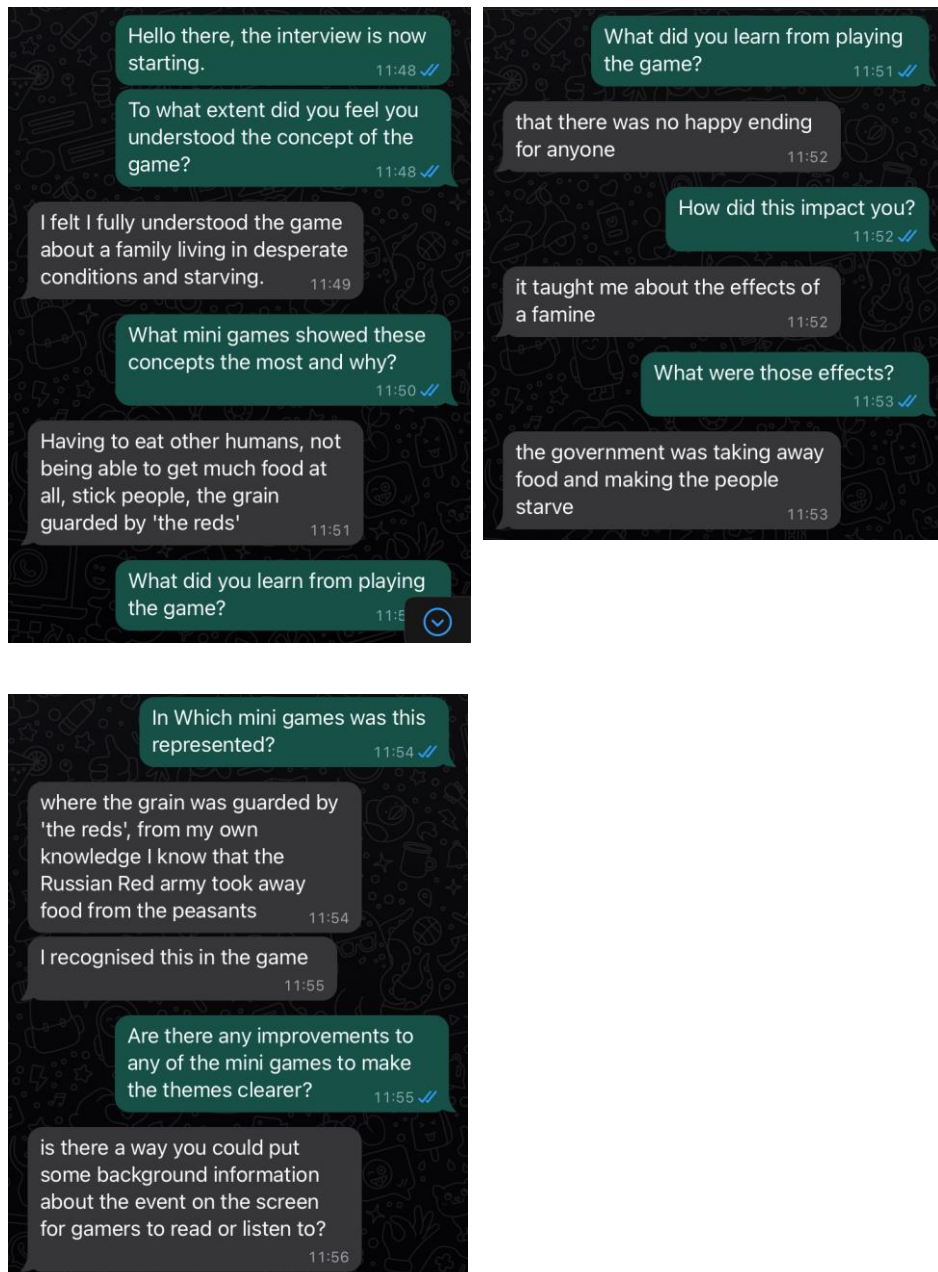


Figure 22: Participant 2 interview.



**James R** 04/15/2023 8:59 PM

Hi, thanks for playing the interview has now started  
What in your opinion are the main themes of the game?

Famine, starvation, struggle

**James R** 04/15/2023 9:01 PM

In what mini games are these themes present?

buying the food, the breakout like minigame

**James R** 04/15/2023 9:02 PM

What did you feel you learnt after playing the game?

the struggle and lack of food in 1921 in the soviet union

**James R** 04/15/2023 9:03 PM

In what mini games did this learning take place?

most of them, mainly the breakout like minigame. The fact they had to resort to cannibalism to survive

**James R** 04/15/2023 9:05 PM

How did this impact you?

it was surprising and shocking to see what people had to go through during that time. It made me realise how lucky we are

**James R** 04/15/2023 9:07 PM

Do you have any questions for me? Was there anything in the game that was unclear?

What happened to the dad, I wasn't sure if he ran away?

**James R** 04/15/2023 9:11 PM

The dad died, at the end of the dad's mini games he dies of dysentery. Then the mother finds his dead body at the end of her mini games and takes him home to cook and eat him.

Does this clear things up?

yeah that makes sense

**James R** 04/15/2023 9:12 PM

Excellent! Do you have any more questions?

nope i think that's it

**James R** 04/15/2023 9:12 PM

Awesome! Thank you for your time. Have a great rest of your day.

thank you 😊 you too

Figure 23: Participant 3 interview.



**James R** Today at 2:43 PM  
Hi the interview has now started

[REDACTED]

Amazing (edited)

**James R** Today at 2:43 PM  
to what extent did you feel like you understood the main concept of the game?

[REDACTED]

I feel like I understood the game to a fair degree, from the dad and mum, to the cannibalism  
To the state of the world they are in (edited)

**James R** Today at 2:46 PM  
In what mini games did you feel like these themes were present?

[REDACTED]

I feel like all of the mini games had this theme, every mini game added to the experience (edited)

**James R** Today at 2:48 PM  
in your opinion, specifically, what were the themes of the game?

[REDACTED]

Survival, hunger, cannibalism, famine

**James R** Today at 2:49 PM  
What did you feel you learnt after playing the game?

[REDACTED]

I felt like I learned what it might have been like during this time period, eating other to survive, and struggling, not knowing when the last day will be

**James R** Today at 2:51 PM  
In what mini games did this learning take place?

[REDACTED]

Walking and eating the dead people on the street, buying fingers to eat, I'm the morning being in pain, wondering to eat the daughter, eating the father, pretty much all of the mini games taught me something about it

**James R** Today at 2:53 PM  
Are there any parts of the game that could be improved to make things clearer?

[REDACTED]

Maybe the walking part, I didn't know I could eat the people on the streets but decided to walk on them, characters maybe walk a little faster

**James R** Today at 2:55 PM  
Thank you for your time, this concludes the interview

Figure 24: Participant 4 interview.

**James R** Today at 9:16 PM  
hi the interview has now started  
In your opinion what were the themes present in the game?

[REDACTED]

poverty and desperation

**James R** Today at 9:18 PM  
in what mini games were those themes present?

[REDACTED]

the breakout mini game depicted the desperation of the family as they were forced to eat human flesh to survive

**James R** Today at 9:20 PM  
after playing the game, what did you learn?

[REDACTED]

After playing the game I learnt that life in 1921 was very much different to what we have today and the lengths that people had to go to just so they can feed their family as they did not have any support like we do now. Also that poverty was a big issue for most families as the salaries people took home was barely enough to afford the bear essentials which forced them to make inhumane decisions such as eating another persons body so they would not go hungry.

**James R** Today at 9:27 PM  
That's excellent! In what mini games did this learning take place?

[REDACTED]

In the breakout mini game the inhumane decision to eat another human being was depicted with a fork and plate, when the fork bounced from the plate and cleared the blocks a human skeleton began to appear which was a very simple but effective way of demonstrating how people used to eat human flesh to avoid starvation. Furthermore I learnt from the "Grain Dropper" mini game that there was a plentiful amount of grain to go around, but you were only allowed to take home two pieces of grain to your family. Another thing I learnt about the grain was that it was used a a form of currency which I learnt through the "Shopping" minigame, this was shown with price tags on products in the store costing a certain amount of grain, also the 2 pieces of grain per person was represented again by showing me an indication in the top left corner of the screen of how many pieces of grain I had available to purchase items with was only two. (edited)

**James R** Today at 9:45 PM  
how did this learning impact you ?

[REDACTED]

This impacted me by showing me how different it was for families in 1921 and that life back then was very much different to what we have today as we are very fortunate by having the support for families who are in need of food or are short on money which they did not have in 1921 which led them to do inhumane acts in desperation just so they did not go hungry

**James R** Today at 9:45 PM  
how did this learning impact you ?

[REDACTED]

This impacted me by showing me how different it was for families in 1921 and that life back then was very much different to what we have today as we are very fortunate by having the support for families who are in need of food or are short on money which they did not have in 1921 which led them to do inhumane acts in desperation just so they did not go hungry

**James R** Today at 9:52 PM  
And finally, are there any improvements you would make to the game to make something clearer?

[REDACTED]

One thing I would have liked to have seen was what life was like for a child growing up in 1921 and what they had to do to survive and support their family

**James R** Today at 9:53 PM  
thank you so much for your answers, this concludes the interview

Figure 25: Participant 5 interview.

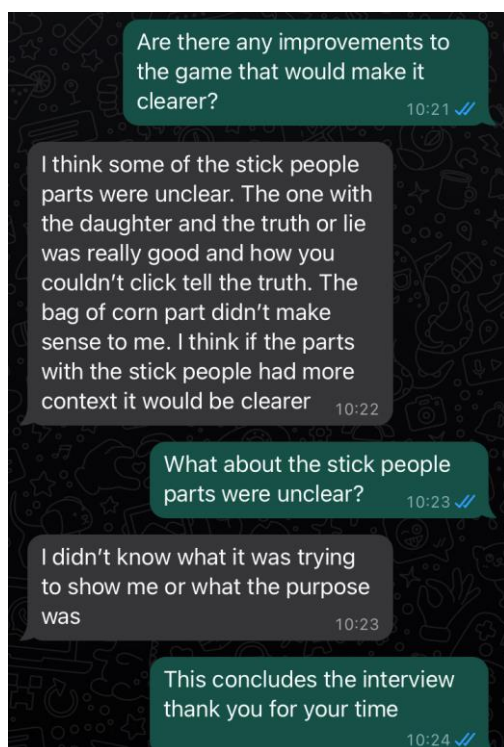
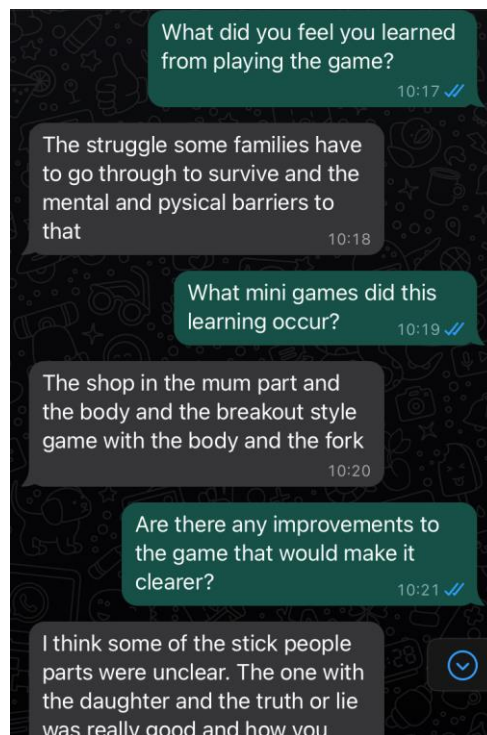
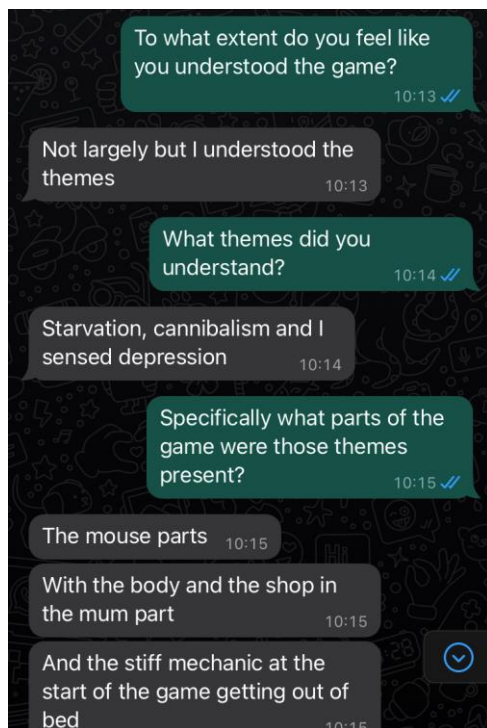


Figure 26: Participant 6 interview.

**James R** Today at 4:27 PM

Hi the interview has now started

From playing the game, what were, in your opinion, the main themes of the game?

What people have went through in traumatic situations and how it has effected their lives

**James R** Today at 4:29 PM

In what mini games were these themes present?

the part where the mother has to sell a specific body part for a grain  
and the part where the father has to walk through a field of bodies to get to his destination

**James R** Today at 4:31 PM

what did you feel you learnt after playing the game? (edited)

I have learnt that people would go to drastic measure to ensure the safety of themselves and their family

**James R** Today at 4:32 PM

In what mini games did this learning take place?

in the mother minigame where the player has to comfort their daughter

**James R** Today at 4:33 PM

Are there any improvements that can be made to the game to make things clearer?

add some music to the game that is appropriate for the theme

**James R** Today at 4:35 PM

thank you that concludes the interview

Figure 27: Participant 7 interview.

Initial codes:

- What minigames were effective?

Shop 8

breakout 8

lie 2

walk to work 4

grain 2

candle 1

bed 2

Dad level 2

Mum level 1

- Interpretations that align with what the game was trying to show

participant 1 - q1, q3

participant 2 - q1, q3, q4, q5, q6

participant 3 - q1, q3

participant 4 - q4, q5

participant 5 - q1, q4 line 1

participant 6 - q1, q3

participant 7 - q1, q3

- Interpretations that are not exactly what the game meant but could still be considered

participant 1 - q6

- Interpretations that might not be factually correct

participant 5 - q4 line 3, q4 line 4

- Interpretations the game didn't intend to show

participant 7 - q2

- Participants that had more visceral reactions

participant 1 - q4

Participant 3 - q5

participant 5 - q5

- Participants that had less visceral reactions

participant 2 - q4

- Aspects of the game that were lost to participants

Participant 3 - q6

Participant 5 - q6, q7

- Participants adding to own knowledge

participant 1 & 2

My interpretations of their comments

Figure 28: Thematic Analysis Coding.

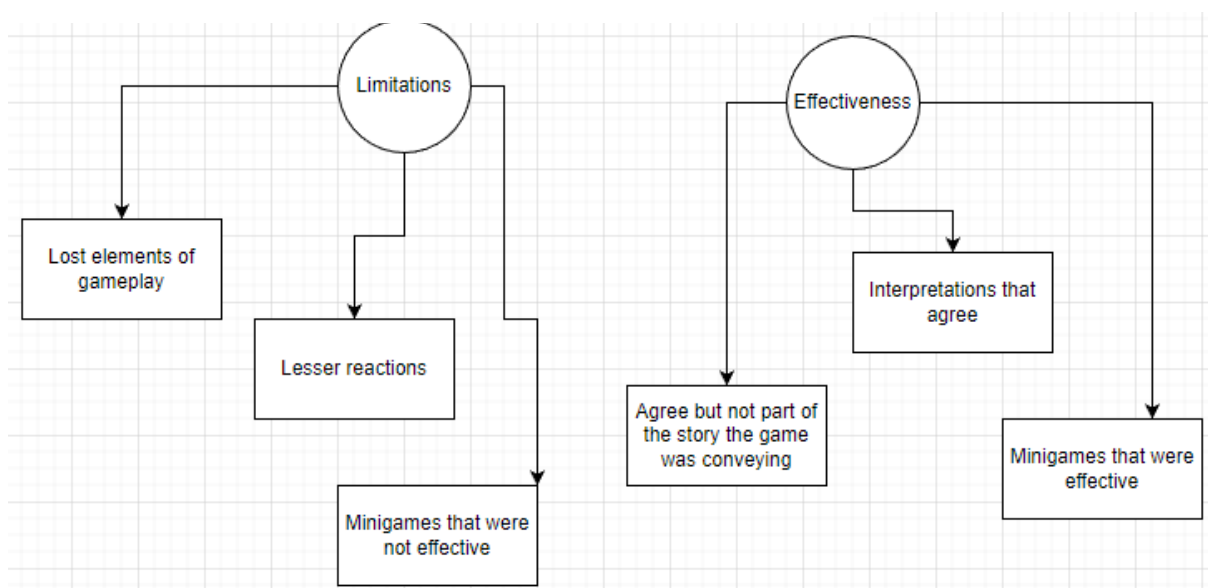


Figure 29: Thematic Analysis dividing into themes.



## Appendix D – Initial Minigame Plans

Dad:

- Wake up
  - Pain everywhere
  - Starving
  - Autopilot
  - Drained
  - Empty
  - Must go so they can eat
    - Game idea – make bed, but it takes too long and you never fully make the bed
- Go to field
  - Everything hurts
  - Delusions of eating the grain off the plant
  - I can't I'll get killed
  - Sleepwalking
    - Game idea #1 – pac-man, the cherries is dead bodies (animals or people), the ghosts are soldiers, the level is the field.
    - Game idea #2 – player is slowly walking across a desolate plane of dead thing to get to the field.
- Harvest grain
  - Each swing feels like your arms will fall off
  - Feel numb
    - Game idea – grain catcher, the player only gets a specific amount no matter how much grain is caught.
- Take grain home
  - Feel nothing
  - Empty
    - Game idea - The player is walking back slowly, the player is also excreting from their anus (dysentery), then has a burst of energy and speeds up, everything goes greyscale, the dad has died, and the soul is free.
- Die on the way home
  - Give up
  - Feel nothing
    - Game ideal - When the player gets back home their family is happy and healthy, its greyscale.

Mother:

- Wake up
  - Discomfort
  - Hunger
  - Pain
  - Think about killing kids out of mercy
  - So hungry I could eat them
  - NO
    - Game idea #1 – make bed same as before.
    - Game idea #2 – blow out candles that are burning out, the wicks are attach to the children's heads.

- Comfort kids
  - Lie
  - Lie
  - Lie
  - Stay strong
    - Game idea – Dialogue options all over the screen but the ones that are the truth are greyed out. The words that appear on the screen form a hogtie knot.
- Tie kids up
  - You do what you must for your own and their own safety
  - It's okay
  - This is the right thing to do
  - I will come back with food
  - I have saved up enough money
  - It's safer this way
    - Game idea – rope tying game, the player has an image of a piece of rope and buttons, the buttons are commands to tie the rope, the know can be an actual knot used to tie up people. Merged with above.
- Go to food hall
  - I can make it
  - I hope they have something
  - I hope I don't get killed
  - I have money
  - That's what they want
  - Not me
  - We can do this
  - I must eat
    - Game idea – pac-man minigame reused, player must avoid everything to get to the shop safely.
- Buy food
  - I'm so scared
  - I need to eat
  - Please let it be enough
  - What do I want?
  - Whatever I can get
  - A leg should be enough
  - I have food
  - I did it
  - I need to get back now and cook it
    - Game idea – a shop, based on the photo of the cannibals selling human body parts
- Go home
  - I need to cook
  - Where are my kids
  - I need to cook
  - What has happened to my kids
  - My daughter
  - What happened to you
  - Where's your brother
  - What are you holding
  - I don't have enough energy to scream
  - I can cook it too

- I need to eat
  - Game idea #1 – reused pac-man to get back home.
  - Game idea #2 – Breakout cannibalism.

Boy:

- Wake up
  - Extreme hunger
  - Anger
  - Rage
  - I see food
  -
- Escape tied up
  - Anger
  - Hate
  - Rage
  - I must kill and eat food
    - Game idea – screen goes red, the player must click on and move a tied-up boy on the screen, the player must move their mouse violently to free the boy.
- Attack sister
  - Die
  - Die
  - Die
  - Die
  - Die
  - I need to eat
  - Must eat
  - Argh she hit me
    - Game idea – the screen flashes to a shot of the back of the boys head and the tied up girl, the shot is then of the girls face, the player has to click a button that says hit her; kill her; KILL HER!!. Each time the player presses the button the girls face becomes more bloody. The screen flashes red which each button press. Then the screen goes black.
- Run away
  - I need to find food
  - I need food
  - Do these people have food
  - I'll kill them
    - Game idea – pac-man, the boy is running away and starts attacking the ghosts, pac-man icon is also red.
- Get kidnapped
  - No
  - No
  - No
  - No
  - Argh
  - Argh
  - Anger
  - Frustration
  - Pass out



- Game idea – similar to the first game but the boy gets progressively harder to move and then the screen goes black.

Girl:

- Wake up
  - What is that
  - Why does it hurt
  - Why won't it stop
  -
- Get attacked
  - Aaaaaaarrrrrrggggghhhh
  - GET OFF ME
  - I hit it with everything I had
  - I can't see
    - Game idea – spam the spacebar to build up a meter, once the meter is full the player can press the fire button, the fire button makes the screen flash red then fade to black.
- Pass out
  - I must sleep
  - peace
- Hallucinate
  - Mother
  - Feed me
  - I am so hungry
  - I need food
  - Whats this?
  - Its my brothers head
  - I will eat it
    - Game idea – grain catcher game repurposed, instead of grain its hot meals, human flesh, fruits, vegetables, water etc. Instead of the net it's a mouth. All the food caught fills up a meter. Fade to black.
- Wake up
  - Mother where are you
  - I need food
  - Dad must have some food from the harvest
  -
- Go find food
  - I need to find dad
  - Where is he
  - I am starving
    - Game idea – pac-man, but all the player finds is a dead body (dad). The player can collect the body parts.
- Find dad
  - There is a body
  - I can eat finally
  - It's dad
  - I need to eat
  - Dad is dead
  - I'll bring some back for mum

- Game idea -
- Bring a limb back home
  - Mum look what I found
  - Finally we get to eat
    - Game idea – breakout cannibalism.