Strengthening Moral Competence & Democratic Behavior through Game-Based Learning

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Abstract
This research combined game-based learning methods with Georg Lind's work on moral competence to create *Morally: A Game of Right and Wrong*, an immersive learning experience with the goal of strengthening moral competence and democratic behaviour. Quantitative data indicates an increase of over 37% in moral competence of university students after the experience, while qualitative data underlines individual satisfaction of its participants with the gamified workshop. Based on this data, *Morally: A Game of Right and Wrong* has demonstrated to be a successful approach in creating a scalable game-based learning experience with the potential to strengthen moral competence and democratic behaviour. Follow-up studies are required to secure the finding.

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Introduction

The last decades have seen an unprecedented spike in new technologies that have changed how we live and learn (Gee, 2003; Lin & Chen, 2017). Technologies such as social media and videogames have had a profound impact on how we think of our lives, on how we interact with others, how we educate and entertain ourselves, and how we expect to encounter content (Twenge, 2010, p. 1121). Consequently, that means that especially educational institutions are standing today in harsh competition with other agents (i.e., producers of entertainment) for the attention of their learners.

The embedding of recent technologies into our sociocultural discourse has caused two phenomena that require rigorous attention by educators, namely the requirement to teach learners with tools and technologies that are familiar and relevant for their present and future day-to-day lives (Clark-Wilson et al., 2020, p. 1231). If education acts as a domain to prepare students and learners for real world challenges, then it must do this in ways that simulate these challenges appropriately in form, namely by using contemporary technologies to teach content. The other phenomenon is that while new technologies have made us accustomed to their use and convenience, they have also changed our routines and ways of living (McLuhan, 2001, p. 15). This means that we require different forms of knowledge compared to what we would have required decades ago. Society changes and the purpose of teaching students to learn subjects such as history or economics are arguably subjected to these changes as well.

In this project, it is argued that some forms of content need to be rethought to allow for new forms of thinking. Institutionalized education (i.e., in schools and universities) face stupendous challenges today. Technologies have changed how we live and learn and require rethinking of the methods used in the classroom and their contents. My project aims to make a compelling case for the combination of a progressive method that involves a relatively recent technology and a skill instead of content that educators should consider. With this project I wanted to show how with game-based learning methods one can strengthen the moral competence of learners.

Why game-based learning? Because play is arguably the most natural way for not only humans but also animals to learn new skills (Huizinga, 2016; Hodent, 2018). In addition to that,

videogames are ubiquitous in today's culture and therefore a mode of activity that is popular and familiar to billions of people on the planet (Egenfeldt-Nielsen, 2020).

Why moral competence? Because it is a skill that allows us to strengthen our democratic behavior and mental conviction in complex decision-making processes (Lind, 2019). Today's life has become complex and diverse, which requires a lot of autonomous and critical thinking when making decisions. Moral competence can be seen as an ethics of critical democratic behavior (Lind, 1987).

The goal of this project was to use game design techniques to develop a learning experience that engages students effectively in discussions on ethics and democracy with a quantifiable learning outcome. A challenge in research on learning is often to measure learning outcomes, especially when speaking of 21st century skills such as critical thinking or, in this case, moral competence (cf. Pereira-Santos, 2019, p. 63). The other challenge is the learning experience itself, which needs to be thought of as a game space ripe with enjoyable, playful but also challenging interactions for players (Zubek, 2020, p. 8). The past has shown many times how easy it is to fail learners in providing edutainment which lives up to the expectations of its players (Hanussek, 2021, p. 193). Adding scores and leaderboards is not enough to gamify an experience. For players to feel immersed, engaged, or involved the experience must be wholesome and not playful on a surface level (Schallegger, 2016, p. 682). My project tried to tackle the issue by creating *Morally: A Game of Right and Wrong.*

Morally was developed during a three-month research stay at Teachers College at Columbia University, New York and is a remote game-based learning experience that strengthens moral competence. It is, at its core, a gamified adaptation of Lind's Konstanz Method of Dilemma Discussion, a standardized workshop that engages participants in moral discussion, which merges interactive fiction with game show elements (cf. Hanussek, 2021). The game was developed as an online experience and hosted on Discord, where players step into the shoes of ancient gods to compete for moral authority. A game has seven levels in which players are exposed to a moral dilemma by playing an interactive visual novel designed with the development software Twine. Then, two opposing teams representing predefined moral perspectives (i.e., Order versus Choice) are sent to breakout rooms to formulate arguments for subsequent debate phases. Systematic debating is the game's core combat mechanic while each level contains different objectives and features that ensure engaging dynamics for its

players. The game ends after both teams write and present moral verdicts and vote collectively for the most convincing. To observe and evaluate its learning outcomes, the moral competence of players is (and for this project was) measured before and after the experience.

Moral competence is the ability to translate one's moral intuition into action (Lind, 2019). Moral competence operates on the premise that progressive societies consider violence and deceit in themselves universally wrong (Habermas, 1990; Hartman, 2016; Lind, 2019). The German psychologist Georg Lind developed the MCT (Moral Competence Test) as an empirical tool to quantify moral competence. Moral competence is measured through a two-stage survey that cross-examines the consistency with one's moral alignments in 26 questions. The MCT has been used in various correlation studies that indicate significant coherence with high moral competence, mental resilience, and democratic behavior (Biggs & Colesante 2015; Martins et al. 2021). The test has, however, in terms of statistic validity significant issues that will be discussed in a latter chapter of the experiment. Furthermore, Lind developed the KMDD (Konstanz Method of Dilemma Discussion), a workshop that systematically exposes participants to moral dilemmas and self-moderated debates (Stec, 2019; Lind, 2021). Multiple studies conducted in educational, corporate, and even military environments demonstrate an increased moral competence after such a workshop (Lekriabundit, 2006; Cummings et al., 2010; Reinicke, 2015; Stec, 2018). This project aimed at developing a novel game-based learning method that can strengthen the moral competence of its players by using interdisciplinary methods allowing also to measure the learning effects through qualitative and quantitative data. Something which in this particular fashion (game-based learning merged with moral competence in focus) has not been attempted yet.

To guide the reader through this research, they will be introduced to the theory and practice of game-based learning. This is essential to provide a basic understanding of how elements of play tie into learning experiences and why they can be highly effective in practice. Furthermore, the reader will be introduced to the notion of moral competence. This section will contain Georg Lind's theory of moral competence, how it can be quantified, and how it can be strengthened through his Konstanz Method of Dilemma Discussion. The following section will then describe how *Morally*, a game-based learning workshop, was developed as an adaptation of Lind's KMDD by combining it with a set of game design elements. Further, the experimental design through which quantitative and qualitative data on the workshop participants was collected will be presented. The quantitative results will be discussed, and reports of the

workshop experience and an evaluation of qualitative data have been attached in the Appendix to give first-hand player accounts on the experience in practice.

Game-Based Learning

Game-based learning is a method that uses game design elements to create engaging and effective learning experiences for practical, real-world skills such as calculating, critical thinking, or memory recall (Lee & Hammer, 2011; Plass et al., 2015). Game design encompasses numerous factors such as rules, narrative, objectives, or scores that amount to what we call a game (Rouse III, 2016, p. 83). A game uses these game design elements to create a virtual space, or magic circle, in which the outside world is of no concern (Huizinga 2016, p. 9; Sicart, 2020, p. 15). A game operates as its own cosmos in which players are confronted with challenges they must resolve to succeed (Juul, 2003, p. 11; Salen & Zimmerman, 2004, p. 80) That games engage players with challenges which require solutions makes them learning experiences by virtue. Game-based learning methods borrow the structure and design of games to support the learning of skills that are useful outside the immediate game space.

Game-based learning is not a new method in itself. War games, for example, have already been used by Prussian military generals to simulate potential combat scenarios, which allowed them to anticipate complicated situations which they could resolve more easily once played before (Egenfeldt-Nielsen, 2020). In schools, however, games emerge in the form of serious games (Abt, 1987) and later digital edutainment from the 1970s onwards. The effectiveness of learning through play has been studied by many scholars who came to very different conclusions on why game-based learning can maximize learning outcomes while at the same time offering much more exciting and enjoyable experiences for its learners compared to traditional learning concerns (Egenfeldt-Nielsen et al., 2020, p. 267). At any rate, game-based learning, if done right, has in most cases a positive impact on the motivation of learners, which from a neurological perspective is at least one of the reasons why learning effects are maximized.

Though there are many theories on how games tap into the motivation of their players, Yee presented in a study from 2006 where data was collected from 30 000 users of an MMORPG that the motivation of players that drives them to stay engaged with a video game usually comes down to the notions of achievement, relationship, immersion, escapism, and manipulation (pp. 318-319). Throughout the years, this study has been challenged and improved by other researchers that came up with different motivation factors. Today it is a general consensus that

at least three of these factors still hold, namely achievement, relationship, and immersion (Hodent, 2017, p. 70). Witch achievement, "the desire to become powerful in the context of the virtual environment through the achievement of goals and accumulation of items that confer power" (Yee 2006, p. 319) is measured. The Relationship factor "measures the desire of users to interact with other users, and their willingness to form meaningful relationships that are supportive in nature, and which include a certain degree of disclosure of real-life problems and issues." (Yee 2006, p. 318). Immersion, on the other hand, looks at players who "enjoy being in a fantasy world as well as being "someone else." They enjoy the storytelling aspect of these worlds and enjoy creating avatars with histories that extend and tie in with the stories and lore of the world." (Yee 2006, p. 318-319). Understanding these factors allows game designers and educators to create learning experiences that tap into the motivation of players to maximize the effects of learning. To do so, the aesthetics, so every in-game element which can be experienced by players (Egenfeldt-Nielsen, 2020, p. 121), of the game are designed as an architecture to accommodate these motivations (Barney, 2021, p. 41). Game aesthetics can be as previously mentioned rules (or mechanics), narrative, and visual elements (i.e., graphics). Designing aesthetics for the factor of Achievement could be the creation of a scoring system which allows players to see a quantified representation of their game progress allowing them to compare themselves with others. The factor Relationship can be promoted by building games in which players can cooperate and communicate with other players. And the factor Immersion can be addressed by storytelling; verbally but also visually (Jenkins, 2004). The later section on the design of Morally will present on how game aesthetics were deduced from these three motivation factors. However, the positive effect of making use of game-based learning remains negligible, which has many reasons (Bogost 2021, p. 31; Hanussek 2021, p. 193). To remain in the scope of this research, three reasons will be given which became central for this research.

The first reason is the basic difficulty of creating a game that pleases its audience. The video game industry invests billions of dollars annually into user research and development of games to offer exciting experiences that are constructed along the lines of well-studied player expectations (El-Nasr et al., 2013; Hodent 2017, p. 197). Addressing the expectations of millions of players makes game production a complex and expensive enterprise. Creating a coherent gameplay experience is not simple and requires much know-how in theory, practice, and user research. Many edutainment projects, visible on any subject matter conference, fail due to the naivete of educators who believe it is enough to make something look like a game

to attract students. But as playing games is a natural human activity, even a child without having ever played a game or knowing anything about the theory of games will notice whether a game is fun (Sutton-Smith, 2001) or “chocolate-dipped broccoli” (Bruckman, 1999). This problem can only be solved by involving professional and experienced game developers or at least their methods in the creation of educational learning experiences.

The second reason lies in the content or skill that one wants to teach. Not every topic or skill is worth gamifying. Studies show that there appears to be little significant difference in the effect of teaching facts through games or books when looking (Chapman, 2016, p. 276). And if a topic makes sense to gamify, it requires to be carefully implemented into the overall design of the game. This ties into the first reason, which comes down to the fact that creating a game to teach anything at all is a complex and difficult task that requires multidisciplinary thinking and practical experience. Games are played through stories, sounds, mechanics, graphics, spaces, fiction, and many more aspects (Rouse III, Zubek 2020). Only if this multitude of game design elements is thought of as parts of a whole does a game by today’s standards has the chance of being considered worth players’ time.

The third reason which might contribute to the difficult situation edutainment is that the learning outcomes cannot be always quantified, which hinders educators and researchers to argue for the effectiveness of a game compared to traditional learning methods. Games themselves are self-contained, which means that players could find out themselves if they learned the game by being able to play it without any major difficulties (Juul, 2003). If a game wants to teach skills beyond the game space which could be useful in a real-world environment, things become extremely difficult as the game needs to fulfill two tasks at the same time; Entertain players by allowing them to traverse its core gameplay while also making sure that players learn something which is external to the domain of the game space itself. To do this, it requires to have the skill embedded in the core game design. This means that the skill that the game wants to teach must be embedded in the experience and gamified as such. For example, if players are supposed to learn critical thinking, the game itself must make this an element of the game which is logic to the game itself (Bogost, 2007, p. 125). There cannot be friction between what is being taught and what the game is at its core. These elements must to be synthesized into a unified experience to allow players to fully focus, learn and enjoy the game.

To summarize, game-based learning has an immense potential to enhance education, but the gaps between proper state-of-the-art game design know-how and proper financial funding for game-based learning projects in educational institutions are sobering. However, understanding the motivations of players can be a first step in the right direction when creating game-based learning experiences. Regardless of the content that one wants to teach, understanding basic motivations of players and constructing games accordingly must be the first step in order to create a promising base for game-based learning.

Moral Competence

Moral competence is the ability to translate moral intuition into action and is considered a 21st century skill (Geisinger, 2016, p. 246; Lind, 2019). The concept of moral competence was developed by Georg Lind and looks at the ability to resolve moral conflict in a democratic way and apply prosocial behavior while fostering mental resilience (Lind, 2021).

Earlier in this paper, it was mentioned that the ways we live and learn have changed profoundly. Game-based learning may be a possibility to address the fact that we learn differently than through what traditional education offers. However, the formalized structure of learning is not the only aspect that requires rethinking. Today, we live as a globalized, interconnected, and diverse society with challenges that are much different from those that education addressed in the nineteenth or twentieth century when it was institutionalized. Today, it may be argued that we do not face a crisis rooted in lack of factual knowledge, but lack of critical and democratic thinking. The complexity of our societies seems to bring unfavorable effects in its dragrope such as racism, xenophobia, or a longing for autocratic governance (Lind, 2019, p. 17). The most effective way to minimize the impact of these developments could lie in critical and democratic thinking. But how can we foster these forms of cognition?

Georg Lind, with his research on moral competence, may offer a perspective on how to approach a progressive education in the 21st century. High moral competence according to several studies correlates with democratic behavior and mental resilience (Lekriabundit, 2006; Cummings et al., 2010; Reinicke, 2015; Stec, 2018). Moral competence operates as a skill with which people gain the capability to make decisions based on their socio-moral alignments. That means, in short, that individuals with high moral competence are more likely to make decisions that benefit the group while being also satisfied with the decisions they make. Lind has been much influenced by Habermas, who in turn was very influenced by Kantian ethics of enlightenment. This means that the idea of moral competence is fundamentally grounded in the premise that decisions are to be resolved in council with oneself and the world (Habermas, 1990). For Kant this premise was the categorical imperative which would be formulated in what he called the kingdom of ends, an elaborate adaptation of Rousseau's thoughts on the social contract where we are supposed to act on behalf of what is right for everyone (1998).

Lind himself, being a psychologist, is more of a pragmatist and, though he does not explicitly state it, seems to support the kingdom of ends' notion on a smaller scale at most (cf. Lind, 2019, p. 144). This means that there is a limit to how many factors we can consider when making a decision. Something that Sartre already thought about when stating that moral considerations are infinite (1992). Despite that, limiting ourselves to a set of factors when trying to make democratic or moral decisions allows us to escape paralysis, which is what moral competence is all about. Moral competence may not be a grand theory on what morality, ethics, or moral action is, but it allows us to understand a skill that humans can improve in which they can navigate through complex decision-making processes that involve other people as well (Lind, 2012).

High moral competence leads according to the theory, but also correlation studies, to more democratic lifestyles and general mental well-being. However, low moral competence is correlated with autocratic attitudes and even depression (Biggs & Colesante, 2015; Lind, 2019; Martins et al., 2020). What makes moral competence an extremely interesting case is that it is not just a theory but also an empirical construct. As stated earlier, moral competence is the ability to translate moral intuition into action and a skill allowing addressing "conflicts through deliberating and discussion based on moral principles" (Lind 2019, p. 7). Lind managed to quantify it by creating a psychological test, which is based on Lawrence Kohlberg's moral judgement test. Lind's Moral Competence Test measures individual moral competence scores through a two-stage survey that cross-examines the consistency with one's moral alignments in 26 questions. A score between 0-100 is the result of the test and indicates the individual's moral competence score. There have been many studies that worked with Lind's methods and correlate moral competence scores with secondary effects and attitudes, as mentioned before (Lekriabundit, 2006; Cummings et al., 2010; Reinicke, 2015; Stec, 2018). Despite that, Biggs and Colesante conducted a meta-study that challenges the moral competence test as an empirical tool of little statistical validity due to its ambiguous nature of dealing with morality (2015). This aspect will be referred to later in the paper when the workshop results are interpreted.

Beyond the theory and method connected to moral competence, Lind developed the so-called KMDD (Konstanz Method of Dilemma Discussion). This didactic method has the goal of improving moral competence through moderated debates on moral dilemmas. This method is grounded in Blatt and Kohlberg's dilemma discussion method (1975) and based on the

principles of Habermas communicative action (1990). KMDD sessions take around 90 minutes in which a group of participants present and discuss a dilemma in subsequent steps. The session is conducted by a moderator. According to Lind's standard model, a session starts with a dilemma presentation followed by a brief individual reflection. In addition, a small first debate is opened to allow participants to detect the dilemma. After that, the participants join in small groups of a maximum of three people to prepare for a plenary. How the plenary is conducted and closed depends on the moderator. Before and after the session, moral competence scores are measures through Lind's MCT (Lind, 2019, p. 102).

Although the structure, especially the plenary, of a KMDD session is flexible, the success of a session requires several factors that must also be considered. For example, studies have shown that gains in moral competence are strongly dependent on the moderating skills of the person who conducts the session (Lind, 2019, p. 103), but also other aspects such as the learning climate or choice of dilemma stories. Lind argues that the optimal learning climate is reached when the 'ping-pong' rule is established, which means that participants enter a mode of flow in which the discussion is self-moderated by the participants themselves with minimal interference from the moderator. Whether dilemmas engage participants or not depends not just on how well they are presented but also on whether participants can identify with the issue. Therefore, moderators of a KMDD should have sufficient knowledge of their participants before the event in order to select an appropriate dilemma. In addition to that, a dilemma must be relatable enough to engage participants with the topic but cannot resemble reality too closely as it could cause participants to be affected emotionally.

Another factor Lind mentions about an ideal KMDD session is a standard of argumentation which must be enforced by the moderator if needed. Arguments given during a session can certainly be based on experiences of participants, but they must be allowed to use factually disproven or fake news for arguments or regressive statements (i.e., I am against it because I do not like the person that has presented it). The last factor refers to engagement through support and challenge. Naturally, discussing moral dilemmas can be challenging, especially when participants have differing levels of moral competence, enabling them to react in different tempos and levels of decisiveness to the discussion. To contribute to the optimal learning climate, the moderator should be looking out for participants who struggle with the discussion and give hints by subtly interfering with critical statements. On the other hand, bored participants can be challenged through critical questions (Lind, 2019, pp. 103-104).

KMDD sessions have been held by Lind and his colleagues in various countries (i.e., Germany, USA, Poland) in different contexts (i.e., school, university, military academy) with positive results in moral competence and feedback (Stec, 2015; Lind, 2019). Surprisingly, a regression of moral competence could be measured in follow-up studies with participants after a year, which means that moral competence, as Lind stated in his book, functions like a muscle that gets smaller if not trained (2019, p. 84). The KMDD itself can be considered a didactic success, as it developed a standardized method of improving moral competence in a communicative fashion allowing reproduction. Furthermore, feedback surveys have shown general satisfaction with the format among its participants. Today, the KMDD has lost momentum regarding active implementation in educational contexts compared to when it was much in practice in the 2000s and early 2010s.

In summary, this section presented Lind's concept of moral competence as a progressive skill worth considering to be taught in schools and universities. Moral competence is promising, not just as an ability that fosters democratic thinking and mental resilience, but also as an empirical tool which allows quantifying moral competence of individuals through the MCT. Furthermore, Lind developed the KMDD, a standardized discussion workshop that indicates a significant increase in moral competence of its participants. The next section will present how the KMDD was used as a basis for *Morally*.

Morally: A Game of Right and Wrong

This section introduces *Morally: A Game of Right and Wrong*. *Morally* is at its core a game-based learning adaptation of Lind's KMDD. The core impulse of this project was to create a learning experience with gameplay that is enjoyable for its participants, while still having the possibility to measure learning effects. The idea of merging the KMDD with elements of play emerged already in an earlier work of mine (Hanussek, 2021). In that paper, however, the idea was to replace only one element of Lind's KMDD, namely the dilemma exposition at the beginning. In the paper's thought experiment, it was argued that it would make sense to replace the written dilemma in Lind's workshop by letting participants encounter a dilemma in an actual video game. This should drive the engagement of its participants while eventually increasing the impact of the workshop, because playing a moral dilemma could involve participants more than just reading about it. Although this theoretical paper remained the basis for *Morally*, practice showed exceedingly early on that it would require a few more modifications to Lind's model to create a solid game-based learning experience. This section will present four crucial stages that led to the conceptualisation, design, development, and launch of *Morally* during a three-month research stay at Teachers College at Columbia University in the City New York.

Concept

Like most creative projects, *Morally* began with a conceptual stage in which the overall idea of a game-based learning workshop underwent intense brainstorming and literature review. The project's only fixed aspect was that it would utilize moral competence as the skill that should be taught and the didactic method, which was game-based learning. With that in mind, I looked at various projects and talked to other researchers and experts during my time in New York that had similar approaches and paid close attention to the dos and don'ts from various well-documented case studies (Anetta, 2008; Staines, 2010; Sung & Hwang, 2013; Dickey, 2015; Barr, 2019; Lee & Hu-Au, 2021).

It is important to keep one's future participants in mind. When involving video games in a classroom, accessibility becomes a pressing concern as everyone should have access to the same technology to play the game. Also, not everyone is familiar with playing games, therefore difficulty levels must be considered. Another major constraint was that my project was conducted during the COVID-19 pandemic for which the outcome had to be remote, as while

working on the project the end of the pandemic was not in sight. Thus, at an early stage, it seemed most effective to host the workshop at least partly via Discord. Discord is a communication platform that is mostly used in the context of video games (see: https://discord.com/). This allows for an environment which already evokes the *sense of gaming* among participants who are familiar with gaming. Also, during my work as teaching assistant at the Klagenfurt Critical Game Lab, I was managing and hosting numerous events on the platform, which worked very well from my own experience for both organizers and participants. It is a free and user-friendly platform that allows voice chats, text chats, image sharing, video streaming, and creating breakout rooms within one server. Furthermore, the video game *Among Us* (Innersloth, 2018), a game in which a group of players engage in having to find the murderer among themselves while communicating through Discord proved to be a perfect example of a hybrid multiplayer gameplay, taking partly place within the game's software and partly within the communication platform in an extent unseen before in multiplayer games (i.e., FPS-games, MMORPGs). The game and its effective hybrid multiplayer form have even been used in a game-based learning experiment to teach persuasion regarding manipulation and abuse of power (Sackett & Amoroso, 2022).

However, what was missing was the actual game that would expose the participants of the workshop to the dilemma. The chosen game would require clear and universally recognizable moral dilemmas that are not too far buried in the game. Meaning that it should not take much time for players to encounter these dilemmas. In the earlier mentioned paper, the game *Papers, Please* (Pope, 2013) was thought of to be a proper candidate as it suited many accessibility criteria. However, after much thought, the game was considered too difficult for people with no or little game experience. Also, many dilemmas play out over time, which leads to having to have players play for a considerable amount of time, which subsequently means having to rely on participants to play the game before the workshop, which seemed problematic. Another game that I investigated was *Beholder* (Warm Lamp Games, 2016), an Orwellian adaptation of *Papers, Please* which, again, required too much playtime as also a minimum of foreknowledge of the book 1984 to fully understand the dilemmas. After much consideration, I decided that the most efficient way to find a game that would suit the needs of the workshop was not just to use a game within a workshop, but to turn the whole workshop into a game. This would allow me to have more control on the workshop itself while also creating a holistic experience that organically connects the game with its educational framework. Before designing a prototype, I had to think more about the aesthetics of the game that would be

utilized for the game. These I deduced from the previously introduced motivational factors *Achievement*, *Immersion* and *Relationship*. Through my literature review of other game-based learning projects, I could identify the most successful and reliant aesthetics regarding *Achievement*: scoring mechanics, competition, and progression (Dickey, 2015). *Immersion* is usually sustained through narrative, storytelling, and graphics while *Relationship* is fostered through cooperation and communication within the game (Dickey, 2015; Barr, 2019). The conceptual phase took a few months including time before beginning my research stay at Columbia University of loose brainstorming sessions to reach a state where hands-on designing could take over. At the end of the conceptual phase, the following factors where clear:

- The game is remote and will be hosted on discord.
- The game will be a fully gamified adaptation of Georg Lind's KMDD.
- The game used to expose participants to dilemmas will be self-developed and not outsourced.
- The core aesthetics are constructed around the three player motivations *Achievement*, *Immersion*, and *Relationship*

These factors enabled me to conceptualize a solid game design architecture, which I expanded with more detail and structure onto paper during the design phase.

Design

While the conceptual stage allowed for a more fluid conceptualization and modification of ideas, the design stage was about writing down the final blueprint that could be practically developed into a playable experience. This meant clarifying tiny details that could decide about the failure or success of this project. With the help of Dr. Joey Lee, a game-based learning expert at Columbia University, New York, I was able to develop a structured model that would allow me to effectively gamify Lind's KMDD.

The game-based learning experience was called M*orally: A Game of Right and Wrong, which* contains the core elements of the concept in its own name. A session of *Morally* should take no longer than 120 minutes and have at least 7 players (including the moderator). The goal of the game would be to argue in teams against each other at subsequent levels for moral authority. Morally, reliant on the core structure of the KMDD was modified into a game with 7 rounds

with an introduction to the overall game at the beginning (see Figure 1). Time estimates were approximated based on my own experience when designing activities for students as a teaching assistant and consultations with Dr. Lee.

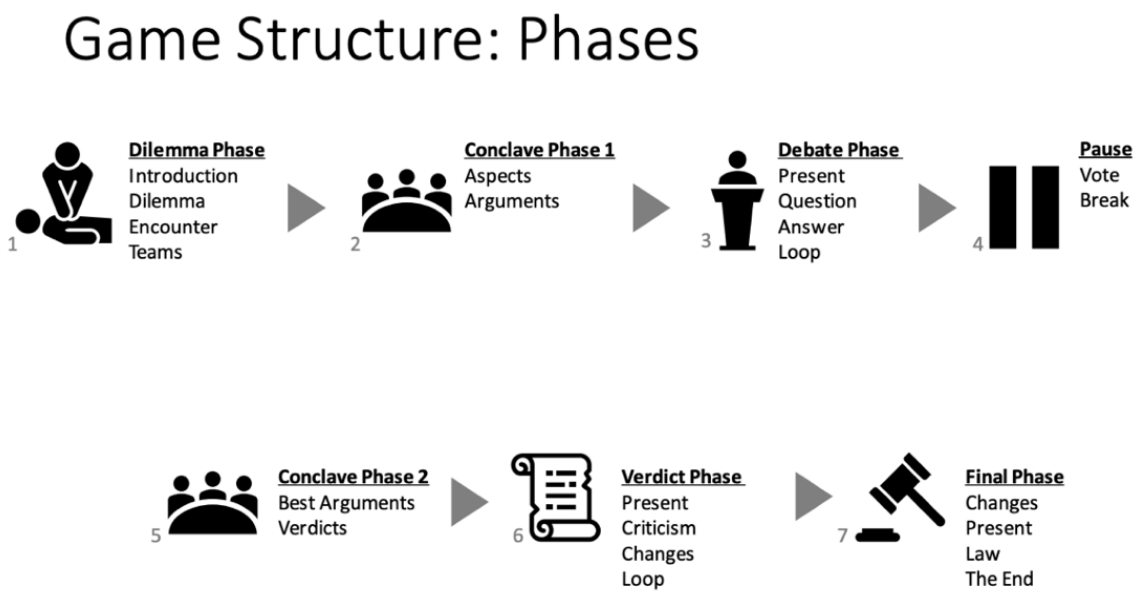

Figure 1: An overview of the main game phases, taken from the original design manual created for Morally

1. Dilemma Phase

In the Dilemma Phase (see Figure 2), players are exposed to a moral dilemma by playing a game or a part of a game. At the design stage, it was still not clear how the game would look like, but it would need to fit the overall concept and time limitations of the workshop. The game should not take more than 10 minutes and should contain a *universal* dilemma for which I can be certain that all players can understand the moral conflict it carries. The dilemma should be presented to the player in the form of an interactive Twine which will be elaborated in the section on the workshop's development. After all players have played the game, there should be a general discussion that would allow me to see whether everyone has really understood the moral issue in the content presented.

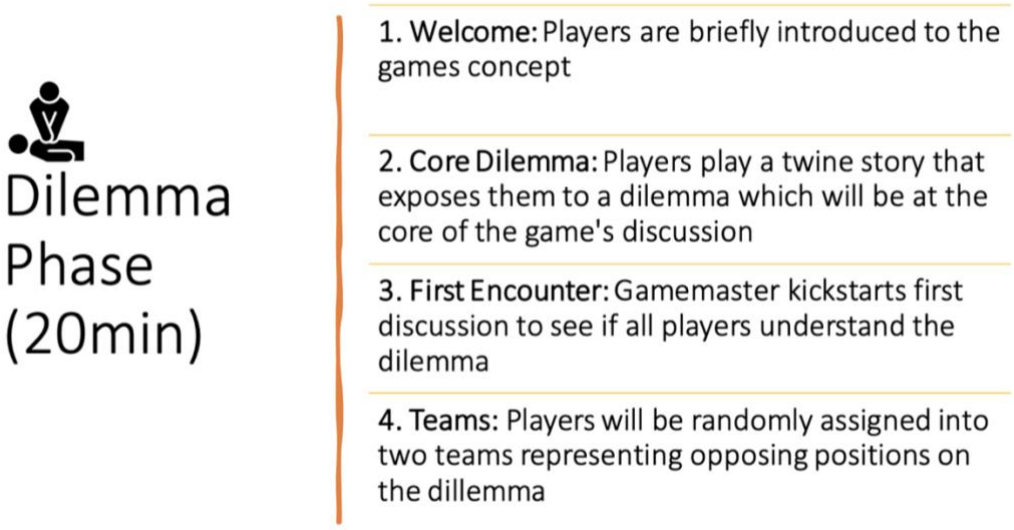

Figure 2: The Dilemma Phase with details to its gameplay

2. First Conclave

After the dilemma level, players are assigned into two opposing teams, which represent predefined moral positions (see Figure 3). To avoid matchmaking problems, the teams should be randomized, including the positions they represent. These two groups would then enter 'conclaves', secluded discussions in separate breakout rooms. In these rooms, the teams would receive keywords used to formulate arguments for their moral positions. Each player in a team receives one keyword and must construct an argument based on it for the debate level. Team members can help each other to build good arguments. The goal is to convince the opposing team of their position.

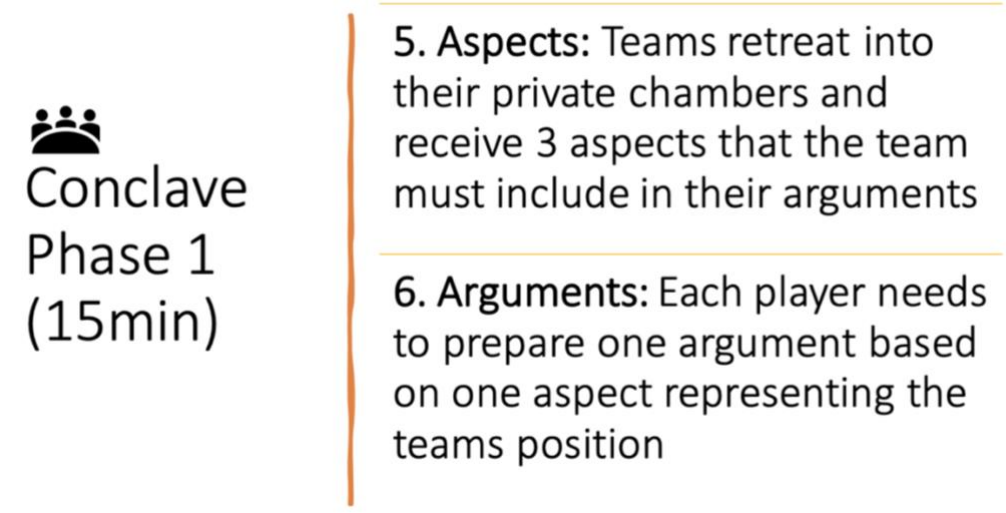

Figure 3: Conclave Phase with details to its gameplay

3. Debate Phase

In the debate level, each player presents the argument they created (see Figure 4). The presenting player is selected by chance. Players are given 2-3 minutes to present their argument, and the opposing team can ask one question at the end for which the presenting player gets a minute to respond. This process is repeated until all players have presented their arguments. Here, limited time slots are enforced to negotiate fair conditions for all players to avoid some players from dominating the discussion.

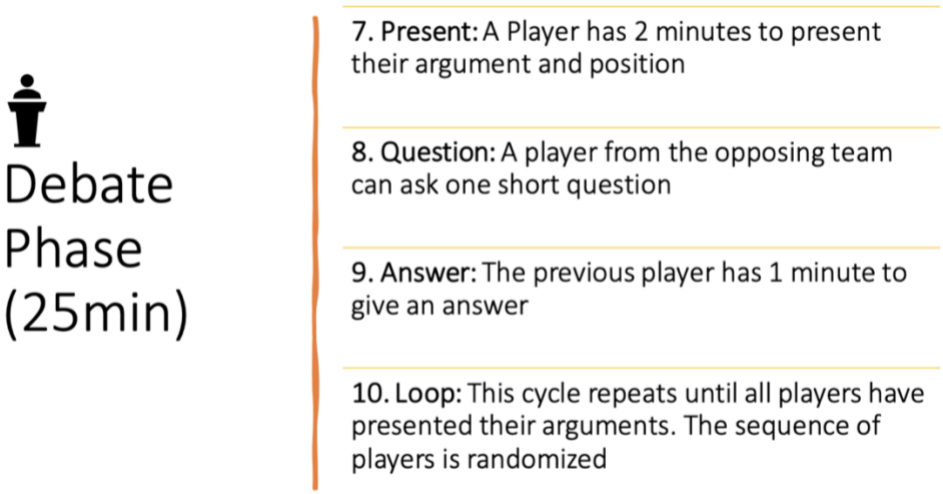

Figure 4: Debate Phase with details of its gameplay

4. Pause

As this game requires much critical thinking, a break is crucial to not exhaust the players. The break should be around 10-15 minutes (see Figure 5).

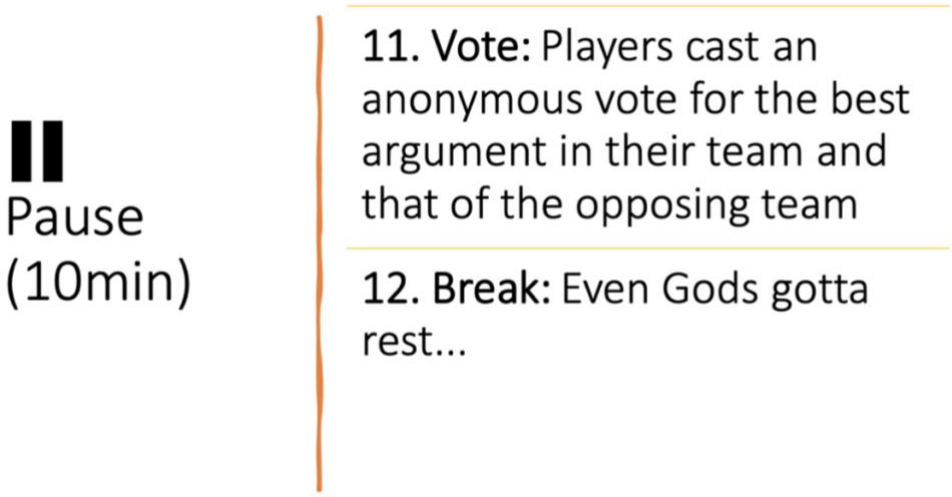

Figure 5: Pause with details of its gameplay

5. Second Conclave

After the break, a second conclave should be held to intensify the discussion (see Figure 6). For that reason, the goal should not be to present just the team's position but to try to formulate a compromise to win the game together with the other team by synthesizing both positions into a holistic moral standpoint. In this second conclave, each team would present only one argument that would represent all members.

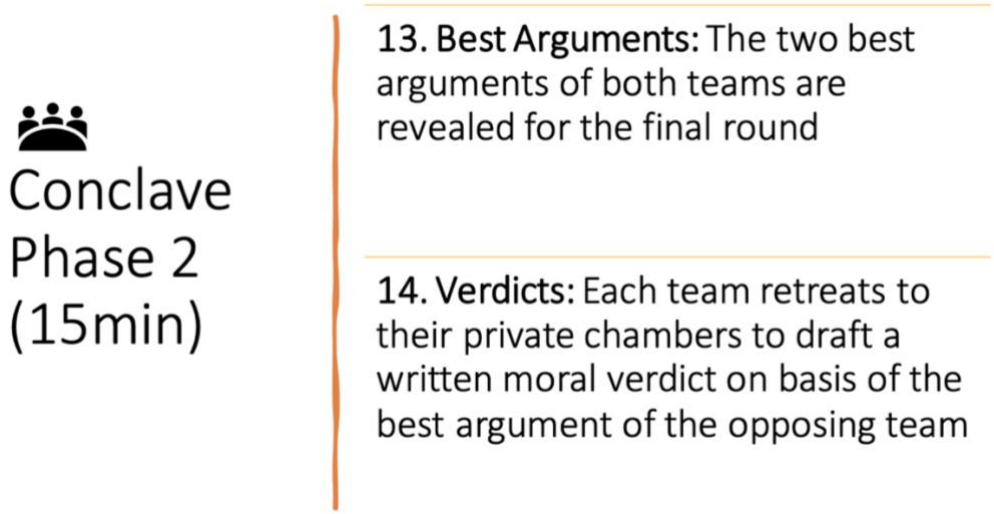

Figure 6: Second Conclave with details to its gameplay

6. Verdict Phase

After the conclave, both teams join for a last discussion in which they present their final compromises, which should reflect on their original moral positions but try to make

amendments with the opposing positions (see Figure 7). This last discussion phase should be free to allow for a dynamic self-moderated discussion in comparison to the previous debate level.

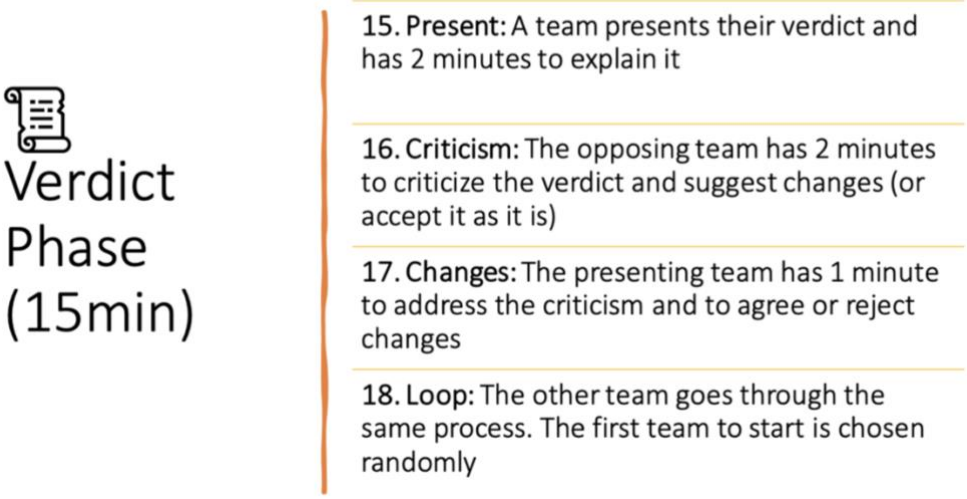

Figure 7: Verdict Phase with details on its gameplay

7. Final Phase

The game should ideally have a conclusive ending in which a compromise would convince both parties (see Figure 8). However, to design something like that would not be that easy, which is why this phase should be worked out in the development phase when the experience would receive concrete details that could be playtested in practice.

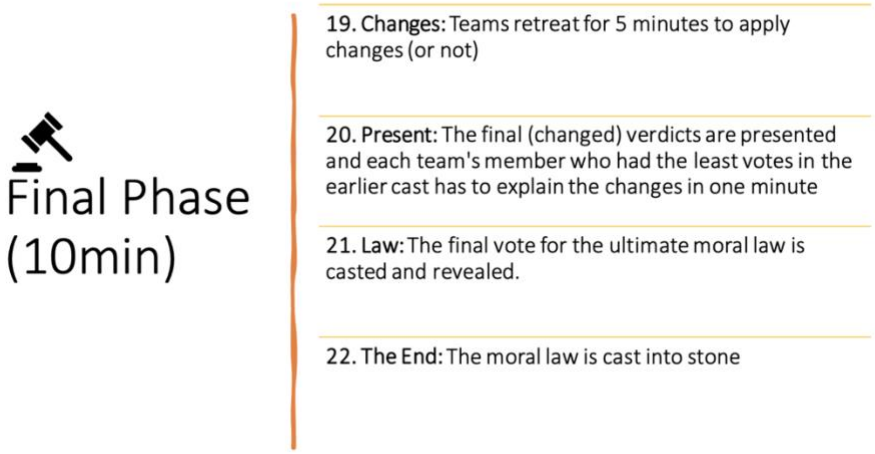

Figure 8: Final Phase with details to its gameplay

Development

The development of Morally was essentially the achievement of executing applicable solutions for the preceding concept and design. This section describes the tools, rules, and structures that were used in the final experiment. The complete Game Design of morally was oriented according to the former established player motivations *Achievement*, *Relationship*, and *Immersion*. Most of the solutions and modifications to the former design were applied after the initial design was brought into a round of playtesting. A report on one of the playtesting sessions conducted in the second month during my stay at Teachers College at Columbia University can be found in Appendix A. The report is based on notes and recordings that were taken during the session.

The first and most challenging step in the development of *Morally* was the creation of the game that would introduce its participants to the moral dilemma. The game should take no longer than 10 minutes, be easy to play and comprehensible. Fort that it was decided to use Twine, as it allows for the quick development of interactive stories that can be enhanced with illustrations. Twine has proven successful in many game-based learning experiments and has also proven to be a tool that can be easily learned by not just students but teachers themselves (Ariese-Vandemeulebroucke et al., 2017). Here, the opportunity was taken to merge the Twine game with the overall concept of the workshop in which players were portrayed as gods in their battle for moral authority (see Figure 9).

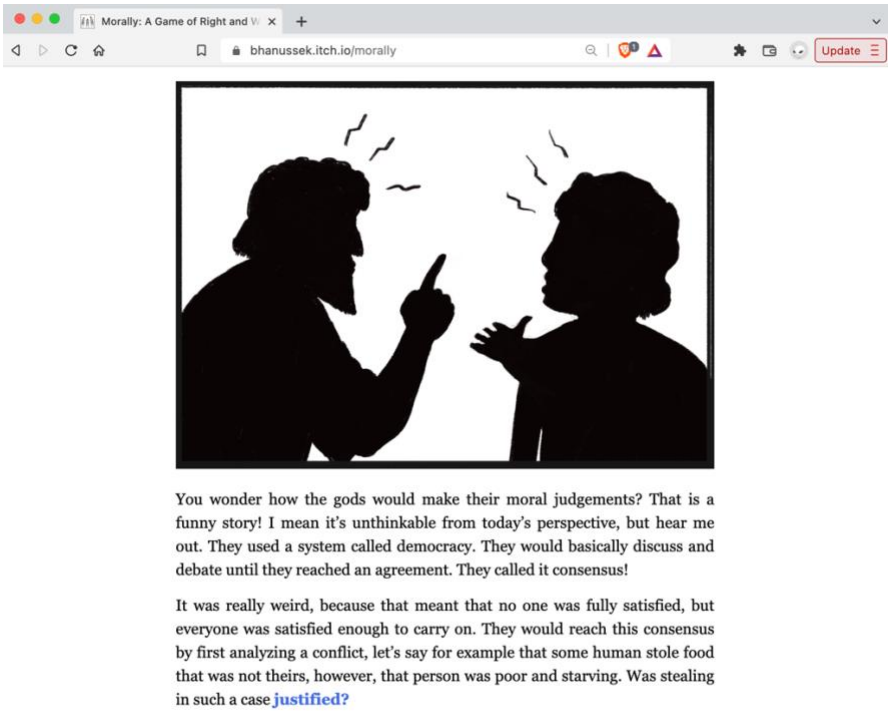

Figure 9: Screenshot from browser, introduction to Morally's concept, and fiction by illustrated storytelling using Twine

The introduction's purpose was to present the workshop's layer of fiction to the players. This attempt of increasing *Immersion* for players, made them engage with their role as gods that look down on earth and observe moral wrongdoings. They, as moral authority, are to decide on how to evaluate these issues and develop ways of how one was ought to act in such a situation. The idea of the game is inspired by Lacanian psychoanalysis and the concept of the Big Other, a mental construct that is responsible for judging oneself and others on basis of a symbolic order (Zizek). After the introduction, two Twine stories that are the basis for two discussion sessions can be selected. The Twine stories were written by myself for which I created in the first Twine a fictional adaptation of the invasion of Russia in Ukraine in 2022 that should thematize war crimes and whether soldiers ought to obey commands even if they mean committing illegal acts (see Figure 10). The complete Twine was illustrated by Nikolay Markozov, a Russian animator and 2D artist with whom I worked on other game related projects before. The art style is monochrome and simplistic to allow players to quickly recognize essential details. The second Twine story is a loose adaptation of the movie *Schindler's List* (Spielberg, 1993) that takes place in the same universe as the previous story (see Figure 11). Both stories and the introduction can be played on itch.io, for which all participants would receive access to (https://bhanussek.itch.io/morally). The complete Twine was developed with the help of Tom Tucek, a colleague of mine who has worked with me on another project related to testing moral competence of video game players. With the Twine

being built, the rest of the workshop was put into practice according to the former design plan with slight modifications that were undertaken after playtesting took place (see Appendix A).

Figure 10: A slice of Morally's "Soldiers" level

Figure 11: A slice of Morally's "Illegals" level

Launch

As mentioned previously, the Discord application was used as the platform and backbone of *Morally.* It also contributed much to the sense of community that strengthened motivation in regard to *Relationship.* All information about organizing and hosting the workshop was communicated through it by creating an own free server and using sub-channels to organise flows of information and instructions that would emerge during gameplay (see Figure 12). More information on the organisation of the group of participants will be described in the section on the experimental aspect of the workshop. As the workshop would contain diverse elements of gameplay such as the Twine game on itch.io, the conclaves of each team, voting for the best argument on another platform, Discord allowed to maintain order in communicating and instructing players by using several different text and voice channels. At the same time, the communication on the server itself would be automatically documented and, through Discord's user-friendly design, easy to retrieve for players and myself.

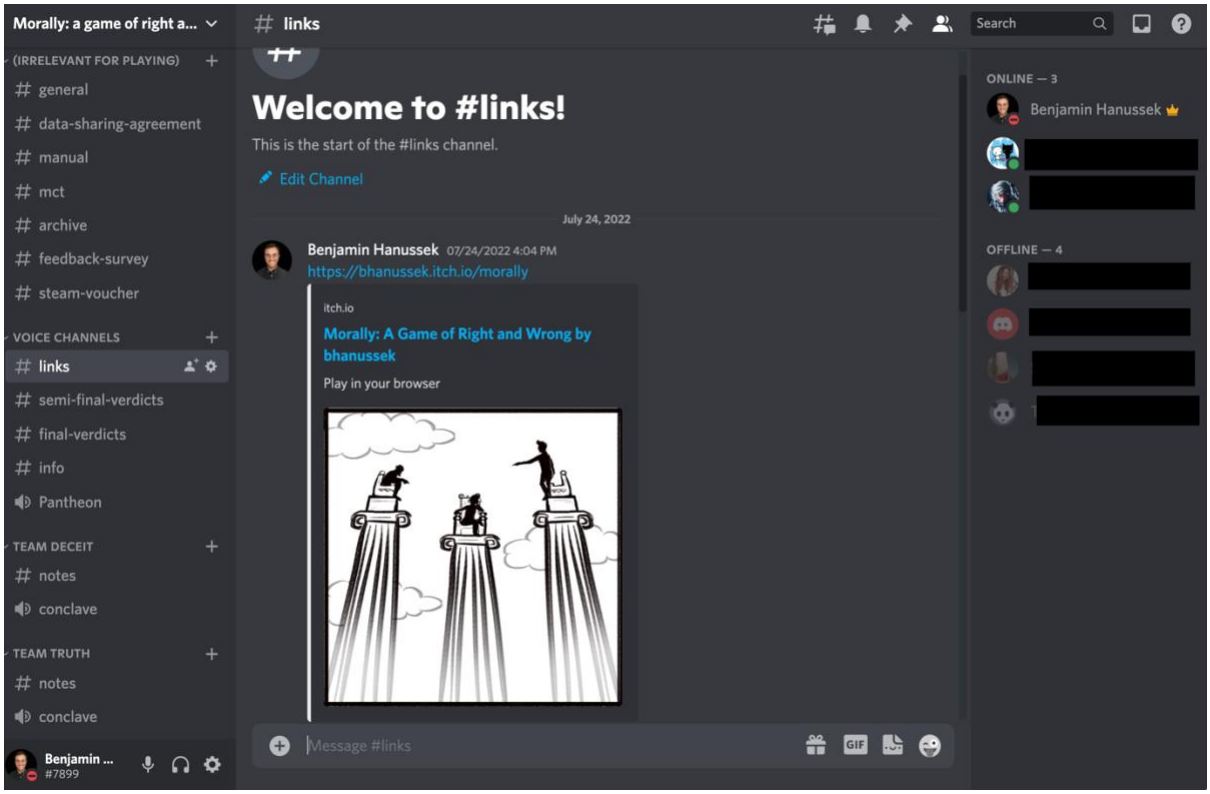

Figure 12: Morally's discord sever, on the left side various text and voice channels were used to organise different hierarchies and flows of information, in the middle an open text channel can be seen and on the right-side users of the server are displayed (user nicknames except the authors have been blacked out).

The complete session would be conducted with all participants having their cameras turned on (see Figure 13). This has two functions, namely, on one side, increasing the engagement of participants by seeing themselves and, on the other hand, to allow me control and oversight over the attention of the participants. Starting a session of *Morally* would require all participants to gather in the main public voice chat within the server. With being able to see all participants, through activated cameras, I would begin the session by streaming a presentation of a gameplay manual that would allow all participants to always know at which stage of the game they are and to make sure that all instructions are visible. In this article only the presentation for the session on the level *Soldiers* will be presented, however, all the supplementary materials created to play *Morally* including the second level *Illegals* can be found on the game's itch.io page (https://bhanussek.itch.io/morally).

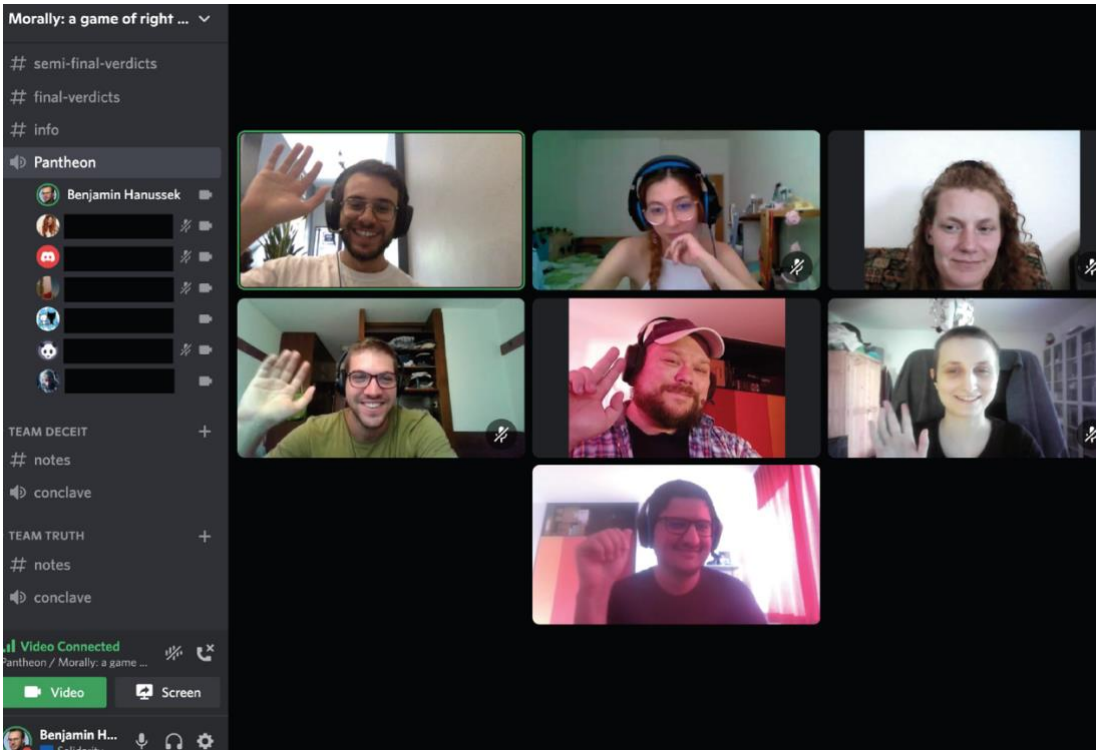

Figure 13: Screenshot taken after the workshop and used here with formal permission of all participants (usernames have been blacked out).

Before entering the first actual level of the game, a brief introduction was given to the general concept and objectives of the game (see Figure 14). This should allow participants to receive contextualizing information like what can usually be read in a cover text of a video game or movie. In this case, the participants were also informed on the aspect of moral competence. The introduction should also clarify the main objective of the game, that is, to compete for the better argument in teams (see Figure 15). However, it was also clarified to all participants that even though competition was part of the gameplay, regardless of the outcome of the game, players would strengthen their moral competence (see Figure 16).

Figure 14: Concept slide that introduces the participants to the wider context of the workshop

Figure 15: Second concept slide that refers to the general objectives of the workshop

Figure 16: Last concept slide that reassures participants that moral competence will be strengthened regardless of who wins

1. Dilemma Phase

After the introduction, the actual game would start and turn the participants in an experiment into actual players. For that the link for the Twine game and the *Soldiers* level was shared with the players. They were given ten minutes to complete the story individually and were supposed to return to the main channel after they had finished. After they completed the game, the gameplay presentation displayed a slide with two key events from the game. As mentioned earlier, the *Soliders* level thematized war crimes, and within the story two events happen, one in which the main character is told to shoot on a civilian while the other event concerns hiding the body to evade any consequences (see Figure 17). Players were asked to explain what the dilemma in the story was, to which most concluded that the soldiers in the story were not supposed to shoot the civilian or try to hide the body from the authorities. This segment took about 5-7 minutes and was for me to make sure that all participants clearly understood the dilemma.

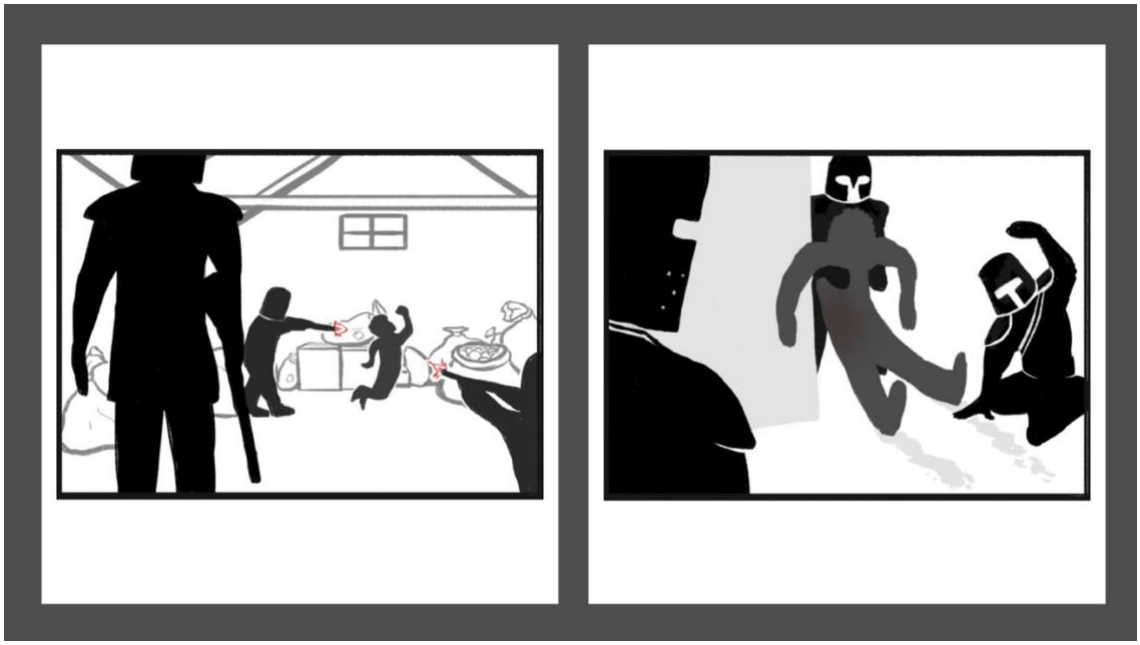

Figure 17: This slide features illustrations from two key dilemma situations from the Twine game

After this brief discussion, I revealed that the story was about the struggle between Order and Choice, which most players had guessed at that point already. The core question that should be the basis for discussion should be whether a soldier should follow blindly orders or whether he should be given the option to act on his own behalf (see Figure 18).

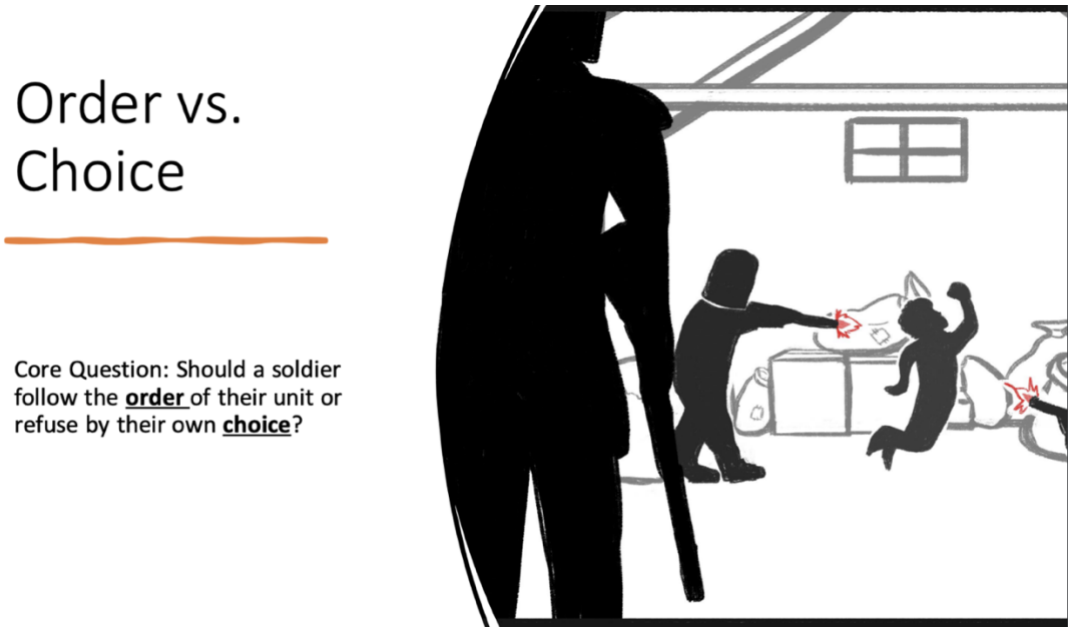

Figure 18: Slide containing the main question of the workshop session

The players were then randomly assigned to two teams of three; representing the two sides of the dilemma, namely, *Order* and *Choice* (see Figure 19). They were told that in the subsequent stages they will have to represent these choices even if they were not aligning with how they thought individually of the dilemma. They were then instructed to retreat to their teams' individual breakout rooms during the upcoming conclave stage, where they would receive *aspects* (keywords that represent general ideas, i.e., justice or family) that had to be incorporated into their arguments that they would have to construct for the first debate.

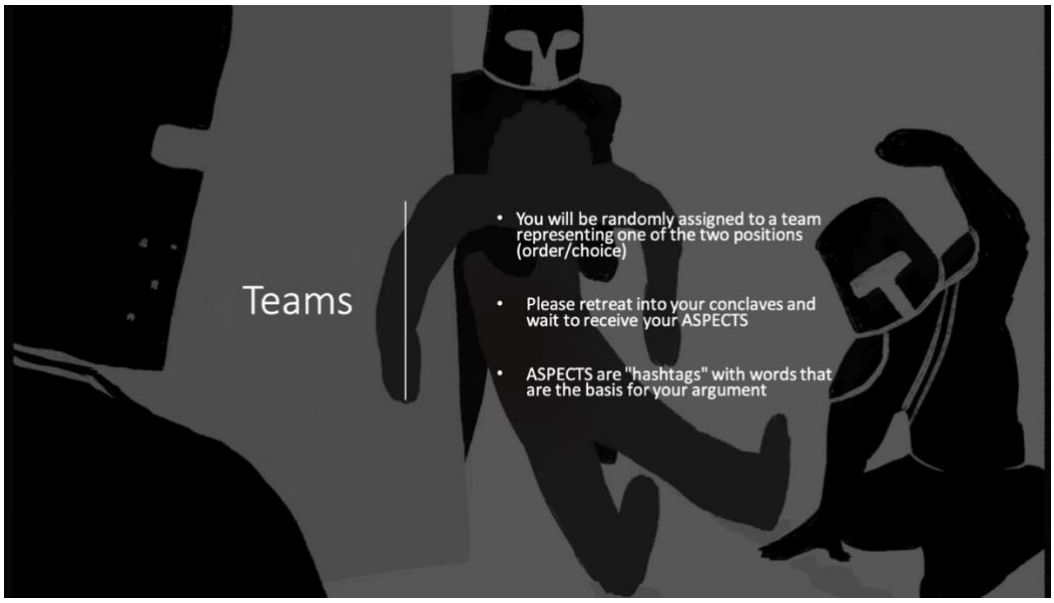

Figure 19: This slide contains information in preparation for the First Conclave

2. First Conclave

After players had entered their breakout rooms, they were given three *aspects*, basically keywords, that they needed to incorporate into their arguments when preparing for the debate. This would help them on one side to focus on a predefined idea while allowing me as moderator to exert control over the content, as the keywords have been chosen beforehand with care to streamline the discussion. The keywords that were selected were crime, free will, and innocence for the team representing *Choice* and duty, danger, and family for the team representing *Order*. These keywords could have been different, but they must allow players to easily synthesize the keyword with the parenting position that their team represents. Each team was given 10 minutes to construct an argument per team member that they would present individually in the next phase (see Figure 20). During this phase all three motivational factors come into play, *Achievement*, as players compete in groups for the better arguments, *Relationship* due to teamwork and *Immersion* due to their involvement in the task.

Figure 20: Slide containing important instructions for the First Conclave

3. Debate

Once the time ran out, both teams were invited to the main voice channel for the first debate. The sequence of speakers was randomly selected through an online wheel of fortune app (see: https://wheelofnames.com/). Each player received 2 minutes to present their argument based on their *aspect.* Before beginning, they had to reveal which *aspect* they received. After that, the opposing team could ask a short question and the presenting player would then have one more minute to respond (see Figure 21). Once the player gave their answer, the wheel of fortune was spun again, and the procedure would be repeated with the next player. This would continue until all players had presented and defended their argument.

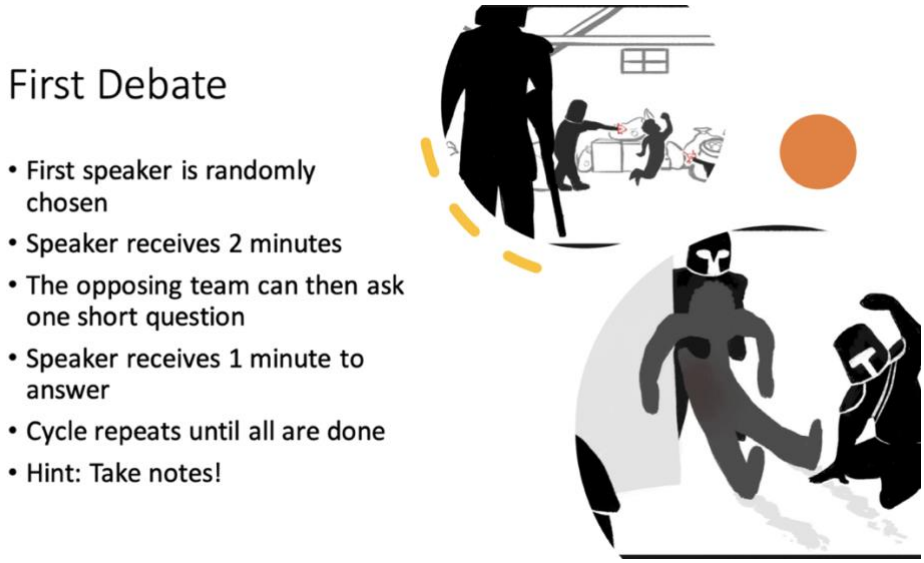

Figure 21: Slide displayed during the Debate to remind players of the procedure

4. Pause

After the first debate about half of the estimated workshop duration (120 minutes) was over, which made it ideal to place a break here. However, during the break, the playershad to rate the other teams' arguments based on how well they thought their arguments were in terms of being logically deduced from the *aspects* they were given. For that, the application *Rankit* (see: https://rankit.vote/home) had been used for which votes for both teams were cast (see Figure 22). The results of the vote were revealed after all players returned from the break. It was also announced that players with the lowest scores would have to present the teams' verdict during the final round. This aspect engaged players through *Achievement* by embedding scoring mechanisms into the gameplay.

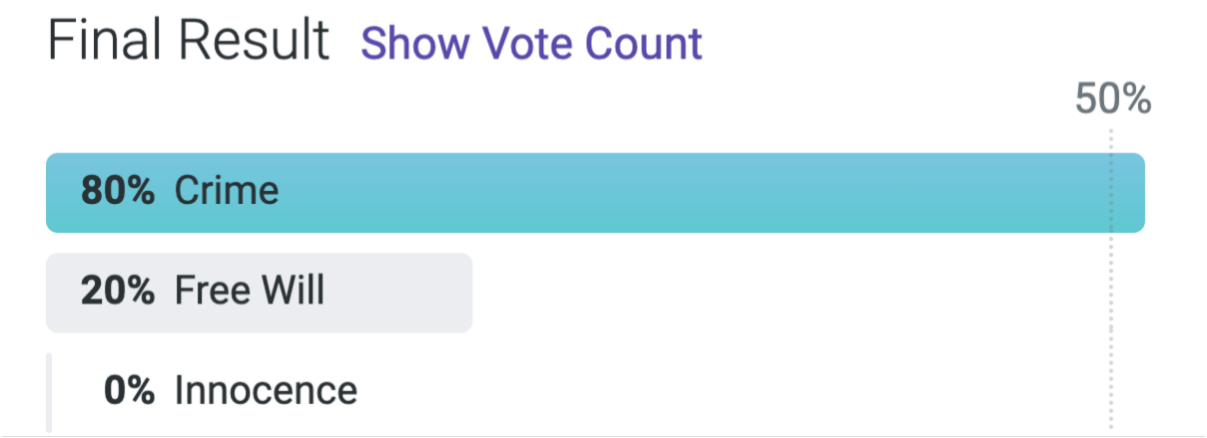

Figure 22: Results for Team Choice showing that the player who was given the Aspect crime scored highest with their argument

5. Second Conclave

The Second Conclave had been much revised after the former playtesting phase. The original design required the players to make compromises based on their original team position (see Figure 22). However, during playtesting, it was observed that this seemed to be the point where the game would become tedious and less exciting for all players. Therefore, to re-engage players into gameplay, it was decided that the Second Conclave would require teams to switch sides and use the opponent teams' highest rated argument to formulate a moral verdict that should resolve the overall moral dilemma of the *Soldiers* level. The decision to make players switch their sides was not just based on trying to re-engage player throughout the course of the two-hour long gameplay but also to maximise the increase of moral competence by making

players consider different moral perspectives and having to find ways to synthesise the sides into a coherent view and position. Lind also mentioned that the success of a KMDD session would ultimately depend on the depth of engagement that participants would have with the contents of the workshop (Lind, 2019, p. 103).

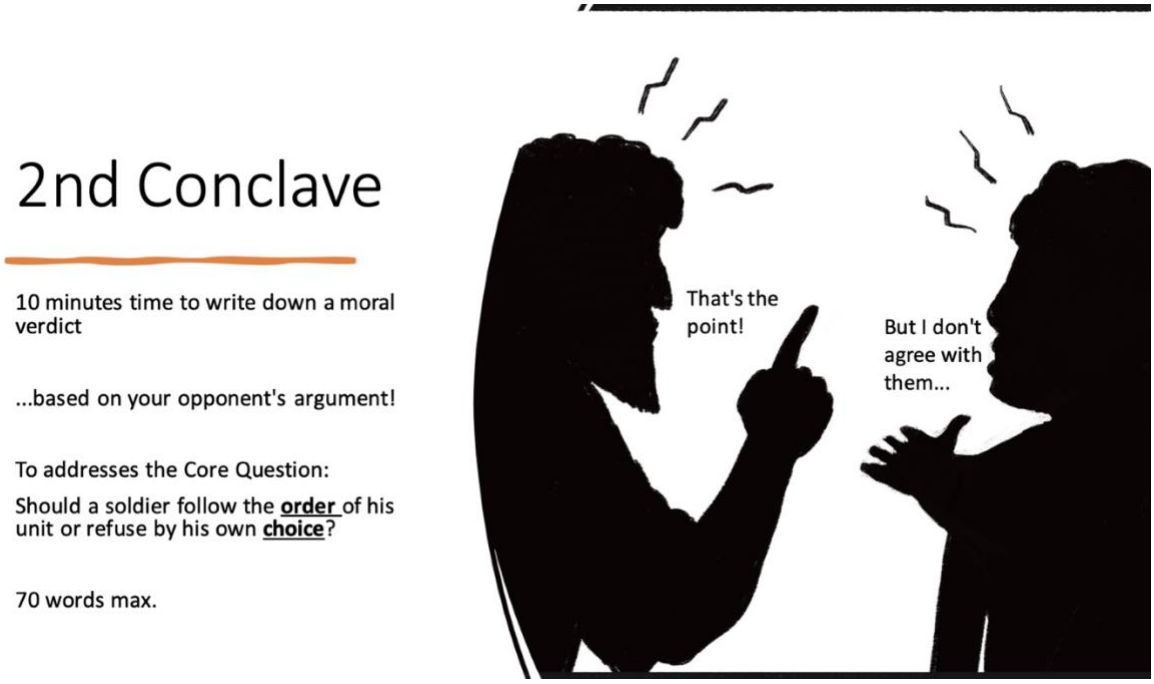

Figure 23: Slide containing more information about the switch of sides

6. Verdict Phase

As mentioned earlier, the switch of teams' position was introduced as major change within *Morally's* gameplay. Because of that further modifications had to be applied in order to ensure an overall unified gameplay experience. Instead of formulating a verbal compromise, a written verdict should be presented in a form of being a law that would be then criticised by the opposing team. Then the other team would go through the same procedure (see Figure 24). Then both teams would be sent to a last retreat for five minutes to apply or reject changes that were proposed by the opposing team.

Figure 24: This slide contains further details for the Verdicts game phase

7. Finale: Moral Law

Once the players had finished applying or rejecting changes, they returned to the main voice channel and presented their revised verdicts as moral laws. The player with the lowest rating from the earlier voting had to present. The idea was to involve players that seemed to fall out during the earlier phase. After the moral laws were presented, a final vote was casted via *Rankit* to announce the winning argument. Through the switch of position, the winners became ultimately both teams as both had created what would become the ultimate moral law. In that sense this design choice connected the motivation of Achievement and Relationship, which are often thought of as opposites in gaming. The game and workshop were formally closed with the last vote.

Feedback

This section contains feedback on the workshop that was given immediately after the session by all participants and later through a survey of which the answers can be found in Appendix B. Quotes in this section have been transcribed from a video recording of the workshop session and anonymised.

The first comments that emerged about the game were immediately that it was interesting but also tiring. Interesting because of how *Morally* used elements of interactive fiction and game show to thematise the topic of morality but tiring as it involved constant critical thinking and engagement over two hours with little breaks. The participants liked the Twine component and

its simplicity in discussing moral dilemmas while allowing interaction and appreciated the art style. It seemed, however, that for at least one participant a content warning should have been included, as they felt very emotional after being exposed to the dilemma. The content warning has been added immediately after the session to avoid making players uncomfortable by being surprised by the content. Participants seemed impressed by the clarity of the game, although it contained diverse stages and complex mechanics. They stated that the constant display of a guiding presentation helped greatly in managing the cognitive load of remembering the rules and structure of the seven game phases. For some participants, the time they had to construct their arguments was too little and caused stress, as they claimed it was too difficult to construct complex arguments in such brief time. It seemed that they had themselves not noticed what deep and meaningful arguments they were able to create in a short time. Other participants thought that the time given was just right, as it allowed them to feel "electrified". The participants all agreed that the debate was not only enjoyable but fair, as all received the same time to express their arguments. Few participants claimed that it would have been better to allow more time for free discussion.

All participants agreed that switching sides after the break was literally a "game changer". One participant explained that although initially thought of as a "stupid idea", they quickly became challenged and intrigued as they understood "how much [they] could learn from completely different perspectives if [they tried] to put them together instead of seeing them as enemies". Another participant agreed but claimed that they did not have the feeling that this was a real game. It was stated that "I always knew in my head that we are doing this to get better at morality and democracy" and further explained that "this was fun and interesting, but this is not a real game for me". Opinions were mixed in that regard, but from my own perspective, I agree that more could have been done to make *Morally* more a game by implementing all activities on one platform. That would have required a higher budget and developers in the project. On the other hand, it would surely have impacted the learning outcome in unexpected ways that will be presented in the next chapter.

All participants were generally satisfied with the experience based on immediate feedback and feedback that was collected through surveys a week after the survey. All would recommend the experience and can imagine this learning experience being utilised at schools and universities; however, almost none would consider playing *Morally* in their free time. Detailed feedback can be read in Appendix B.

Experiment

This section describes the experimental part of this project that was conducted in order to yield quantitative results. For that the general experimental design and the method of how data was collected will be presented. Additionally, information on how the experiment was executed with more details on the focus and control group will be provided. The results will then be presented and analysed. It was considered necessary by me to implement an empirical part into this project to offer a holistic and interdisciplinary approach, this part should be treated as an added argument for the overall idea of game-based learning and not as an attempt to deliver hard facts on its efficiency. Also, given the few resources this project had, the extent of the experiment should not be treated as empirically significant but indicative of tendencies that should be explored further about the impact of game-based learning strategies such as *Morally* on the moral competence of its players

Overview

The experimental design has been adapted from previous cases of KMDD and moral competence experiments conducted by Lind and other researchers (Lekriabundit, 2006; Cummings et al., 2010; Reinicke, 2015; Stec, 2018; Lind, 2019). Basically, the goal was to measure the moral competence of the workshop participants before and after a *Morally* session and to see whether any significant impact could be observed within the sample size. This meant making use of Lind's Moral Competence Test (MCT) for which an online version of it had been created with his personal consent. The test was sent to all participants the day before the workshop and the day after. All data were then collected and then statistically calculated with the help of Tom Reuscher, an experimental psychologist, from the Karlsruhe Institute of Technology and then analyzed.

Moral Competence Test

As mentioned earlier Lind managed to quantify it by creating a psychological test which is based on Lawrence Kohlberg moral judgement test. Lind's Moral Competence Test measures individual moral competence scores through a two-stage survey that cross-examines the consistency with one's moral alignments in 26 questions. A score between 0-100 is the result of the test and indicates the individual's moral competence score. There have been many studies that worked with Lind's methods and correlate moral competence scores with secondary effects and attitudes as mentioned before. However, there have also been meta-

studies that challenge the moral competence test as an empirical tool of little statistical validity due to its ambiguous nature ambiguous with morality (Biggs & Colesante 2015; Martins et al. 2021). However, the MCT has been proven in numerous studies to be a useful tool and also the only empirical tool that exists to measure moral competence. As stated, a digital version of the test has been created (see Figure 25), following the identical parameters of Lind's original test that can be accessed here on Lind's website (see: http://moralcompetence.net/mut/mjt-engl.htm#corrections). All data gathered would be stored in a privately hosted and secure server from which the data was cleaned, anonymized, and then calculated and analyzed by the means of statistical tools. As this paper does not build the project's core arguments on statistical validity but on the game-based learning and the constructed workshop itself, the exact mechanisms of the test shall not be of concern here as they were also already elaborated in detail in other works of mine (see: Hanussek et al. 2021; Hanussek & Tucek, 2022) and can be also found in Lind's own work on it (2019).

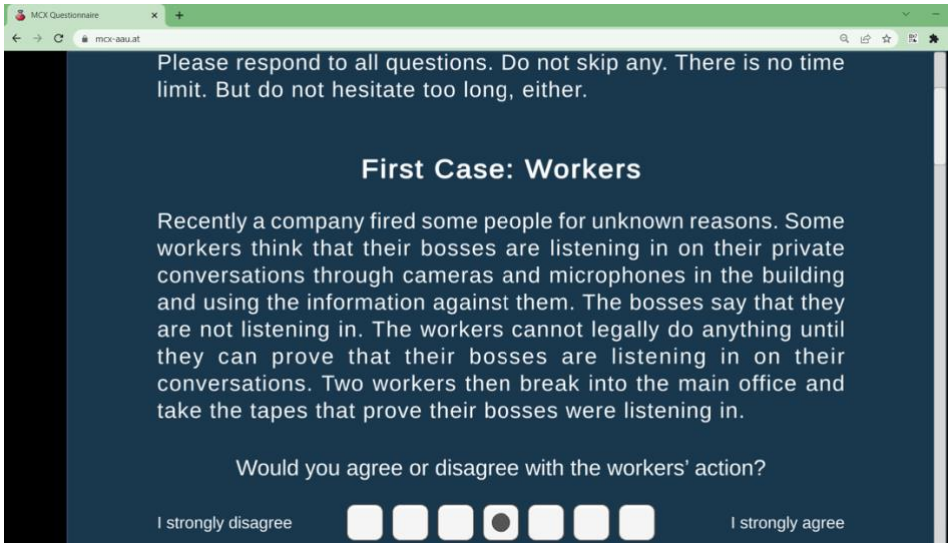

Figure 25: Excerpt from the Digitized Version of the Moral Competence Test

Focus & Control Group

It was necessary to establish two test groups (2 x 6 participants) to measure and compare the learning effect of the workshop. For that, 12 gender diverse international university students between 20-26 were recruited for the experiment. The recruitment came in the form of a round mail to multiple students who were members of the Klagenfurt Critical Game Lab discord server. Participants were chosen based on their response rate (first-come-first-served basis). Almost all of them studied a subject related to game studies and game development. During

the development of *Morally*, the game's apparent complexity decreased accessibility, making it necessary to focus on a demographic already experienced with video games, which made me decide to limit the demographic outline directly to students with experience in gaming. Both groups received a steam voucher as an incentive to participate. The groups were randomly divided into a focus group and a test group. The focus group had to complete the MCT one day before the workshop and one day after it. The workshop was designed for two days, with two sessions lasting 120 minutes each. Each session utilized a different interactive dilemma as a basis for its gameplay (*Soldiers* dilemma, *Illegals* dilemma). The control group was tested during the same period with a pre-and post-MCT assessment. The significant difference between both groups was that the control group was given only the interactive dilemma to play, without participating in the general hands-on workshop hosted on Discord. Furthermore, the focus group received a post-workshop feedback survey in which they could add suggestions and comments to the workshop (see Appendix B).

Results

Scores were calculated using Lind's formula within the statistical software SPSS and here in a simplified graph (see Figure 26). As mentioned earlier, the results should not be regarded as having adamant statistical validity but rather as indicators of the impact of the workshop on the moral competence of its participants. Details of the calculation process are attached in Appendix C.

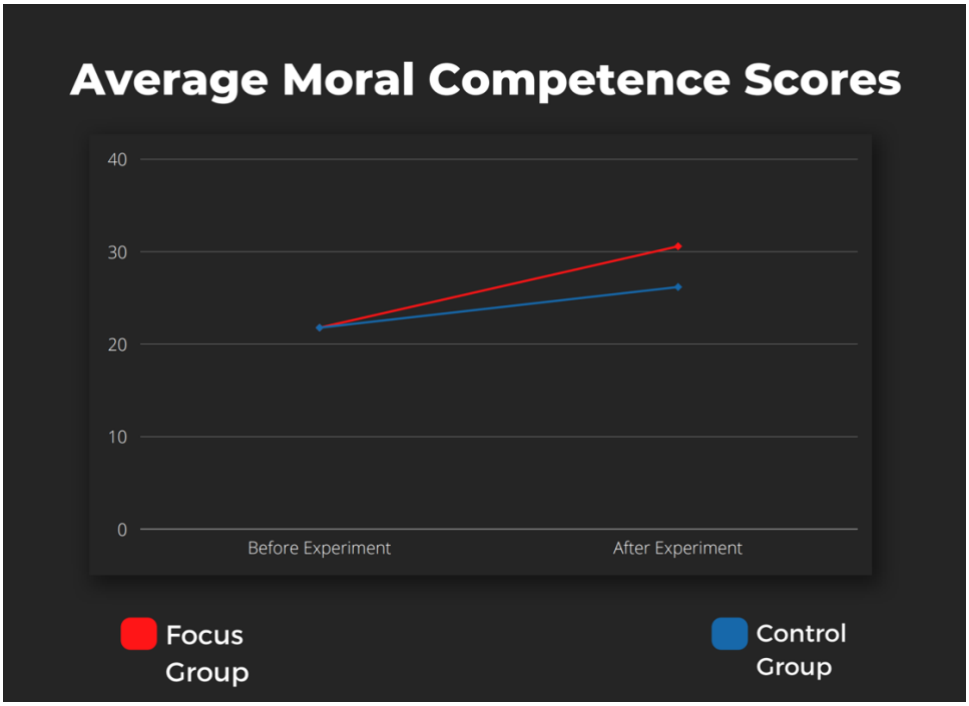

Figure 26: A simplified graph showing the increase in moral competence of both groups after the experiment. The baseline value of 21.8 points represents the calculated average of both groups before the workshop period.

The results show an average increase in moral competence between the focus group of 8.2 points (37.6%) and between the control group of 4.4 points (20.2%). In comparison, a 2.5-year community school project in the United States that used traditional KMDD increased moral competence by about 11 points (Oser et al., 2008).

Analysis

The results are curious because they do not just indicate an increase in moral competence through a gamified workshop but also an increase in moral competence by only playing a game with moral content. However, the data collected must be treated with reservations. At this point, the sample size is too small to allow for generalizations. Also, it is not certain how sustainable the increase in moral competence is. Yet, other studies allow us to deduce that increased moral competence gained by only playing is more likely to decrease than moral competence gained by playing and a workshop (Lind, 2019, p. 67-68). Furthermore, several variables may have distorted the results. Lind recommends conducting MCTs when participants are in a controlled environment. In the case of my experiment, the MCT could be technically performed at any hour and place with various kinds of devices. Furthermore, it remains to be stressed that ethics or moral action are ambiguous, subjective and cannot provide evidence by themselves for some

form of character trait of a person. The Moral Competence Test itself is proof that people can be misled about their so-called own moral intuitions. Although the test itself measures only the consistency of a person's moral decision making, qualitative reports have shown that most people taking the test had the impression that the test was about having to give a right answer. The reactivity the test generates must be considered.

In addition, few critical studies have presented that what MCT measures does not necessarily fully correspond to how moral competence is defined (Biggs & Colesante 2015; Martins et al. 2021). Moral competence is the ability to perform action based on one's moral intuition, but most researchers working with moral competence consider numerous other traits such as democratic behaviour and mental resilience as part of moral competence, even though these traits have been only correlated with moral competence scores. The point being made here is that though it can be strongly argued that the MCT has the ability to measure something which can be reproduced, it cannot be sufficiently secured what it exactly measures. It seems to have to do with the skill of being consistent with one's moral position even if one is cross-examined, as the MCT does. Lind and his colleagues define moral competence as something that goes much further beyond moral consistency and that should be kept in mind when using the MCT.

With the former issues in mind, the results indicate a significant increase in moral competence within their sample, which is supported by qualitative reports that provide insight into the individual reflections of each participant. Regardless, follow-up tests are required to secure or disprove these findings. The results can only be treated as an indication of the impact of game-based learning strategies on the moral competence of individuals. In that sense, the experimental part of this project should be seen as an attempt to show how quantifying moral behaviour *could* be done. Yet, the limitations in scope of this project do not allow for generalisations.

Conclusion

This paper introduced the reader to the notions and methods of game-based learning and moral competence. Furthermore, the conceptualization, design, and development process of *Morally: A Game of Right and Wrong* was described. Moreover, the experiment and its results, which were conducted as part of the overall project, were presented, and analyzed. This conclusion will refer to the core aspects of this project, namely to game-based learning, moral competence, and *Morally* as a game-based learning workshop.

Game-based learning should be considered not just as an effective learning strategy that tricks people into learning by playful elements, as still many educators whom I talked with during my research think. It should be seen as the most natural path for us to learning. Instead of trying to think of game-based learning and playing as a new phenomenon, we should regard those methods as old as humanity itself. When thinking of learning, we still feel like education must be a serious activity, devoid of any playfulness. This attitude must be revised in higher education and fortunately is being revised now, visible by the increase of game-related university programs and didactic methods emerging in Europe and the US. This project tried to show that complex topics such as ethics or moral thinking require no ordinary syllabus or mandatory literature to be understood, but intelligent game design which allows participants to create their own understanding of the topic. The trend towards gaming in media, economy, and lifestyle is evident; it would be fatal if educational domains were to slow down these processes and contribute to further student disengagement (Hamari et al. 2017, p. 170).

Moral competence is an interesting concept and tool that should receive more critical attention from researchers and educators. In regard to the general reception and my own experience with the Moral Competence Test, I must admit that the efficiency of this device cannot be guaranteed for its numerous unpredictable variables described earlier. But this does not mean that the test is of no use, as multiple correlation studies have shown. Higher moral competence, assessed through Lind's MCT, could be in most cases directly correlated with other positive effects, such as tendencies towards democratic behavior, mental resilience, and proactive social behavior. The notion and the empirical side of moral competence need critical reworking but with good intentions to enable it to become a properly reproducible statistical device which measures what it is supposed to measure. In the case of this experiment, it is clear that no statistical validity can be claimed. However, in all humbleness, the project’s goal was, with its

small budget and small scope, to point the finger in an understudied direction and show how researching and teaching though game-based learning in connection with teaching 21st century skills like moral competence *could* look like. Future and better projects will have to take it from here.

Morally: A Game of Right and Wrong is by no means perfect nor final. It received considerable criticism by its own players, yet also praise for how it provoked them into thinking about morality and democracy. And if there should be something significant to the results that the experiment established, then the moral competence scores after the workshop can be seen as an indicator for the success of the workshop. But again, given the small group of people who helped in realizing this game in such brief time, it can be said as in the previous paragraph that this effort can be only treated like an attempt to point the finger towards an understudied area. Not that moral thinking and video games are not studied, but rather how games can make us learn topics as such to increase skills such as moral competence.

This project may not have wielded unambiguous results in regards to game-based learning and moral competence, but it certainly has explored and provided in depth a potential method for researchers and educators to approach the issue of outdated learning methods and content. A last remark that I would like to add here is that similar projects as mine require better funding opportunities in order to employ more specialists such as designers, researchers, developers, and educators. The impact and quality of these projects ultimately depend on the resources that can be channeled to help in development and execution. I received much help in this project from different specialists, but ultimately almost all of its design, development, and execution had to be done by myself. I wonder what could be achieved if a project like this received more funding and a larger team. Yet, when looking at the current enthusiasm surrounding games, I am optimistic for the future and similar projects to impact the state of the art in education over a long and sustainable process. And I hope that this project may have contributed as a small step towards that process.

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Appendix

This Appendix contains reports and further details to components of the projects that were excluded from the actual paper to improve readability in the primary text. However, to provide more information and transparency to the project a playtesting report, the workshop's qualitative survey and statistical details have been attached here.

Appendix A

This original playtest report describes the first playtest of the game-based moral competence workshop Morally and was written after a session on 05.26.2022. The report was taken immediately after the session with the help of recordings and was only slightly edited to maintain the original form of the report.

The design of the workshop was until this point only theoretical, and it was decided that before the actual experimental workshop in late July at least one playtest should be conducted to see if most of the game design elements and other structural aspects of the workshop function in action.

The participants for the playtest were drafted among my own colleagues and are all part of the GSE community in Klagenfurt and are graduate students. All of them were male and have a strong background in gaming and game development. These participants were selected for two reasons. First, as it is difficult to promote a playtest participation without compensation to the public and second because these participants can provide professional feedback to the positive and negative aspects of the overall game design after morally is played. These participants were drafted about two weeks before the playtest and were given structural overview of the workshop (manual) 2 days before the workshop. They were not required to read it before the workshop, though it was recommended to look at the structure. The four participants were selected and invited into a discord server selected as the main platform on which Morally would be played. The final workshop will be hosted with six participants but for the playtest four would suffice.

Discord is an optimal platform for the game for several reasons. First, it is an established social and communications platform within gaming culture. It is user friendly and allows for many

ways of operating and organizing activities such as workshops, multiplayer games, conferences, panel discussions, conversations, etc.

Given the early stage and infancy of *Morally* a smaller test group would allow for less variables to disrupt the design and allow for a more precise observation of which mechanics and aesthetics of the game would work. On the day of the workshop all participants were reminded about the meeting an hour before. For the next time, the event function of discord should be used to enable an automatic reminder for all participants and a more visible awareness of the meeting.

To appropriately host the workshop two screens are necessary as each introduction phase requires a power point slide while managing the Discord server at the same time, which is not very efficient on one screen. The workshop was launched on Friday at 12PM EST sharp. All participants arrived within the first 5 minutes. Waiting time until all arrived was spent on small talk. I tried not to reveal any details of the workshop.

Once all the participants arrived, I welcomed all and thanked them for coming. A camera could be turned on for a better social experience but was not required as no one should feel forced to feel uncomfortable. All participants activated their camera. I told them that the workshop would take around 100 minutes but as this was the first time doing this time might vary. The workshop took in the end about 120 minutes with 4 participants, which was regarding the complexity of it and its first time launch still within the overall expectation. Players were introduced to the overall concept of the game and the idea of moral competence in a most concise way and then told that this workshop would be an actual game with role play and game show elements.

On an overview slide, all game phases were then shown to give players an understanding of the game's overall structure. So far most of the introduction was clear enough to not cause any questions. Players were then asked to play the interactive fiction game on Twine to be exposed to the moral dilemma which would become the basis for the discussion during the game. 10 minutes were allocated to playtime. Half of the participants were ready after about 5 minutes the others took around 8 minutes. I still believe ten minutes is the right amount for playing this game. Some people might take longer to read or encounter some form of technical difficulties.

After the play, all participants met again in the conference room of Discord and were asked whether they understood what the dilemma in the story was. With slight variation all understood the issue which in this case was whether a soldier should follow the order to shoot a civilian or not. This dilemma was chosen because of its high universality. A little discussion emerged which was good to engage the participants in reflecting more on the dilemma. Players were told that they would be randomly assigned into two teams. Unfortunately, I missed out in also pointing out that each team would receive a position that they would have to represent which they could not decide. This meant they would eventually receive a position they do not agree with which would be part of the game. Both teams were assigned the position order or choice which represents the overall ideological position that each team needs to argue for. The goal is justified and defends actions in the context of the dilemma that represent order or choice. Each team would then be given their own breakout room in discord for the next phase of the game.

After the first dilemma phase (introduction, dilemma, and pre discussion) the conclave phase was on. The conclave phase is the phase in which each team retreats into a private room in where they receive aspects of their position. Aspects are words or titles (i.e., freedom, innocence, duty) that must be utilized as a basis for their argument. Each player needs to select an aspect and create an argument based on that. How the teams build arguments is up to them but the argument that they will present has to represent their team position and must be based on the aspect that they select. The enemy team rates later how well the argument was depending on how well the argument represented the team position and aspect. 10 minutes were sufficient for this phase. I must make sure next time that the private chats work properly, as I failed to quickly assign the permissions. Aspects and communication are shared on these private chats in order to not reveal anything to their opponent. In this playtest I allowed for more aspects than people. Which was done to allow for choice but seemed to create more confusion. Next time I will assign only as many aspects as participants are there to avoid confusion and allow me to create polls already during that time.

After 9 minutes I told them each team that they have only one minute left to wrap up their preparations. After 10 minutes everyone met again in the main room, the so-called Pantheon. It was then randomly decided, via stream of a wheel of fortune who would start. Each player had 3 minutes to present their argument, and then to receive a question for which they had one minute to answer. I should tell players next time to take notes about the performance so that

they can rate them properly. They should write down which team and aspect is represented. Players are also asked to present their aspect and team position before starting. After all players are through a break is introduced. I had 5 minutes which was too short. It should be 10 minutes in which the player should have the time to eventually grab something to eat, go to the toilet and rate the best argument of the enemy team. The online website *rankit.vote* seems perfect for that purpose. It is easy to use, has no ads and allows for instant results.

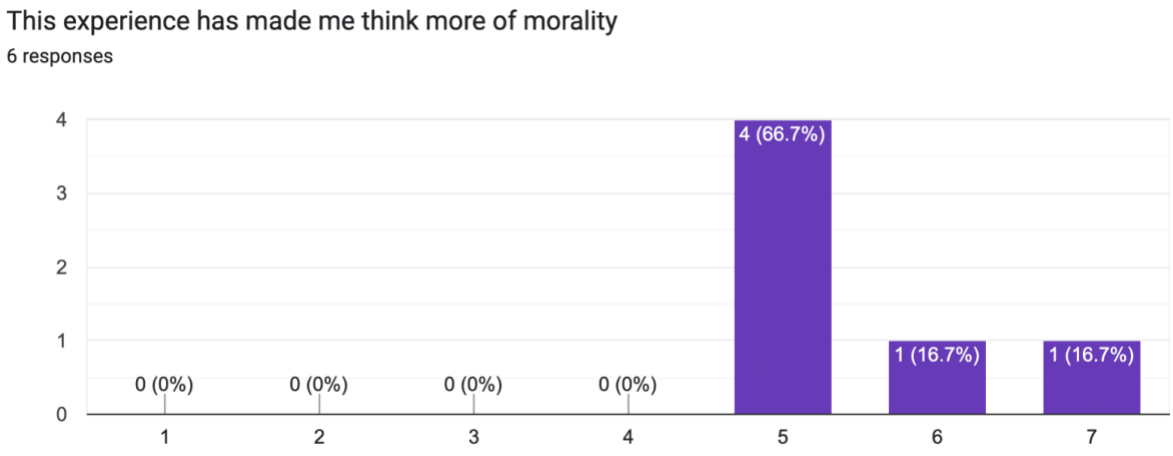
After the break, the results are revealed, and the last two stages are initiated in which both participants go back into a last conclave to formulate a compromise of both best arguments. After that they returned back to the pantheon and were supposed to present their compromises and reach a consensus. This was the most problematic and ambiguous part. It needed a lot of moderation from my side to help them reach a consensus. Also, maybe because there was no final goal. At the end, I quickly moved into the direction to request a written decree representing their compromise. After some discussion and moderation, we managed to craft a moral judgment with which all participants agreed. The session was closed and a round of feedback was opened.

All participants were satisfied with the workshop, though it was visible that it was also tiring for them. The workshop demands a lot of thinking and negotiating which can be overwhelming. They claimed that the time estimates were good. Some said that the end was too loose, while others liked it. There was also some feedback in regard to the Twine that requires some rephrasing as the second dilemma in the scenario seemed to be not very clear to some of them. The ending of the game suffered of a good conciseness. My idea is to resolve that by making it part of the game design that the goal is a moral decree. Each time teams are sent into the last conclave their goal must be to craft a moral statement, such as “Everyone who finds themselves in situation X must do Z while consider Y” this statement must include the best aspects and arguments of the former round that were selected by the teams. There should also be a word count of 70 words on the statement. They need to write them down and then present them and their motivations to the other team. It should be then asked to the opposing team do you agree with the statement and if not with what do you not agree with, the other team needs to take notes of what is said, they then have time to defend their statement. The same is then done with the other team. In a last retreat players receive 5 minutes to rewrite their statement according to the feedback and then submit it to the game master (moderator) who will then present them and put them out for a vote. The argument with the most votes is selected for the last discussion.

The discussion should be used to either apply the latest changes or to convince the remaining critical voices.

Appendix B

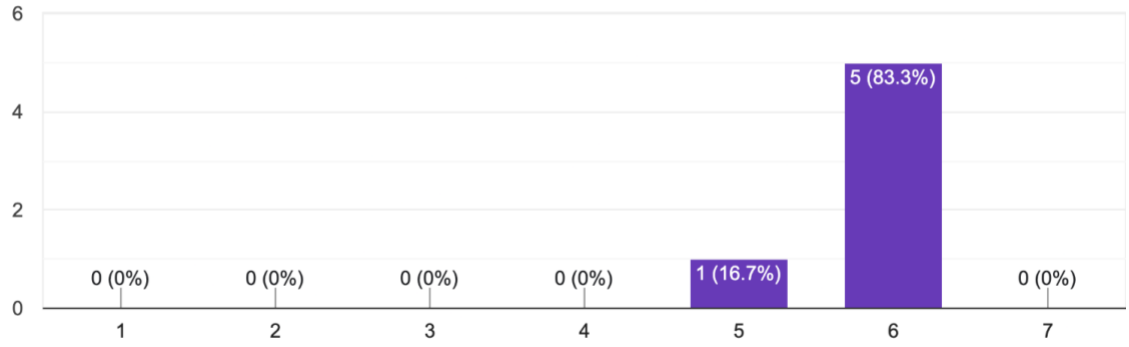
The following data deals only with the retrospective opinions of the focus group. This post-experiment survey had the intention to gather data which would allow game design elements to be improved but also to get a first-hand assessment of the experience of the players. Generalizations may be seen within the sample. The sample is yet statistically too small to allow for generalizations beyond the focus group. Therefore, data should be treated here as interesting indications for how to improve the workshop and where to deploy it. The survey has been conducted with Google Forms. All answers are anonymized and appear in the sequence of the original survey. The graphs have been copied from the survey. The open survey questions are in bold.



1 = Disagree, 7 = Agree

This experience has made me think more of democracy

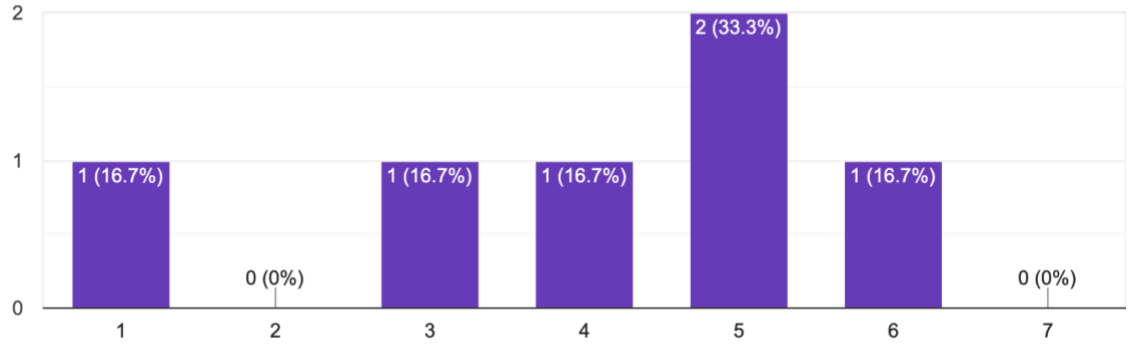
6 responses



1 = Disagree, 7 = Agree

I found the experience difficult to play

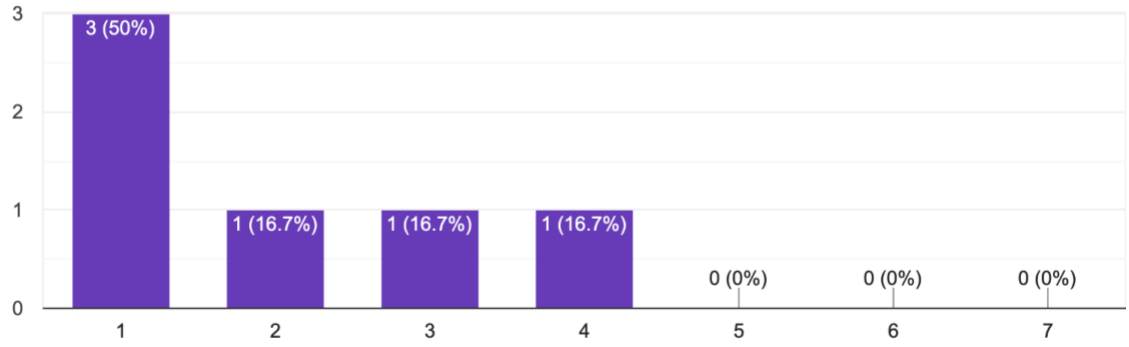
6 responses



1 = Disagree, 7 = Agree

I found the instructions of the game to be too complicated

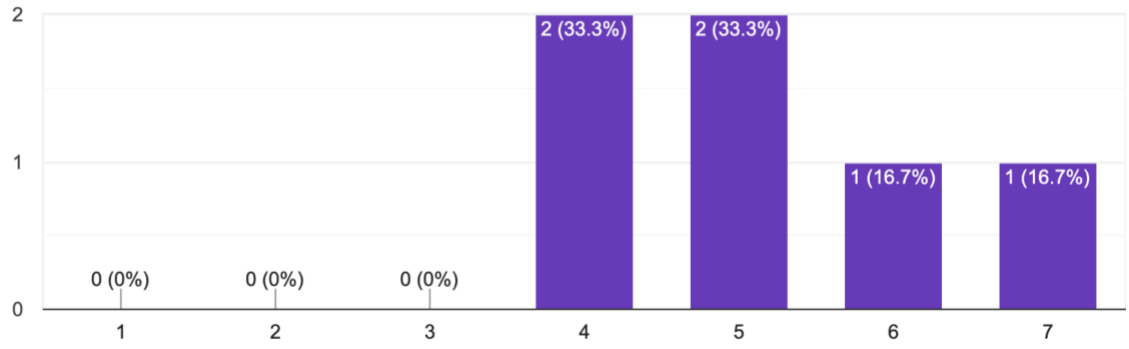
6 responses



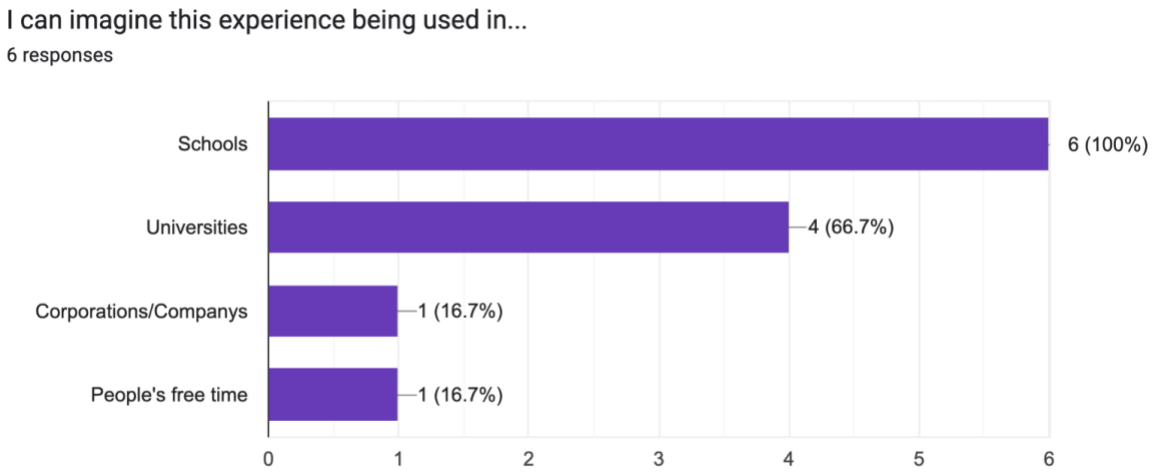
1 = Disagree, 7 = Agree

I would recommend this experience to other people

6 responses



1 = Disagree, 7 = Agree



1 = Disagree, 7 = Agree

This worked well...

“I'm glad the arguments/ sides are switched in the middle of this process. This way, you are forced to understand both sides, even if one side may not appeal to you. Having the experiment take place two times was good in the sense that the second day meant you already knew the rules and how to solve the tasks.”

“I would argue that this experience is very effective in making people think about what is right and wrong and in improving moral competence, which I think is its main goal.”

“- The workshop went by very fast even though it lasted for several hours because of the fast pace of its structure. I think this kept every player very engaged throughout the entire session and provided everyone with a well-digestible debate experience.
- Playing the game not only once but twice was definitely nice, because during the first time playing it was hard to grasp everything that is going on, which made the second time paying a lot better. I wonder where this game could go if people played it even more often in a row.”

“I really felt engaged with the topic and have thought much about the dilemmas afterwards and even talked with friends. I think it had a big impact on how I think about conflict and discussion and I feel more motivated to take on critical positions.”

“The information, The timing”

“pride and prejudice makes our arguments very one-sided. it is a really interesting and useful exercise to force oneself into taking a ethical position that one actually disagrees with. i

think i learned that there is no way around having to put a lot of effort in energy in order to come up with a compromise”

This should be improved...

“The second day let us have some more time to think about our own arguments and verdicts which was very helpful. I struggled also while other people were presenting their arguments; it was necessary to take notes but while I was still writing, we were prompted to question the arguments presented. Most of the time, I didn't have enough time to process to ask any questions. I don't think it's a good idea to 'punish' the argument with the least votes so its presenter has to present the final verdict of that group. Maybe it was intended, maybe not, but realizing this was the case, I was more tempted to vote for my own argument just to not have that pressure to present again put onto me.”

“I don't know if this experience is supposed to be a game, but in my opinion, it doesn't feel like a game. This doesn't mean that it wasn't fun, as it was in some parts, but that, at least in our case, we ended up "playing" not for the sake of it but for other reasons, like the experiment itself, or rather the research of the morally best result (in presenting our arguments). I mean that it was maybe too clear that the game aimed at challenging and improving one's moral compass, and this could weaken a player's motivation. I don't know if this is something that you want, but in case you don't, maybe working on the gamification could be the right path.”

“- It was hard to see or experience this as a game, as the gamified elements were kind of overshadowed by the focus on argumentation (and the whole thing basically being a structured debate).
- A trigger warning about the topics depicted in the Twine stories should definitely be included to give participants the chance to choose if they want to be confronted with possibly uncomfortable topics for them or not.
- Even though it makes sense to give every player a different term to model their argument after, it was at times very confusing, as people may have very different associations with these terms in the context of the presented moral dilemmas.
- I think the whole experience could benefit from a longer joint reflection session afterwards.
- As not every person is comfortable with confrontative argumentation to the same degree, I think it can be perceived as insensitive or even insulting to call people "the weakest link". I think this could be left out or rephrased to avoid hurting people.”

“I felt that the RPG aspect of the game fell a bit under the table after the first few game phases. I think the Game Master should have been more invested in keeping the fiction invested but after all it was the first time :)”

“Scenarios can be more complex to cause more arguments and more different ideas.

pride and prejudice makes our arguments very one-sided. it is a really interesting and useful exercise to force oneself into taking a ethical position that one actually disagrees with. i think i learned that there is no way around having to put a lot of effort in energy in order to come up with a compromise”

This is something that I learned... (does not need to be connected to morality or democracy)

“Presenting is still hard. Finding a consensus may prove difficult if there are too many differing opinions. It seems like a lot of work to design and lead an experiment like this.”

“Even what at first sight may seem the most unacceptable takes, can turn out to be valid points once they are thoroughly analysed and properly defended.”

“That questions about morality apparently often fall back to the same sets of basic arguments (e.g. individuality vs. social contracts)”

“You can only learn about other's opinions if you really take the time to think and talk with them. I think I understood how easy it is to be comfortable with your own opinion as long as you do not talk with other people that have other view points. I think we should talk and discuss more with people that do not agree with us. But this is not necessary how I would like to spend my free time :) But in schools or universities this should be done more….”

“There are many sides for every decision.”

“pride and prejudice makes our arguments very one-sided. it is a really interesting and useful exercise to force oneself into taking a ethical position that one actually disagrees with. i think i learned that there is no way around having to put a lot of effort in energy in order to come up with a compromise”

Appendix C

The following data represents a slice of the statistical calculation concerning the Moral Competence Test. The software used for the calculation was in German and descriptions have not been translated. This appendix is given to provide transparency for the values that have been used in the end to assess the increase of moral competence described in an earlier chapter. For more data, please contact the author. All data is anonymized.

t-Test

Gruppenstatistiken

	Control Group (1=with workshop; 2=no workshop)	N	Mittelwert	Std.-Abweichung	Standardfehler des Mittelwertes
Diff_C_Index	1	6	8,2133	14,64686	5,97956
	2	6	4,4067	10,98001	4,48257

Test bei unabhängigen Stichproben

		Levene-Test der Varianzgleichheit		t-Test für die Mittelwertgleichheit	
		F	Sig.	T	df
Diff_C_Index	Varianzen sind gleich	,740	,410	,509	10
	Varianzen sind nicht gleich			,509	9,271

Test bei unabhängigen Stichproben

		t-Test für die Mittelwertgleichheit Signifikanz		
		Einseitiges p	Zweiseitiges p	Mittlere Differenz
Diff_C_Index	Varianzen sind gleich	,311	,622	3,80667
	Varianzen sind nicht gleich	,311	,622	3,80667

Test bei unabhängigen Stichproben

		t-Test für die Mittelwertgleichheit		
			95% Konfidenzintervall der Differenz	
		Differenz für Standardfehler	Unterer Wert	Oberer Wert

Diff_C_Index	Varianzen sind gleich	7,47319	-12,84463	20,45797
	Varianzen sind nicht gleich	7,47319	-13,02385	20,63718

Effektgrößen bei unabhängigen Stichproben

				95% Konfidenzintervall	
		Standardisierer[a]	Punktschätzung	Unterer Wert	Oberer Wert
Diff_C_Index	Cohen's d	12,94394	,294	-,852	1,426
	Hedges' Korrektur	14,02764	,271	-,786	1,316
	Glass' Delta	10,98001	,347	-,820	1,481