Design for Games and Play II; learning and persuasion in Games (DZC20)

Codename: Paperclip

Game Dev Team 5

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25/01/2024

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1. Introduction

In this paper, the game prototype 'Codename: Paperclip' is discussed. This game is designed as part of the course 'Design for Games & Play II; learning and persuasion in Games' (DZC20). The project's primary objective was to develop a serious game to promote a study of the TU/e and attract prospective students. This goal is accomplished by integrating the theory of persuasive game design and its corresponding game mechanics. This paper provides an introduction to the 2D puzzle/platformer game 'Codename: Paperclip' examining the target demographic, design process and persuasive elements. Highlighting how e.g., the game's narrative and level mechanics contribute to the persuasive nature of the game. With Codename: Paperclip we demonstrate our attempt at creating a persuasive game using various game design theories.

2. Target demographic

2.1 Industrial design

At the beginning of the project, the team faced the challenge of selecting a target demographic for the game's primary focus. Given the relatively large representation of Industrial Designers within our team, the decision was made to develop a game that also promotes Industrial Design at the TU/e. With this choice, we could leverage the team's extensive knowledge in this domain.

The study of Industrial Design at the Technical University of Eindhoven (TU/e) is a comprehensive and dynamic program that equips students with the knowledge and skills to thrive in the ever-evolving field of design engineering. Distinguishing the program is its leadership in the Research through Design (RtD) paradigm. Students engage in a constructive approach, addressing design challenges, and conducting empirical studies to observe user interactions with the artifacts they create. This hands-on and research-driven methodology creates a unique and immersive educational experience [5]. Furthermore, as an Industrial designer at the TU/e, every student is required to develop his or her skills in the five areas of expertise that comprise the relation between the field of design and other disciplines [5].

The expertise areas of Industrial Design can be seen as the backbones of a well-rounded designer and thus our team focused on these areas to create a game that evaluates the skills of prospective students. The five expertise areas of Industrial Design are:

Business and Entrepreneurship

Designers create valuable product-service systems through business cases, market analysis, and real-life testing. They understand economic models, foster sustainable business networks, and navigate essential principles like entrepreneurship and ethics. With organizational insight, they manage processes, positioning design in various contexts, identifying and challenging trends [2].

Creativity and Aesthetics

Design liberates from the known, demanding creativity and curiosity amid incomplete information. Designers generate and refine ideas, alter perspectives, and maintain a critical attitude toward aesthetics. Balancing intuition with knowledge, they draw inspiration from historical benchmarks, illustrating their process through narratives [2].

Math, Data and Computing

Design navigates complex realities through analysis, simulation, and validation via data analytics and models. Proficient in mathematics and logic, designers communicate key aspects using data

representations. They identify measurable variables for precise models, ensuring relevant and reliable output. Integrating computing, designers implement data structures and algorithms in products and services [2].

Technology and Realization

Design innovates through exploration and technology, creating interactive systems. Designers integrate sensors, actuators, and apply object-oriented design, algorithms, circuits, and mechanisms. Effective communication with engineers and understanding scientific writings is crucial. Meticulous documentation accompanies informed judgments, demonstrating feasibility through calculations. Designers also possess awareness of data science and artificial intelligence [2].

User and Society

Design creates value for people, impacting everyday life. Designers, with awareness of psychology and sociology, enhance user experiences ethically and empathetically. They employ research methods to collect insights and evaluate concepts, considering societal contexts. Open to diverse mindsets, designers are sensitive to social, political, and cultural implications. Positioned historically and culturally, they identify, challenge, and shape trends [2].

2.2 Motivations and goals

The study of Industrial Design attracts a diverse group of individuals, each with unique motivations and long-term goals. Understanding the motivations that lead individuals to pursue Industrial Design is crucial for determining the persuasive parts the game should focus on. To find out what the main motivations and goals are of current Industrial Design students our own opinions and those of other Industrial Design students were measured via a survey. Figure 1 shows the main motivations of students for choosing are shown. As can be seen, the biggest motivations of students for choosing ID are creativity, innovation, hands-on prototyping, problem-solving and learning a wide variety of skills.

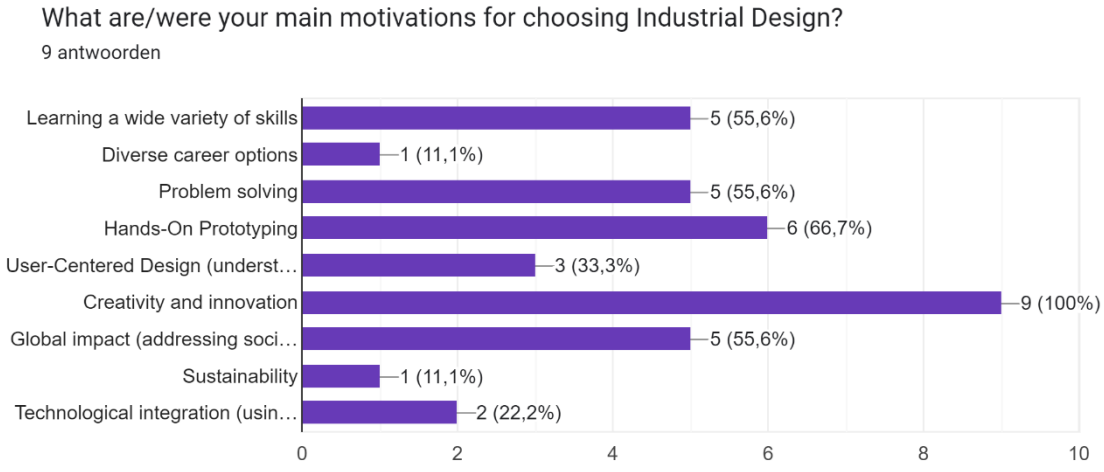

Figure 1, Motivations for choosing Industrial Design

Subsequently, the future goals of Industrial Design students were investigated, which are shown in Figure 2. Looking at Figure 2 some goals stand out. The majority of students express a desire to establish a successful design career, suggesting a potential underlying need for validation. Additionally, a significant number of students aim to contribute to society through design, reinforcing our hypothesis

that Industrial Design students seek a sense of purpose and aspire to make positive contributions to the world.

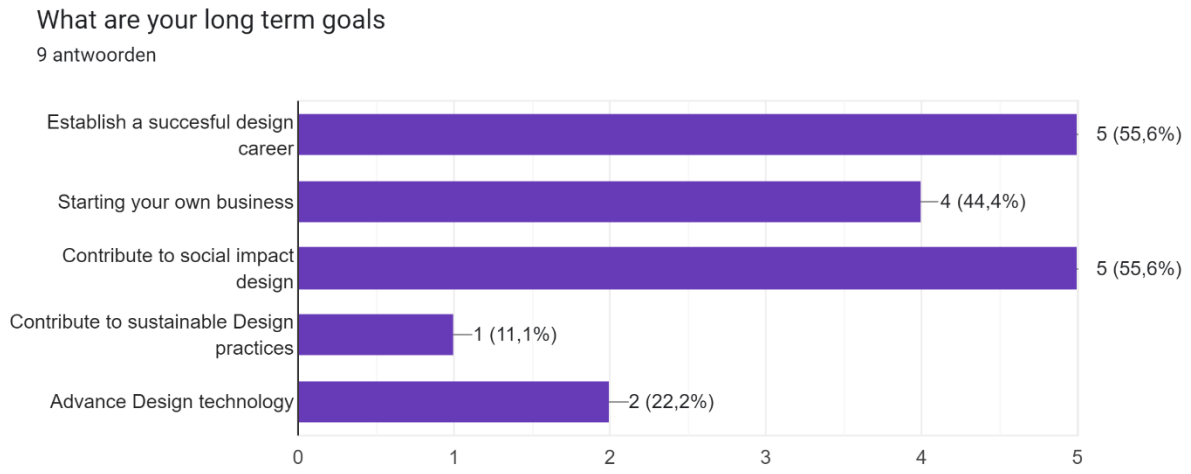

Figure 2, Long-term goals of Industrial Design students

It is also important to look at what Industrial Design students like in games. Finding out what the general game interests of ID students is crucial for tailoring game development to suit their interests. Figure 3 shows that multiplayer, social interaction, narrative, puzzles, strategy and adventure are the most liked parts of games for ID students. Looking back at the expertise areas the narrative, puzzle, strategy and adventure aspects of games can be combined with each expertise area to give a taste of what being an Industrial Designer entails.

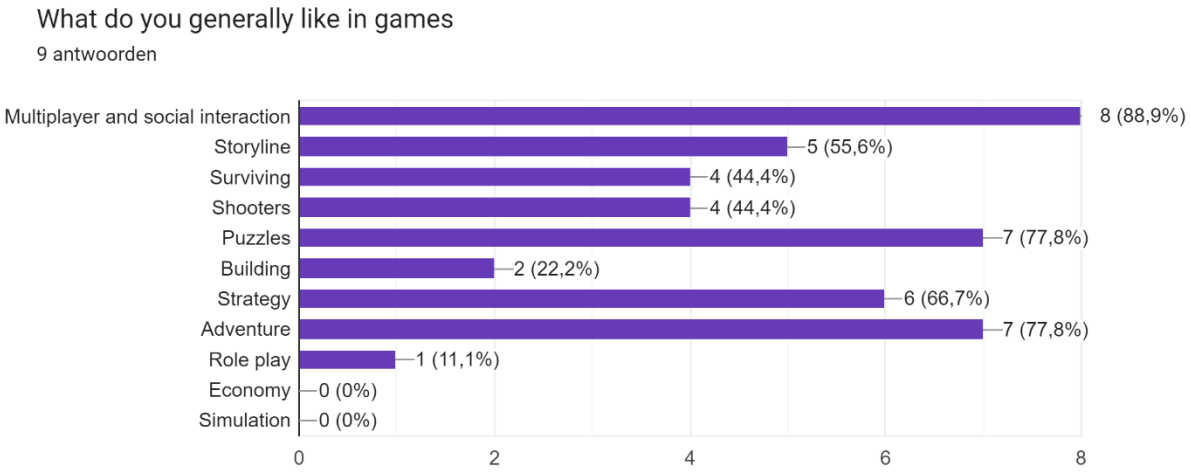

Figure 3, Game interests: game genres and game aspects

2.3 Knowledge, skills and attitudes

In the area of Industrial Design, the development of knowledge, skills, and attitudes is fundamental for well-rounded designers. This section explores the key elements in the education of Industrial Designers

and delves into the relevance of integrating these aspects into the persuasive game. Next to this several persuasion profiles will be identified and discussed.

The game developed for this project should teach and show potential ID students what it means to be an Industrial Designer. As defined by the faculty of Industrial Design the five expertise areas are the backbone of a good designer. Due to this the team also believes the focus of the game should be on testing players knowledge, skills and attitudes in these five expertise areas. When asked in the survey this idea was further supported. It became clear that the focus of the game should be to show the skills taught in the study. Doing this gives potential students a clear idea of the study and its practices.

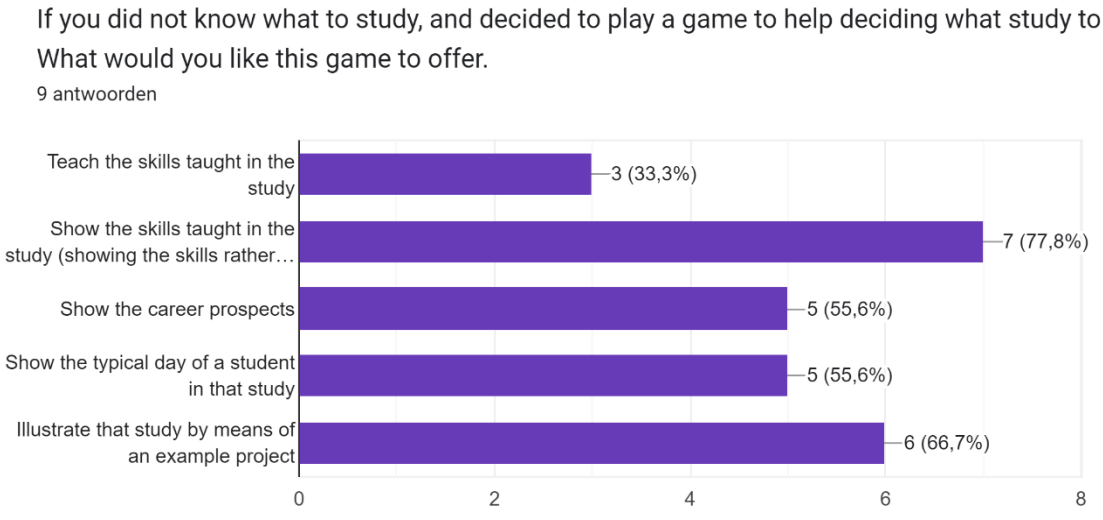

Figure 4, Focus of the game

To create a persuasive game that speaks to potential ID students it is important to define the persuasive profiles the game should target. Based on the expertise areas and survey results the following three persuasive profiles have been defined:

Emotional connection

To persuade the player and make him or her feel wanted and needed the game should form a emotional connection with the player. This emotional connection will be formed through the narrative of the game which makes use of an exciting character walking the payer through the game. The use of a character like this can help players feel needed or connected to the game [7]. The significance of this narrative-driven approach lies in its ability to evoke a sense of connection and importance within the player. As the character unfolds an exciting and immersive story, the player becomes a part of the narrative. This engagement deepens the player's emotional investment and fosters a feeling of being needed within the game [7].

Adequacy of skills

To give the player a sense of what it means to be an Industrial Designer it is important to teach the player the skills necessary to become one. Furthermore, by teaching the skills of an Industrial Designer the game responds to the fundamental human need for competence in games [10 The implementation of this gameplay element not only shows the player what it is like to be an industrial designer but also

makes them feel competent and thus increases the likelihood of positive emotions being associated with the study of Industrial Design [10].

Design thinking

Lastly, integrating Design Thinking into the game can elevate its persuasive elements. By encouraging individuals to explore the way a designer thinks. By enabling the player to participate in Design Thinking the game can foster empathy, ideation, and iteration techniques new to the player. The game guides players through fictional scenarios that showcase the real-world impact Industrial Design can have. Design Thinking principles seamlessly weave into challenges, sparking creativity and aligning with the study's essence. The iterative nature of the game mirrors the dynamic process of Industrial Design, creating a persuasive narrative that emphasizes growth and innovation [9].

3. Design

3.1 Game description

The background of the game, Codename: Paperclip, is set in Eindhoven. The Dutch secret intelligence agency (AIVD) is recruiting industrial designers to navigate the complex intersection of technology and design. Jasper de Vries, an ambitious final-year industrial design student, is invited to participate in an advanced design simulation. He faces challenges in a simulated tech lab, cracking a vault, and uncovering stolen research documents. The agency recruits Jasper as Agent Spectra, aiming to protect the intersection of design and technology from malicious exploiters. Jasper's journey from a talented industrial design student to a secret agent showcases the symbiotic relationship between creativity and espionage. As Jasper progresses through the simulation, he discovers that stolen documents hint at a real-world threat, mirroring a potential breach in the university's security.

In the game Codename: Paperclip, the aim is to let the player take on the role of an aspiring industrial designer who must overcome obstacles the same way a real industrial designer would. The game has one large level with a broad objective, which is to arrive at a specific location (the safe) while surviving through the obstacles set in the way. The player must approach this level multiple times, each time with a new factor to consider. Namely, Creativity and Aesthetics, Technology Realization, User and Society, Math Data and Computing, and Business and Entrepreneurship [2]. During the gameplay, the player will be given in the top left corner a toolbox with different types of gadgets. These tools may help the player navigate through the secret facility.

Codename: Paperclip is developed with Unity, and it is a puzzle platformer with inspirations from the games Scribblenauts and Ultimate Chicken Horse, where both games encourage “out–of–the–box” thinking. For instance, the player might begin at the first level and finish it in whichever way they desire, which shows their problem-solving skills and creativity. The player may use any tiles, bricks, and tools provided in the game at their disposal. However, after finishing the first level, the player will be placed back at the start, with consideration of other factors and real-world challenges faced by industrial designers these days. For example, players need to take U*ser and Society* into account, where the mission stimulates a situation. In the new situation the protagonist Jasper gets a teammate, another agent who has been shot in the leg and is injured. Thus, for the new level, though the objective remains the same, the player would lose the ability to jump. Now they are asked to come up with a new way of reaching the safe.

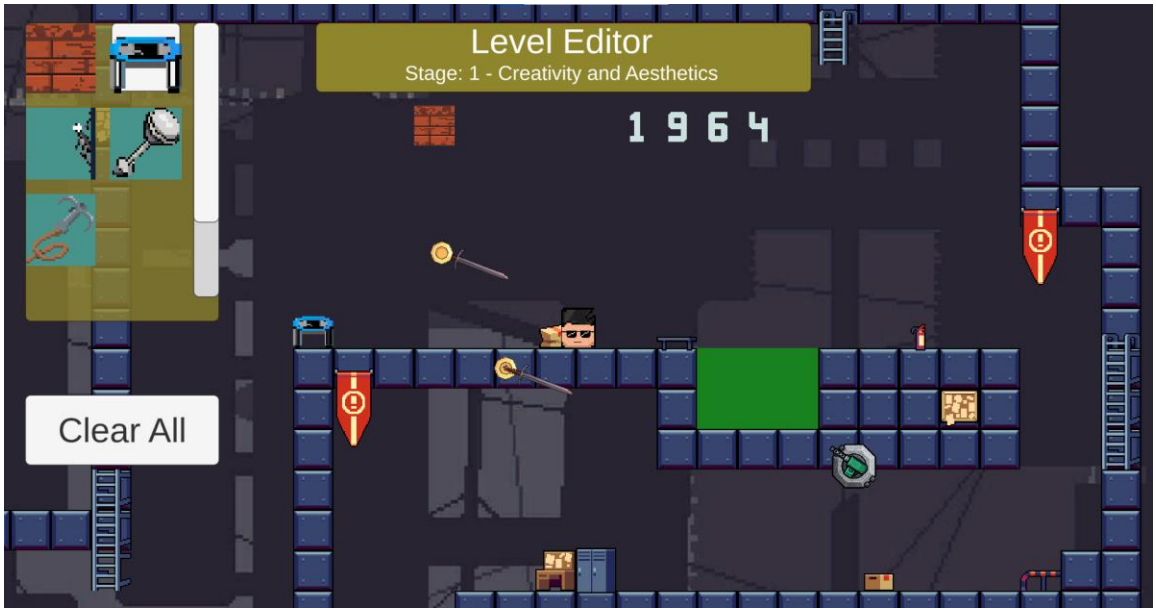

Figure 5, Screenshot of Codename: Paperclip

Furthermore, in the game **Codename: Paperclip** there is no clear game guidance except for the explanation of control keys in the main menu. The goal of traditional game guiding is to minimize the barrier to entry for players by rapidly acquainting them with the rules and content of the game. It was not, however, a satisfactory way to construct guidelines utilizing this notion. From the player's point of view, all they need is to maintain the excitement and have a clear plan of action for when it's time to do it. Allowing participants to keep their excitement for the game is therefore key. So, giving players a broad end goal without constraining the ways to their success may keep them excited. As players, they have a margin for error, which allows them to try new approaches without psychological pressure and create an unlimited gameplay experience with limited resources.

3.2 Main learning goals

The game **Codename: Paperclip** is made to be a serious game that facilitates the understanding of industrial design as a study and motivates students to learn more about industrial design. For a computer game to be a serious game, instead of simply amusing the player, which would now be an extra benefit, the goal is to leverage its entertainment qualities for public policy, education, training, health, and strategic communication goals [12]. When learning something new, people need to go through the following stages: learning, mastering, and mastery. A player may take in a maximum of four new pieces of knowledge at the same time. Therefore, it is important to not overwhelm users with all the items available. Otherwise, new players may get frustrated because they think the game is too difficult.

Also, according to flow theory, a game's ability to provide players with a positive experience is based on how challenging it is relative to the player's skill level [1]. The player will become extremely frustrated when they believe that the game is too hard to continue since it is so much harder than they can handle. The player will find the game dull if it is far easier than they can handle. As a result, the optimal gaming experience should feature a game difficulty that varies slightly closer to the player's level. The game will get harder as the player's proficiency level rises. The level of difficulty in the game **Codename: Paperclip** comes from e.g., from the restrictions on gadget usage in stage 3. At the time, the player has already successfully passed the facility twice, the restriction on gadget use will trigger the user's thoughts on how to minimize the use of these gadgets thus increasing the difficulty slightly, since his/her old tactic may not work anymore.

In Codename: Paperclip, usable items are provided as agent gadgets to the users, it might at first seem like dumping everything to the player all at once. However, this is a way to let players feel autonomous, thus increasing the level of enjoyment, whilst also keeping them thinking. As there is no timer set for the player, there is freedom for users to explore each item. Also, such freedom of exploration may keep players within the flow zone, where the difficult part is about recognizing what each gadget does, and how they may help in locating the safe. The representation of 5 different motivations for choosing industrial design as a study in each level not only unravels the mystery of why one should study industrial design but also allows players to discover their strengths and weaknesses to help guide them to pick their track in the future.

3.3 Game mechanics

This game introduces a dynamic experience where players have the flexibility to customize their gameplay mechanics through the activation of power-ups. Despite this freedom of choice, each level features a set of core mechanics, some of which are consistently present, while others are unlocked through power-ups. Here's an overview of these mechanics:

Rotating blades

Always Present: Rotating blades are objects swinging in a counterclockwise direction. Player contact results in immediate death and the level restarts.

Figure 6: Rotating blade

Turrets

Always Present: Turrets shoot bullets at the player once the player is in a certain range of the turret. The bullets don't follow the initial trajectory but rather follow the player. Once the bullet hits the player, the player immediately dies and the level restarts.

Figure 7: Turret

Poisonous water

Always Present: Poisonous water is indicated by green blocks. Once the player touches the Poisonous water, the player dies and the level restarts.

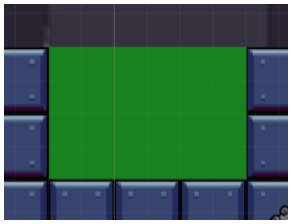

Figure 8: Poisonous water

Spikes

Always Present: Spikes are indicated by grey pointy objects. Once the player touches the spikes, the player dies and the level restarts.

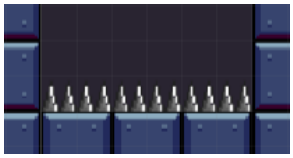

Figure 9: Spikes

Finish mark

Always Present: A green circle with a checkmark indicates the end of the level. Once the player touches the checkmark the level is completed. A new stage is started with a short briefing via text. After that, the next level starts with the same obstacles, but this time the player has different capabilities.

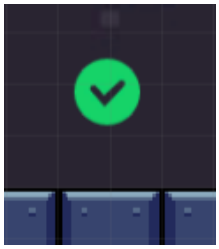

Figure 10: Finish mark

Safe

Appears in stage 4: Positioned as the final obstacle before the finish mark, the safe contains textual clues for a password. Entering the correct password spawns a checkmark, allowing the player to progress.

Figure 11: Safe

Jumping

Present in all stages except stage 2: The player is able to jump.

Wall slide

Activated Automatically with Suction Cups or Wall Jump Power-Up: Slows the player's descent when touching and facing a wall.

Suction cups

Activated by Power-Up: Allows vertical walking up walls when enabled.

Wall jumping

Activated by Power-Up: Enables diagonal wall jumps for increased mobility.

Grappling hook

Activated by Power-Up: Enables grappling onto walls and ceilings, providing strategic advantages such as reaching greater heights or bypassing obstacles.

Trampoline
Available in Editor Menu: Bounces the player upward, facilitating access to higher areas.

Figure 12: Trampoline

Building block
Available in Editor Menu: Selectable and placeable anywhere in the level, providing a platform for the player, or serving as a barrier against bullets and other objects.

Figure 13: Building block

4. Persuasion

To achieve the desired learning goals for Codename: Paperclip, various persuasive elements are implemented in the foundation of the game. In the captivating realm of serious games, Codename: Paperclip emerges as a sophisticated and persuasive experience, seamlessly blending industrial design, espionage, and creative problem-solving.

At the heart of Codename: Paperclip is the character narrative of Jasper de Vries, an industrial design student turning into a secret agent. This narrative is not merely a storytelling device; it serves as a tool for emotional engagement, inviting players to immerse themselves in Jasper's journey. As Hoeken and van Vliet [4] suggest, emotional engagement and identification with characters enhance the persuasive impact of a narrative. In Codename: Paperclip, players are not just navigating through levels; they are actively experiencing Jasper's transformative journey, fostering a strong connection with the character as the game progresses.

The persuasive element of emotional engagement is also researched through a game called ***"A Breathtaking Journey"*** [6]. The game places players in the perspective of a refugee escaping from a war-torn country, simulating their struggles and challenges along the way. Although there certainly are similarities between the two games, ***"A Breathtaking Journey"*** really takes the emotional engagement a step further by using sensory elements such as breath control, scent feedback and tactile feedback, while Codename: Paperclip only focuses on the narrative. This causes the emotional engagement to be relatively plain, as opposed to the modern-day possibilities.

Furthermore, the game draws inspiration from Malone's theory [8], incorporating challenges that stimulate intrinsic motivation through the application of creativity and problem-solving skills. Codename: Paperclip challenges players to think beyond the conventional, mirroring the dynamic problem-solving nature of real-world industrial design projects. For example, the game encourages

players to approach challenges creatively. Each level introduces unique hurdles, urging players to use a creative thinking process—essentially making them apply the principles of industrial design in a virtual context. The use of these unique hurdles, in combination with the intriguing narrative and setting of the game, also adds to a stimulated intrinsic motivation and persuasive quality of the game, due to the incorporation of challenge, fantasy and curiosity [8].

As mentioned before, the flow theory [1] is accurately applied in Codename: Paperclip to ensure an optimal gaming experience. The gradual increase in difficulty levels is not a random choice; it is a deliberate design choice to prevent frustration or boredom. This intentional balance in difficulty levels creates an enjoyable experience, keeping players in the "flow zone" and enhancing the persuasive potential by ensuring sustained engagement. The intentional limitation of gadget usage as players advance in the game is another good example. This restriction challenges players to think critically and creatively, fostering a sense of autonomy. The game encourages the exploration of various approaches without time constraints. This intentional limitation is grounded in the flow theory, promoting creative thinking and problem-solving, ensuring the players remain engaged and actively participate in the learning process.

The introduction of suspenseful elements is another aspect that further drives the persuasive quality of Codename: Paperclip. Challenges such as cracking vaults, evading shooting turrets and uncovering stolen research documents contribute to a narrative that unfolds progressively, creating an exciting storyline. According to the narrative persuasion theory [4] narratives that include *suspense, curiosity,* and *surprise* can capture and maintain audience's attention more effectively. In the game, these elements are not just used; they are integral components contributing to a storyline that is both compelling and persuasive.

Despite many of the discussed fictional elements, realism is a very important persuasive factor used in Codename: Paperclip. In certain levels, unexpected hurdles are thrown at players—a teammate with a simulated injury, for instance. These elements seem to be just part of the narrative, but when analyzed deeper, they mirror the dynamic nature of industrial design projects, urging players to adapt their strategies and think on their feet. This intentional inclusion of real-world scenarios enhances the persuasive impact by aligning gameplay with the challenges one might encounter in the field of industrial design [3].

In addition to this, educational content is seamlessly integrated into the gameplay of Codename: Paperclip. Motivations for studying industrial design are unravelled in each level, guiding players to discover their strengths and weaknesses. This is not a separate facet of the game; it is woven into the gameplay mechanics, aligning directly with the game's educational objectives. By seamlessly merging educational content into gameplay, Codename: Paperclip positions itself as a persuasive learning tool, leveraging entertainment qualities for educational goals [12].

Because of these educational goals, it is of great importance to look at what Industrial Design students prefer in games. In fact, finding out which general game aspects interest ID students is crucial to tailoring game development to their interests. When looking at our own data in Figure 3, the survey measurements show that multiplayer, social interaction, narrative, puzzles, strategy and adventure are the most liked parts of games for ID students, of which puzzles and adventure achieved the second highest percentage. In Codename: Paperclip, this is woven into the base structure of the game. The game consists of a recurring but overarching puzzle, which is to get from the starting position all the way to the end position. This puzzle being different at every level with several solutions possible in addition to having multiple mathematical puzzles at the safe ensures that puzzles are a base aspect of

our game and also contain a strategic game element. The narrative of the so-called “agent de Wit” in combination with the setting and the background contributes to an adventurous atmosphere.

In essence, Codename: Paperclip substantiates its claim of being a persuasive game through tangible examples rooted in the gameplay mechanics and design choices. From emotional engagement to adaptive challenges, educational alignment to suspenseful elements, each facet is carefully crafted to persuade players not just to play, but to actively immerse themselves in a transformative learning experience. As players navigate the complexities of industrial design within the game, they are not just participants in a virtual world, they are active recipients of persuasive elements strategically designed for a compelling and educational journey.

5. Personal reflections

5.1 Enting Jin

During the development of the game, I made the grappling hook as one of the tools available for our main character and I was also in charge of the ordering of the scene and game flow. I also made the main menu.

The development process seems a bit messed up in the beginning, as we had only just determined the game flow and game mechanics right before the mid-term presentation. The actual coding only started then, and thus we dissected smaller tasks right before Christmas so there is a choice to catch up with the timeline. To me the division seems like a successful move, as we did manage to get the skeleton of the game work and the story is fully written.

I would say I am happy with the result so far. However, next time I would want to take less time on only verbal or written game ideas, and perhaps have some game demos (in Unity) instead. Indeed, developing a serious game requires more careful consideration, but I believe demos could potentially save the team more time for polishing once the game idea is chosen.

5.2 Rick van Giersbergen

In the first quarter of this academic year, I took the course 'Design for Games and Play I: Game Design' (DZC10). I found the course enjoyable and became excited to learn more about game design. Consequently, I chose to enroll in the subsequent course, 'Design for Games and Play II: Learning and Persuasion in Games' (DZC20). As an industrial designer, I am constantly motivated to push my limits and enhance my skill set. My primary objectives for this course included gaining insights into the psychological aspects of game design and furthering my proficiency in programming.

Within my project group, I again took the role of group/project leader within my project team. I took on the task of steering the project in the right direction and keeping the project on track. Additionally, I played key roles within the team, including designing the main level, writing the narrative, creating all intro/dialogue cutscenes, and ultimately programming the turrets utilized in the game. I took on these roles to further develop my game design skills and mainly to focus on one of my less developed skills - programming.

Starting with the goal of developing my proficiency in programming I can say I have made a lot of progress. During the project, I programmed not only the cutscenes of the game but also the turrets that shoot at the player. This proved a big challenge for me as I had almost no prior experience with the programming language of Unity which is C#. It took me some time but eventually, I got everything to work and along the way gained a lot of new knowledge about C# and the game engine Unity.

In addition to advancing my programming skills, I aimed to develop my expertise in game design, specifically focusing on the psychology of persuasive games. By attending the weekly lectures, I gained theoretical knowledge that I could quickly apply to the project and creation of the game. The hands-on experience of implementing this knowledge in a project significantly contributed to the further development of my skills in the realm of game design. Furthermore, as an avid gamer myself I have enjoyed learning about game design and the persuasive elements game designers use.

However, there is still room for improvement. While I'm happy with my progress in programming and game design theory, my next objective is to delve into learning how to program animations in games. The current two games I made, have little to no animations for both the level and player character. Additionally, these games are both in 2D, which served as a suitable starting point. However, I am now eager to elevate the challenge and venture into programming 3D games.

In conclusion, this course has left me with valuable insights, skills, and a deeper understanding of game design. I believe that as I designer the skills and knowledge I learned during this course will help me in my future career even if this is not in the area of game design itself. I am enthusiastic about continuing my development in game design, and I am contemplating the possibility of doing my FBP within the Games and Play squad to advance further in my game development journey.

5.3 Johan van Dongen

During this project I spend most of my time in unity working on the game. I setup the project and created the platform and player. I implemented the following mechanics mentioned earlier in the report: rotating blades, poisonous water, spikes, finish mark, jumping, wall sliding, suction cups, wall jumping, trampoline and the building block. Moreover, I built the level editor menu where powerups can be activated and building blocks can be dragged and placed into the level, all while playing the game. I also set the player capabilities per stage, and consequently made a resourcefulness system where items can only be placed/activated a limited number of times.

I am happy with the game concept and how this can be seen in the game we made. However, I think that the game is too simple and too short. There are not enough building blocks, and the building blocks are too simple, to create an interesting challenge for the player in my opinion. In most stages of the game, a single type of block or powerup can be used to complete the whole level. However, I think, a setting where blocks need to work together creating a bigger and more complex object would benefit the game more. For example, making vehicle objects, where different additions to the vehicle changes its riding behaviour. Where small additions can make huge changes, where trial and error, experimenting and out of the box thinking are more crucial. Thats when the game would really show its potential that it has. It just needs a good long thought, multiple iterations and lots of demos.

5.4 Robin Willemsen

The main reason I chose this course was because I wanted to develop my prototyping skills using online software such as Unity. I did not really have any experience with it yet and I discovered that I am quite fond of Game design. During the project, I took the responsibility of creating the safe puzzle at the end of the game. Because of my limited experiences with programs like Unity, it was quite a challenge for me. Over the past few weeks, I did a lot of self-study on how to create different game objects and how to create interactive interfaces. I think I did a good job on the safe puzzle, regarding the experience I had beforehand. More important is, I gained a better understanding of how it all works and I certainly made lots of progress in Unity programming.

Besides the programming, I also learned a lot from the lectures and the persuasive elements in games. As a designer, I really think the user Is crucial, so I want to develop my understanding of the target group I am designing for. This course really taught me a lot in that area. Also by writing the part about persuasion in this report, I gained a much deeper understanding of these persuasive elements and how to use them.

The cooperation between the group members was good in my opinion. If someone had problems, help was offered from several sides. Everyone had their own role in the group. As previously indicated, I had been assigned my own tasks, which I really turned into my own small project. As an area for improvement I could mention that the collaboration did not feel very personal, because we usually held meetings via teams and we hardly saw each other in real life. It was always about dividing tasks and keeping in touch via WhatsApp. This does not detract from the fact that the cooperation was good and that everything went fairly smooth.

In the end, I am happy with the game we made. I think the game is a bit simple, but we also had limited time and experience. Right now, the game shows our intent really well, but of course, if the game were to succeed on the real market, it still needs a lot of improvement.

To conclude, I learned a lot of what I wanted to learn when I initially chose this course. This course also really helped me to gain insights in what I want to do as a designer. Overall, it was a fun course, but more importantly, it was very helpful and educational.

5.5 Tom Uijlenhoet

Choosing this course was a big deal for me. Since I already have gained enough study points as far as the electives are concerned and I have been trying to take a very wide range of different courses, the time had now come to take a good look at which expertise areas I still wanted to improve myself on and which courses could add to my development as a designer. Last summer, I already came to the conclusion that I had not gotten much experience with game design related courses. However, I missed out on the registration of the course 'Design for Games and Play I: Game Design' (DZC10). Therefore, I immediately signed up for 'Design for games & play II; learning and persuasion in Games' (DZC20). Even though, it was not obligated for this course (DZC20) to have followed the predecessor (DZC10), it kind of determined my role in the group project.

When it comes to my role in the group project, I did not necessarily want to take the lead, because I felt like all my group members had more experience than me by having followed the first course of the game design courses. Therefore, at the start of our project, I spend the most time in the ideation phase sketching and thinking through iterations and how the game should be, with our chosen study Industrial Design in mind. During this time of the project, some of us already worked more on creating a structure of the game in Unity rather than all five of us doing the same task simultaneously. As Industrial Design students, we decided to indirectly implement the 5 expertise areas into our game to represent the important cornerstones of our study. I did not face any problems during this project, until I needed to get to the realization part of the game. Therefore, I first needed to get a grasp of the tools that we were using to make the game in order to be able to contribute to our game. All my other team mates already had experience with Unity, so I am glad they took the lead in that part. Before the Christmas break, I tried to create an understanding and master the basic skills of Unity so that I could add to our game as well and do my part.

The main responsibilities I got where to create the setting and the background of the game and to create new building blocks. We came up with a whole series of building blocks, which unfortunately we did not use all due to the time constraints. I made a slow-down-timer, but it sadly did not make it in the final game, because it I did not make it work properly and it gave bugs left and right for which we did not have the time to fix in time. Although I found it really frustrating, I know it is simply not a priority. During the process, I learned the basics of using Unity, GitHub and coding in the programming environment. And in the future, I would want to implement the parallax effect, which essentially is that the background is made of different layers and moves by in different speeds levels when the protagonist moves in the foreground. The further away the layer, the slower the landscape moves by and the further away it appeals to the person playing the game. In this way, the game could feel more three dimensional even though it is a two-dimensional game. Therefore, I feel like this could contribute to our game and make it more professional.

Now in conclusion to the course as a whole, it has given me valuable skills and a better understanding of what game design is all about and how it can be used to have a bigger impact on society than just to be there as amusement. I think that all the skills and knowledge I learned during this course have helped me in my development as a designer and have contributed to improving my weaknesses when it comes

to the expertise areas of Industrial Design. This has inspired me to continue my development in game design itself and in addition to Unity, maybe also try Unreal Engine to see what that is all about.

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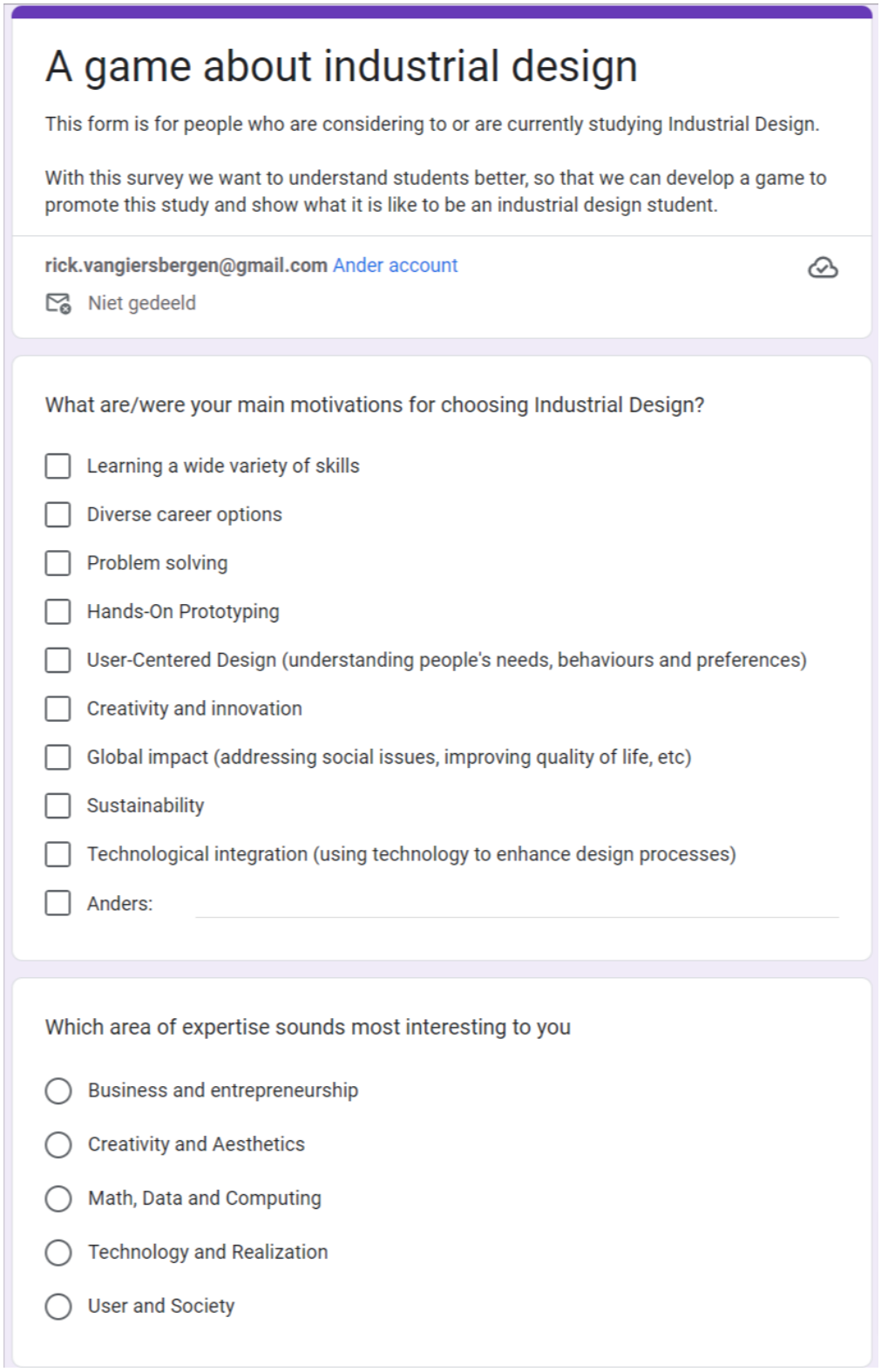
7. Appendix

7.1 Industrial Design Questionnaire



A game about industrial design

This form is for people who are considering to or are currently studying Industrial Design.

With this survey we want to understand students better, so that we can develop a game to promote this study and show what it is like to be an industrial design student.

rick.vangiersbergen@gmail.com Ander account

Niet gedeeld

What are/were your main motivations for choosing Industrial Design?

- [ ] Learning a wide variety of skills
- [ ] Diverse career options
- [ ] Problem solving
- [ ] Hands-On Prototyping
- [ ] User-Centered Design (understanding people's needs, behaviours and preferences)
- [ ] Creativity and innovation
- [ ] Global impact (addressing social issues, improving quality of life, etc)
- [ ] Sustainability
- [ ] Technological integration (using technology to enhance design processes)
- [ ] Anders:

Which area of expertise sounds most interesting to you

- ( ) Business and entrepreneurship
- ( ) Creativity and Aesthetics
- ( ) Math, Data and Computing
- ( ) Technology and Realization
- ( ) User and Society

I want to learn about material properties

	1	2	3	4	5	
Not interested	○	○	○	○	○	very interested

I want to learn about the manufacuring process

	1	2	3	4	5	
Not interested	○	○	○	○	○	very interested

What are your long term goals

- [ ] Establish a succesful design career
- [ ] Starting your own business
- [ ] Contribute to social impact design
- [ ] Contribute to sustainable Design practices
- [ ] Advance Design technology
- [ ] Anders: _____

If you did not know what to study, and decided to play a game to help deciding what study to pick. What would you like this game to offer.

- [ ] Teach the skills taught in the study
- [ ] Show the skills taught in the study (showing the skills rather than teaching)
- [ ] Show the career prospects
- [ ] Show the typical day of a student in that study
- [ ] Illustrate that study by means of an example project
- [ ] Anders: _____

What do you generally like in games

- [ ] Multiplayer and social interaction
- [ ] Storyline
- [ ] Surviving
- [ ] Shooters
- [ ] Puzzles
- [ ] Building
- [ ] Strategy
- [ ] Adventure
- [ ] Role play
- [ ] Economy
- [ ] Simulation
- [ ] Anders: _____

7.2 Scene sketches that did not make the final game