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PRACTICES OF MAKING GAME TUTORIAL

Bachelor's thesis

Degree programme in Game Design

2021

South-Eastern Finland University of Applied Sciences

Author (authors)	Degree title	Time
Kehan Chen	Bachelor of Culture and Arts	March 2021
Thesis title Practices of making game tutorial		47 pages 0 page of appendices
Commissioned by South-Eastern Finland University of Applied Sciences, Creative Industries RDI-Unit		
Supervisor Marko Siitonen		

Abstract

Developing a game has never been an easy task. A game consists of many components. One of the most underestimated components in the game is the game tutorial. Compared to other components, game level, graphics and music, the game tutorial is negligible. Tutorials are often placed in the beginning of a game to teach the players the rules. However, they are often produced at the end of the project, resulting in unfinished and bad tutorials.

The objective of this thesis was to research on elements and practices of making game tutorial and test their efficiency. The background of the game tutorial and its importance were discussed in the first two chapters. The third chapter discussed how do people learn and broke down the visual and auditory elements used in game tutorials. In chapter four three practices of making game tutorial were introduced followed by an implementation of the practices to make a tutorial for the game Hamina 1810_Work Never Changes (2019) which was in chapter five. Chapter six was about how the tutorial was tested and the last chapters talked about the results of the tests and conclusions.

Unmoderated and moderated usability tests with interview were used to test the game demo. Questionnaire was used to gather players' feedbacks after playing the game demo.

A game demo was made based on Flashcard and Follow-to-do practices. Because there were not enough testers in the game demo tests, inadequate data was collected to make valid conclusions. Based on the collected data, it was found that even though Flashcard is a useful practice, Follow-to-do tutorial was still preferred to Flashcard tutorial. However, deliberate design is needed to make full use of Follow-to-do practice.

Keywords

video game, game tutorial, multimedia learning

CONTENTS

1 INTRODUCTION

With the fast development of the game industry in the past 10 years, substantial investment has boosted the development of games. The design, graphics, audios and performance of video games were improved. New technology has been utilized to make games run smoother, faster with better graphics.

Numerous investments were made into games to make big-budget games. However, some parts are still not being done well in games one of which is the game tutorial. This does not only happen to low-budget or indie games. Bad tutorials can be also found in big-budget games. As the increasing complexity of games, good tutorials have never been so important to games. Especially for novice game players, the tutorial in the beginning gives them the first impression of the game. If the tutorial fails to orientate the players, the players might end up closing the game after 10 minutes.

Making a good tutorial is as hard as making a good game level. Tutorial serves as a guide to the player while it is also a part of the gameplay in an ideal case. Some tutorials hold up well in guiding the player but not doing well in being part of the game. The reason why some tutorials are not well made is they are often made in a rush at the end of the game projects. Time is always limited at the end of a project especially when a game is pushed to be published as soon as possible. If tutorials are made with little time and resources, it is not surprising that they will end up bad.

This thesis aims to research good practices of making game tutorials to help game developers make good game tutorials. A tutorial demo was made to test the practices introduced in this thesis.

2 THE TUTORIAL

A tutorial is a manual or guide coming with a product teaching people how to use the product without a teacher. Tutorials exist in different forms depending on the products they come with. The tutorial coming with a TV is a manual printout that

teaches users how to set up the TV, change the brightness, choose among different channels. The tutorial coming with a game console is a manual teaching the user how to hook up the console to the TV and set it up. The tutorial put inside the box of Lego guides the player to make the Lego from scratch to the completion. There are many other kinds of tutorials also. Nowadays, the tutorials in the form of videos have become more and more important. One of the most visited websites where you can find tutorial videos of almost all kinds is YouTube. Tutorial video is popular because it teaches people in a multimedia fashion which is discussed in this thesis later. Combing visual and audible information together tutorial video becomes one of the best types of tutorial which is easy to understand and follow up.

2.1 What is a video game tutorial?

Serving the same purpose as any other tutorials, the video game tutorial teaches people how to use the product (play the game). It introduces the rules of the game to the player, teaches the controls of the game, depicts the background of the game world.

Old games used to make tutorials as printed manuals or a dedicated tutorial screen teaching the player about basic controls. The printed manuals are thin and basic in the beginning. Later they became thicker and thicker covering more details and background of the characters and game worlds. Later the complete guidebook became popular. Complete guidebooks acknowledge players about every single detail about the games. They guide the players step by step on how to progress the game perfectly by completing all the side quests, gathering all the collectables.

Other than physical tutorial books, game tutorials are also made digitally embedded into the game. In old times, the game tutorial was just a simple screen with pixel graphics as the example in Figure 1.

Figure 1. Old game tutorial from Space Invaders (Taito 1978)

Some game tutorials are put separately into “Training” or “Tutorial” sections so the players can choose if they want to check out the tutorial. Some experienced players might just want to skip it.

Thanks to the creativity of the game developers, aside from the separated tutorial sections, in-game tutorials have become more and more popular. “Most tutorials are presented in what is called a context- relevant manner”, White (2014) mentioned in his book *Learn to Play: Designing Tutorials for Video Games* (White 2014). Context-relevant tutorial refers to the tutorials or hints that appear only when they are necessary. For example, in Figure 2, “use Ls to move” appears at the top left corner only when the player needs to move with the soldier.

Figure 2. In Halo: Combat Evolved the player is taught to use the left stick to move (Bungie 2001)

In Figure 3, an example shows that after the player grabs an item, a hint will tell the player that by pressing RightMouse the object could be thrown out. By holding down R and move the mouse, the player can rotate the object.

Figure 3. Tutorial in game Amnesia: The Dark Descent (Frictional Games 2010)

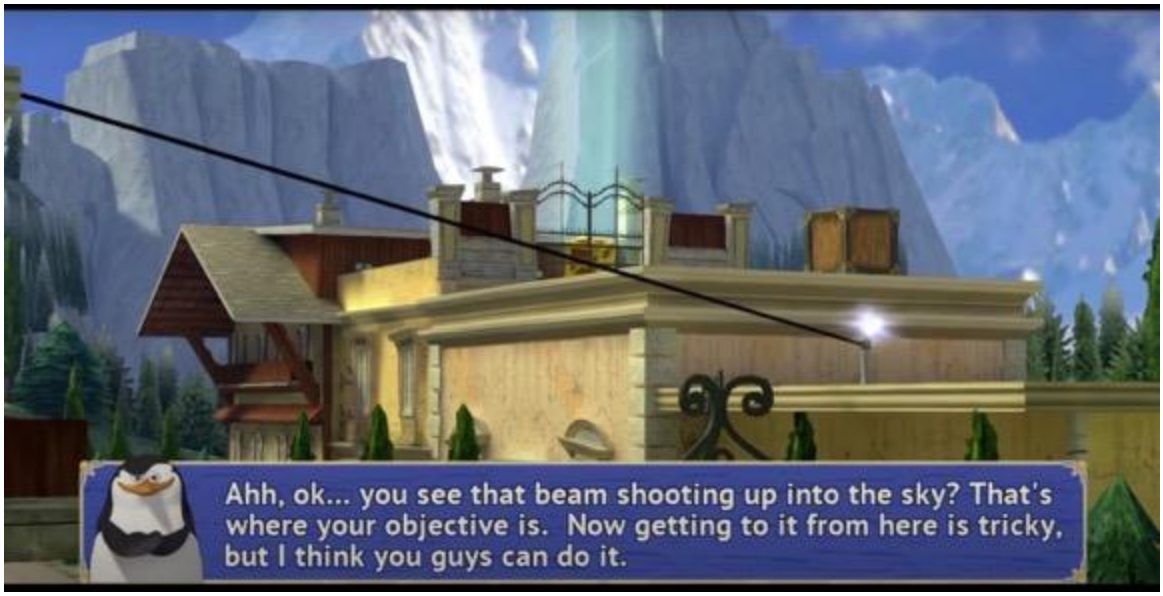

Figure 4. Skipper gives voice instruction to the player in Madagascar 3: The Video Game (Monkey Bar Games 2012)

Tutorials can also be presented in the form of voice instruction (Figure 4). A good example is the tutorial in the game Madagascar 3: The Video Game (2012), Skipper (a penguin) will guide the player step by step with voice acting and subtitle together. This provides good immersion to the players since Skipper is the First Policeman and the leader of all the penguins in the film which the game is based on. It is natural for him to give instructions and orders to the players. Audio plays a vital role in teaching players how to play the game which was covered later in this thesis. Figure 4 gives an example of Skipper's instruction.

2.2 Why is the game tutorial important?

Different games have different game mechanics. Although many games share the same well-known key combinations, for example, A for move left, S for move back, W for move forward, D for move right, there are still many game specific controls. In Shadow of the Tomb Raider (2018), the player can trigger Survival Instinct by pressing Q. Survival Instinct highlights animals, enemies, collectables and objects with yellow coloring while the background fades into grey. In Call of Duty (2003) Q is used to honk the vehicle horns. In Red Dead Redemption 2 (2018) Dead Eye can be triggered by pressing Caps Lock key. Dead Eye makes the time flows slowly allowing the player to target enemies with a red x.

Even for the same function controls are different in different games. In Red Dead Redemption 2 (2018) H is used to call the horse, in Witcher 3 (2015) X is used while in Assassin's Creed Odyssey (2018) the key is Q. In Monster Hunter World (2018) crouch is Spacebar while in Assassin's Creed Odyssey (2018) it is C.

Considering the fact that controls vary among different games, the game tutorial is essential to teach players how to play the game while adding up immersion to the gameplay. For novice players who have little game experience the game tutorial becomes even more requisite. Unfortunately, novice players are often ignored by game developers.

3 HOW DO PEOPLE LEARN?

In order to make good game tutorials to teach people, it is important to understand how people learn. There are many theories of how humans learn. This thesis is based on the multimedia learning theory of Moreno and Mayer (2003) which was developed on three assumptions: dual-channel assumption, limited-capacity assumption and active-processing assumption.

Multimedia learning theory is defined as learning from words and pictures. Words can be printed, for example, on-screen text or spoken, for example, narration. The pictures can be static, for example, graphics, photos, charts or dynamic such as video, animation. (Moreno & Mayer 2003.) Mayer's dual-channel assumption combines dual-channel theory of Paivio (1986) and working memory theory of Baddeley (1998) together indicating that the human mind consists of two separate sensory components: ears (auditory/verbal channel) for processing auditory input and verbal representations and eyes (visual/pictorial channel) for processing visual input and pictorial representations.

Limited-capacity assumption combines the cognitive load theory of Chandler and Sweller (1991, 293-332) with working memory theory of Baddeley (1998). It

indicates each channel in the human information-processing system has limited capacity.

The active processing assumption combines generative-learning theory (Wittrock 1989) and selecting-organizing-integrating theory (Mayer 2002) together indicating that a substantial amount of cognitive processing in verbal and visual channels is needed for meaningful learning.

Figure 5 shows how information is processed in the human mind. The row above represents the auditory channel and the row below represents the visual channel.

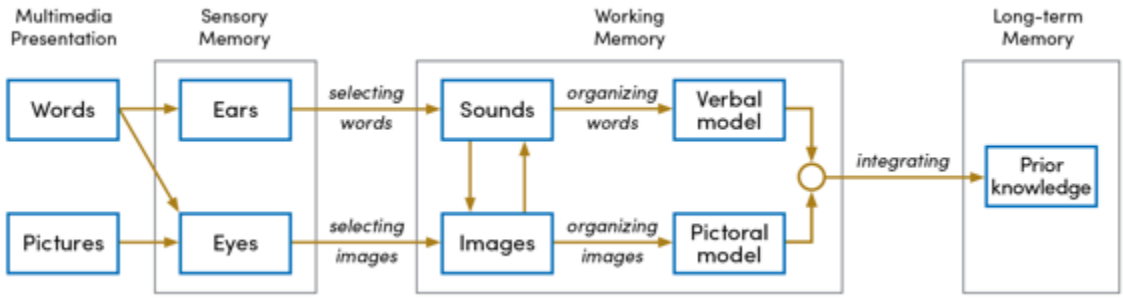

Figure 5. Cognitive Theory of Multimedia Learning (Moreno & Mayer 2003)

Visual and auditory information are captured by ears and eyes and sent to working memory. Information is processed in working memory and finally integrated into long-term memory.

In the process of learning, a situation where “the learner’s intended cognitive processing exceeds the learner’s available cognitive capacity” often happens. This situation is called cognitive overload. (Moreno & Mayer 2003.) Limited-capacity assumption indicates that the processing capacity of human mind in each channel is limited. When cognitive overload happens, the learner will feel hard to learn and memorize. In *Nine Ways to Reduce Cognitive Load in Multimedia Learning,* Mayer and Moreno (2003) introduced nine efficient ways to solve cognitive overload (Figure 6).

Load-Reduction Methods for Five Overload Scenarios in Multimedia Instruction

Type of Overload Scenario	*Load-Reducing Method*	*Description of Research Effect*	*Effect Size*
Type 1: Essential processing in visual channel > cognitive capacity of visual channel			
Visual channel is overloaded by essential processing demands.	Off-loading: Move some essential processing from visual channel to auditory channel.	Modality effect: Better transfer when words are presented as narration rather than as on-screen text.	1.17 (6)
Type 2: Essential processing (in both channels) > cognitive capacity			
Both channels are overloaded by essential processing demands.	Segmenting: Allow time between successive bite-size segments.	Segmentation effect: Better transfer when lesson is presented in learner-controlled segments rather than as continuous unit.	1.36 (1)
	Pretraining: Provide pretraining in names and characteristics of components.	Pretraining effect: Better transfer when students know names and behaviors of system components.	1.00 (3)
Type 3: Essential processing + incidental processing (caused by extraneous material) > cognitive capacity			
One or both channels overloaded by essential and incidental processing (attributable to extraneous material).	Weeding: Eliminate interesting but extraneous material to reduce processing of extraneous material.	Coherence effect: Better transfer when extraneous material is excluded.	0.90 (5)
	Signaling: Provide cues for how to process the material to reduce processing of extraneous material.	Signaling effect: Better transfer when signals are included.	0.74 (1)
Type 4: Essential processing + incidental processing (caused by confusing presentation) > cognitive capacity			
One or both channels overloaded by essential and incidental processing (attributable to confusing presentation of essential material).	Aligning: Place printed words near corresponding parts of graphics to reduce need for visual scanning.	Spatial contiguity effect: Better transfer when printed words are placed near corresponding parts of graphics.	0.48 (1)
	Eliminating redundancy: Avoid presenting identical streams of printed and spoken words.	Redundancy effect: Better transfer when words are presented as narration rather narration and on-screen text.	0.69 (3)
Type 5: Essential processing + representational holding > cognitive capacity			
One or both channels overloaded by essential processing and representational holding.	Synchronizing: Present narration and corresponding animation simultaneously to minimize need to hold representations in memory.	Temporal contiguity effect: Better transfer when corresponding animation and narration are presented simultaneously rather than successively.	1.30 (8)
	Individualizing: Make sure learners possess skill at holding mental representations.	Spatial ability effect: High spatial learners benefit more from well-designed instruction than do low spatial learners.	1.13 (2)

Note. Numbers in parentheses indicate number of experiments on which effect size was based.

Figure 6. Load-reduction methods for five overload scenarios in multimedia instruction (Moreno & Mayer 2003)

A good game tutorial implements both visual and auditory materials to teach the game rules to the player while avoiding cognitive overload. In chapter 4 this thesis introduces some practices of making game tutorial following the principle of less cognitive load.

3.1 Visual elements in the game tutorial

As is the same with most media, people's attention is caught by how things look. A nicely designed package can promote the selling of the product to another level. When visiting a bookstore, surrounded by thousands of books, customers are more likely to spare their attention on those books with good-looking covers. Our eyes take the highest priority in commanding our perceptions in video games. Games are made with well-designed UIs and graphics not only for

aesthetic reasons, but the look of the game also affects the satisfaction of the players' interactions with the games.

As was discussed before, people learn things both visually and audibly. Most of the information in games are presented visually. The game tutorial, as one part of the game, also instructs the player visually. In this chapter, examples of how visual elements are used in the game tutorial were illustrated.

3.1.1 Signs and symbols

Signs and symbols are widely used in tutorials. They are informative and straightforward. They can deliver a lot of information without taking many of your limited cognitive resources. There are mainly two kinds of symbols in the game tutorial. One is the symbols of the game controllers (gamepad, keyboard, mouse, joystick and so on). Another one is indicators.

Figure 7. Symbol of the button is used in Madagascar 3: The Video Game (Monkey Bar Games 2012)

In most cases, the symbols of the buttons or keys are demonstrated in the tutorial. For example, in game Madagascar 3: The Video Game (2012) players are told to use B to do a special move (Figure 7). In game Dishonored (2012) players are told to use left mouse button to conduct an assassination (Figure 8).

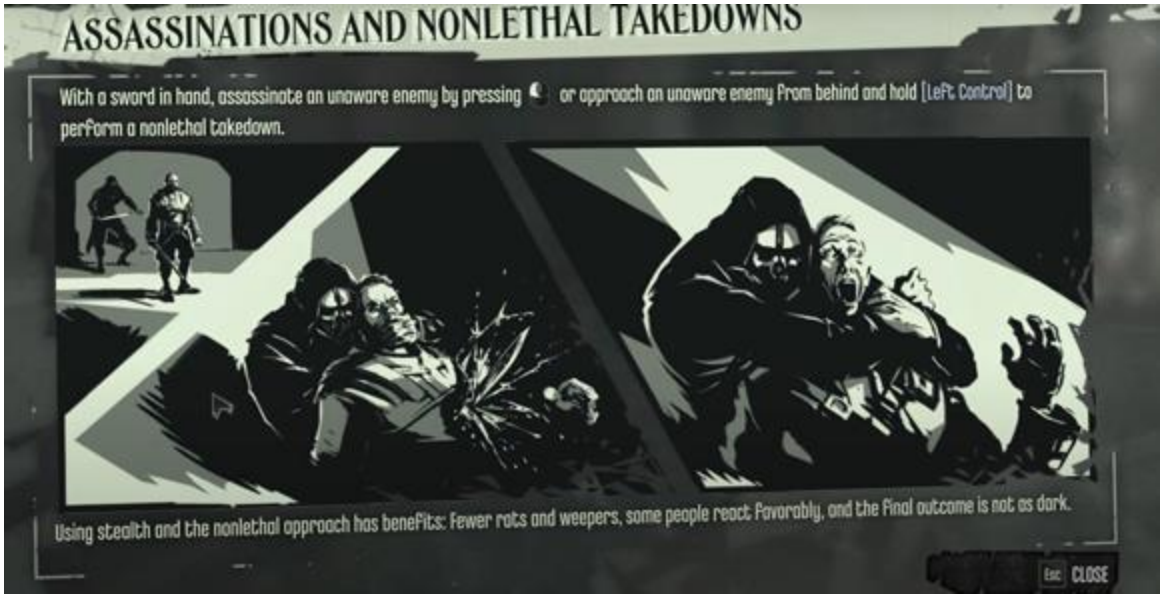

Figure 8. Symbol of the controller and buttons Dishonored (Arkane Studios 2012)

Figure 9. Screenshot of game Beyond Two Souls (Quantic Dream 2013)

As being noticed in the examples, a symbol can be just a name of a button or key, for example, the button A in the example of Madagascar 3: The Video Game (2012). Also, a symbol can be an image of the controller (either realistic or symbolized) with the corresponding button or key being highlighted. In Figure 8, a symbol of a mouse with left button highlighted with white color is used to indicate pressing the left button of the mouse in Dishonored (2012). In Figure 9, a realistic symbol of a game controller with right stick highlighted with red color is used to indicate pushing the right stick up to separate the soul of the girl from her body in

Beyond Two Souls (2013). In terms of instructing, the image of the controller with highlighted button or key works better. The reason is it gives a clearer indication of which button or key is referred to. The top buttons on the game controllers of Xbox and PS (PlayStation) are often used in games. The top left buttons are marked as L1 and L2 on PS controller while on Xbox they are marked as LB and LT. The top right buttons are marked as R1 and R2 on PS controller while they are RB and RT on the counterpart. Even for experienced players it is not easy to locate the referred button right after they see the name, let alone novice players. However, the image of the controller will take more space than just a name of the button or key. Figure 10 shows another good case of using a symbolized image of the controller with buttons highlighted is The Legend of Zelda: Breath of the Wild (2017).

Figure 10. Controller symbol in The Legend of Zelda: Breath of the Wild (Nintendo EPD 2017)

Aside from the symbols of the game controllers, another signs or symbols usually found in the game tutorials are all kinds of indicators. For example, in game Heavy Rain (2010), the upwards arrow is used to tell the player to move the right stick up (Figure 11). Figure 12 gives another example in Heavy Rain (2010) where the player should move the stick slowly in the direction indicated. This sign is made of three parts. One is the dashed lines framing the symbol. The second part is the downwards arrow indicating the direction. The last part is a transparent square growing bigger with the movement until it fills the whole sign which means the action finishes.

Figure 11. A symbol of an upwards arrow is used to tell the player to move the stick up in Heavy Rain (Quantic Dream 2010)

Figure 12. A symbol with animation teaches players to shave in Heavy Rain (Quantic Dream 2010)

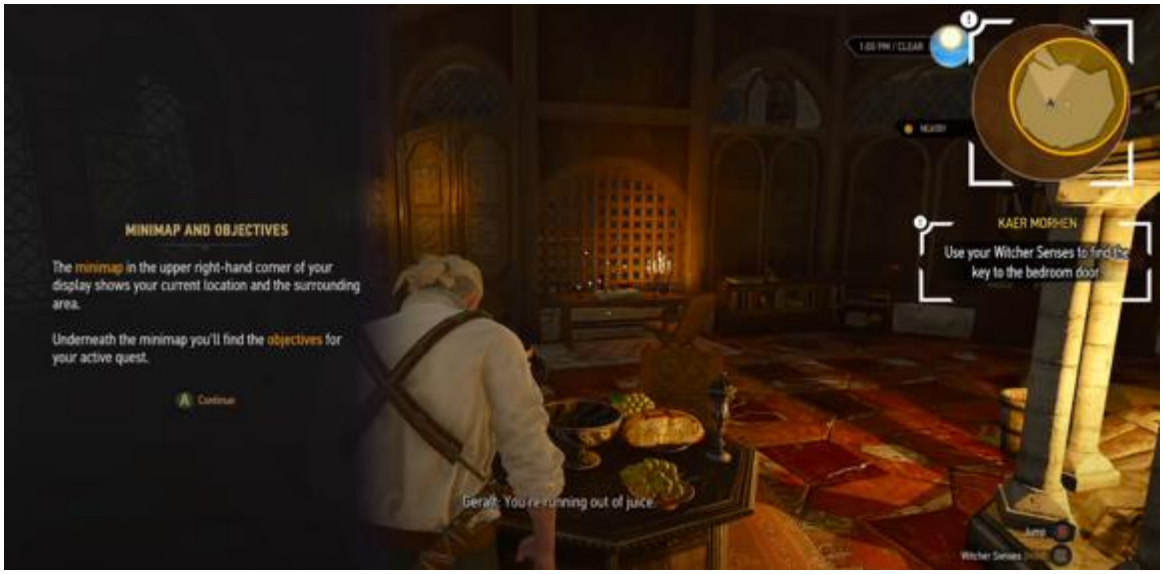

Figure 13. Tutorials in Witcher 3 (CD Projekt Red 2015)

Figure 13 demonstrates how the developers use white frames with exclamation marks at the top left corner to highlight important information to the player.

3.1.2 Colors

Choosing the right color for the symbol of button or key adds more legibility to it. Some game controllers have dedicated color for each button. Xbox controller has yellow Y, red B, green A and blue X while PS controller has aqua triangle, salmon circle, blue X and orchid Square (Figure 14 & Figure 15).

Figure 14. Image of Xbox controller (61z3GQgEPZL, n.d.)

Many games use the original colors of the game controller buttons on the button symbols. It is intuitive for the player to find the button by the same color. For example, in Witcher 3 (2015), green A refers to the green button A on Xbox controller (Figure 13). In Madagascar 3: The Video Game (2012), red B is used to refer to the red button B on Xbox controller (Figure 7 on page 13). For buttons that have no dedicated colors, colors will be chosen to highlight the buttons. For example, in Beyond Two Souls (Figure 9 on page 14) red color is used to highlight the right stick of the controller. In Dishonored (2012), white color is used to highlight the left mouse button (Figure 8 on page 14).

Figure 15. Image of PS4 controller (61IG46p-yHL, n.d.)

Warm colors, for example, red, orange and yellow are good chocies to be alert to the players. Contrasting colors are also a good choice to attract the player's attention.

Other than the color of the symbols, color of the text should also be taken into consideration when making tutorial. Many games choose white as the color of the text because of its high brightness which makes the text more legible. In most cases white text works well because there are not likely to be color as bright as white at the backgrounds. If hierarchy of white text is needed in the game, some text can be colored with grayer white while text in higher hierarchy can be colored with brighter white. For example, in Figure 16 there are two kinds of whites used in the text. Figure 17 shows how the game preserves a good hierarchy by assigning the name of the objects with brighter whites and other text, for example, the action text ([F] Pick up) with grayer whites.

Figure 16. Different whites are used in Hitman: Absolution (IO Interactive 2012)

Figure 17. Different whites are used in Dishonored walkthrough (Arkane Studios 2012)

Figure 13 on page 17 gives an example of using warm colors to highlight important information in contrast to white text.

3.1.3 Animation

Compared to the tutorial with still images and text, tutorial with animation is more likely to acknowledge the player better. There are two reasons behind this. When it comes to any kind of education, grasping the learner's attention is already a

half-way success. According to the report about eye tracking in game-based learning of Kiili et al. (2014, 64), animated content can easily catch people's attention. They measured the players' attention in the game by eye tracking device Tobii T60. There was a spinning globe in the virtual classroom and they surprisingly found that the spinning globe got a high number of fixations (processing of attended information with stationary eyes) even though players knew the globe did not have any function (Kiili et al. 2014, 64). Using animated contents in the game tutorial makes it easier to guide the player's attention to what the tutorial wants them to pay attention to. In Witcher 3 (2015), the white frames at the top right corner are animated to zoom in and out to catch the player's attention (Figure 13 on page 17). In The Legend of Zelda: Breath of the Wild (2017), the blue circle is animated to fade in and out in a loop to emphasize the button (Figure 10 on page 15). In Overwatch (2016), animated arrow fading in and out together with blue circles shrinking and growing make the highlighted area easier to spot (Figure 18).

Figure 18. Animation is used in the tutorial of Overwatch (Blizzard Entertainment 2016)

Animation is helpful in the game tutorial because it is much easier to teach some rules or actions with animation than still images or text. The best example is the game Ring Fit Adventure (2019).

Figure 19. Animation is used in tutorial of Ring Fit Adventure (Nintendo EPD 2019)

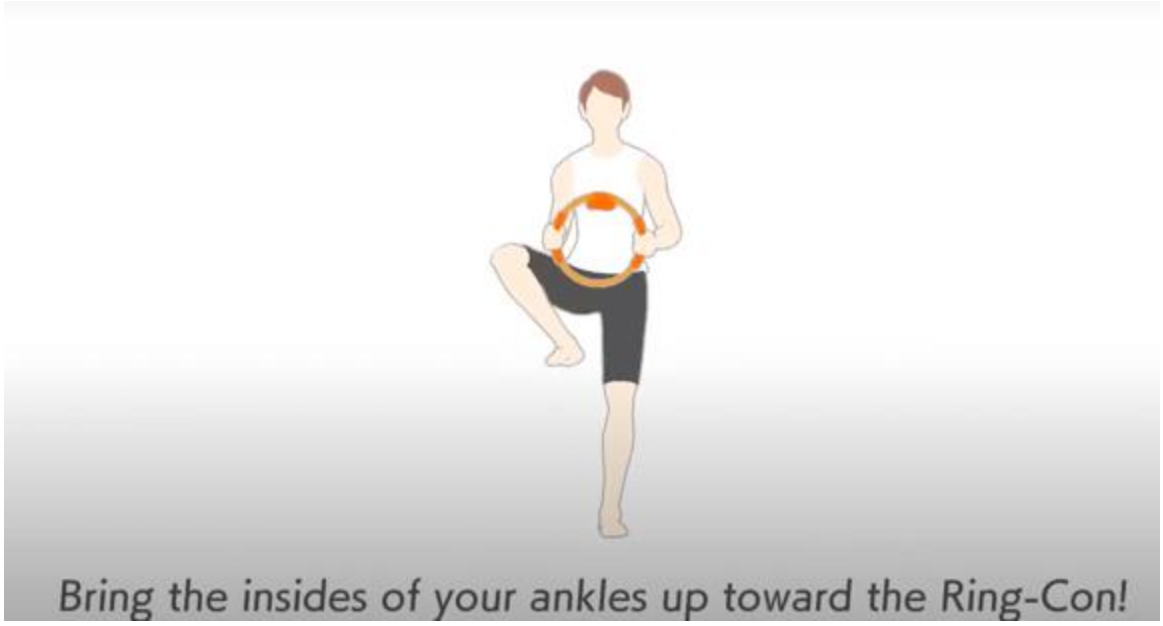

Figure 20. Animation is used in tutorial of Ring Fit Adventure (Nintendo EPD 2019)

Figure 19 shows how the tutorial uses animation to teach the player to measure the heart rate by covering the motion camera with the thumb. In the stretching section, animation is used to demonstrate the movements precisely (Figure 20).

3.1.4 Text

Of all the contents in the game tutorial, text accounts for the biggest part very often. Text has been used for a long time in human history to store and transfer

information. Text is easy to store, informative and can be read by anyone who acquires the knowledge to comprehend the same writing system. Physical tutorials, for example, manuals, instructions, guidebooks are mostly made in the form of text with some pictures sometimes. Not surprisingly, in the game tutorial, text is also widely used. However, the human brain prefers image to text. Image and animated image are recommended over text in terms of efficiency of delivering information and reducing the cognitive load.

3.2 Auditory elements in the game tutorial

Auditory elements are as essential as visual elements in game tutorials. As was discussed before, according to the dual-channel theory of Paivio (1986), another channel of processing information is the verbal channel. Presenting information with both visual and auditory elements makes the player memorize it easier with a lower cognitive load. To present the tutorial with voice acting is an effective approach in terms of utilizing auditory elements.

Figure 21 shows that in Madagascar 3: The Video Game (2012), the penguin gives instructions with voice acting to the players. Also, in Overwatch (2016) and Ring Fit Adventure (2019), instructions are both presented with voice acting and on-screen text.

Figure 21. Skipper gives voice instructions with dubbing in Madagascar 3: The Video Game (Monkey Bar Games 2012)

However, Ring Fit Adventure (2019) does not always have voice acting assumingly which is due to the consideration of the storage capacity of Nintendo Switch.

Voice acting adds immersion to the gameplay and more importantly off-loads the pressure of the player's memory. According to Moreno and Mayer (2003), when visual channel is overloaded by essential processing demand, a good way to off-load is to transfer some processing from visual channel to auditory channel. The best solution is to only give instructions as narration not both narration and on-screen text to avoid redundancy (Moreno and Mayer 2003). However, considering there are players with auditory disability and non-native speakers who might not capture all the information only by listening, on-screen text is necessary even if it adds a little bit cognitive load. Auditory instruction shows more advantage in fast-paced games and when the screen is full of visual elements, in which cases the player will be easily over-loaded by instructions given as extra on-screen text. Listening to the instruction by ear while focusing on the gameplay and visual elements through eyes makes it easier for the player to learn and memorize it.

4 PRACTICES OF MAKING GAME TUTORIAL

After understanding that the game tutorial teaches people in visual and auditory ways together, some of the good practices of designing a good game tutorial were studied.

4.1 Flashcard

Flashcard is a pop-up screen displaying information such as controls and rules the player needs to know. The content of the Flashcard includes text, image, animation or even video. Flashcard is the most popular practice of giving instructions in games. The advantage of Flashcard is it can provide as much information as needed. The disadvantage is it very often pauses the gameplay

and interrupts whatever the player is doing. However, this also gives the player enough time to read carefully what is being taught.

Figure 22. Flashcard is placed in the middle of the screen in The Legend of Zelda: Breath of the Wild (Nintendo EPD 2017)

Figure 23. Flashcard covers the whole screen in Dishonored (Arkane Studios 2012)

Figures 22 and 23 give two different examples of Flashcard. The difference is in The Legend of Zelda: Breath of the Wild (2017), the Flashcard only covers a small area of the screen (Figure 22), while in Dishonored (2012), the Flashcard covers the whole screen with a lot of empty spaces wasted which breaks the immersion of the gameplay more than The Legend of Zelda: Breath of the Wild

(2017) does (Figure 23). In this case The Legend of Zelda: Breath of the Wild (2017) does better than Dishonored (2012) since it is important to interrupt the gameplay as less as possible. Limiting the size of the Flashcard in an area which is just big enough to accommodate necessary information is a good approch in terms of taking less spaces. When picking a place for the Flashcard, the principle of Aligning should be also taken into consideration to reduce the load on the working memory. Aligning principle suggests placing printed words near corresponding parts of graphics to reduce the need for visual scanning, thus reducing the load on the working memory which is needed to hold the information (Moreno and Mayer 2003). In the case of The Legend of Zelda: Breath of the Wild (2017), all the Flashcards pop out in the middle of the screen where the avatar is placed for the most time. While playing the game the avatar gets the most fixiation of the eyes for which reason the center of the screen is an excellent spot to place the Flashcard.

Figure 24. Text is placed near the gun in Overwatch (Blizzard Entertainment 2016)

Another good example is Overwatch (2016). In the tutorial of Overwatch (2016), the text is always placed at the lower center of the screen and follow the camera of the player. In another word, text is placed always near to the gun where the players have their attention at for the most time (Figure 24).

4.2 Follow-to-do

Follow-to-do tutorial refers to the tutorial that guides the player to complete an action simultaneously. Follow-to-do tutorial is often made to match the action in the game with the interact device (game controller or mouse and keyboard) as closely as possible to provide the best immersive experience. Compared to other types of actions, the actions that Follow-to-do tutorials teach usually take longer to perform but considerably more intuitive. For this reason, it is often used in movie games to provide a great immersive experience. In game Heavy Rain (2010), the tutorial tells players to move their controllers quickly in the indicated direction to perform the teeth brushing action (Figure 25). Since brushing teeth in real life is moving the toothbrush in directions, this kind of Follow-to-do tutorial is easy and intuitive to follow while maintaining the immersion.

Figure 25. Tutorial teaches the player how to brush teeth in Heavy Rain (Quantic Dream 2010)

Figure 26 gives another example in the game that the player should move the right stick of the controller downwards so the avatar will move the shaver down. Follow-to-do tutorial is often made of the symbol of the controller or required buttons or keys with indicators showing the movement. Text can be also used if necessary.

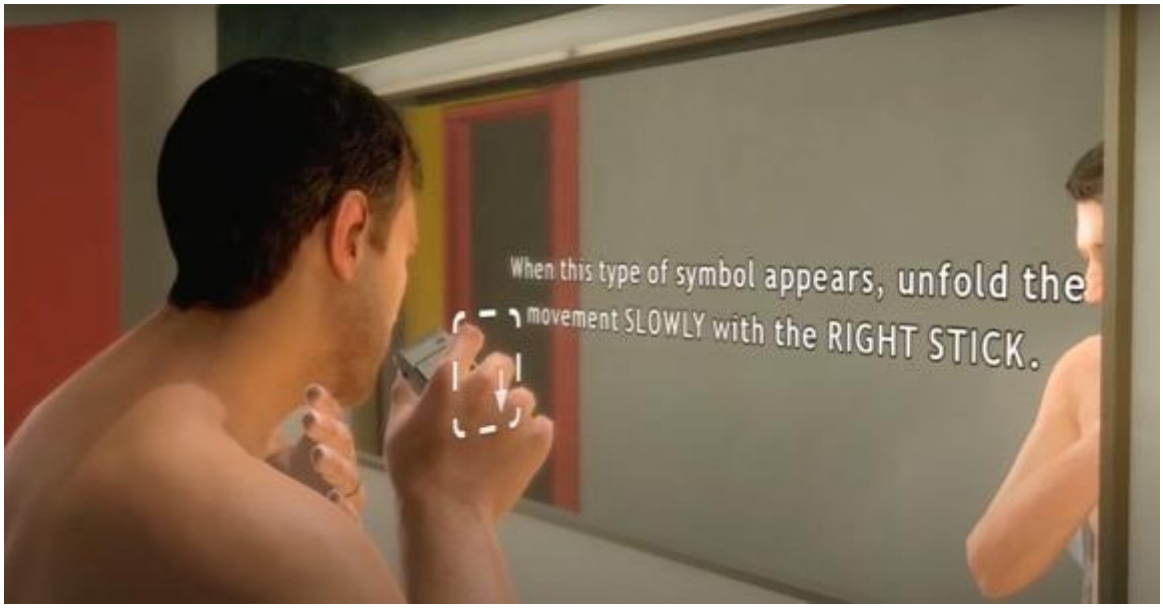

Figure 26. Tutorial of shaving in game Heavy Rain (Quantic Dream 2010)

Figure 27. Tutorial of unscrewing in A Way Out (Hazelight Studios 2018)

Figure 27 gives an example of how Follow-to-do tutorial is used without text. In the game the character is trying to take off the screw on the wall.
An animated symbol of the game controller stick with an arrow indicator is used to teach the player to move the left stick in circle to perform the action.

Aside from movie games or story-driven games, a Follow-to-do tutorial is also used in sport games, for example, Ring Fit Adventure (2019) which needs the player to perform the same movements as the tutorials demonstrate.

4.3 Tutorial mode

Tutorial mode refers to the tutorial that is made as a separate part from the gameplay. It can be placed as a dedicated “Training mode” which the player can access from the startup screen or in the middle of the game. An example of this is Overwatch (2016). Overwatch (2016) has a good tutorial for the beginnings with good voice acting and animation. It uses as less text as possible, and the text always follows the camera’s movement as discussed before.
This kind of tutorial can be text based, text with image or any other forms of tutorial. Figure 28 shows the tutorial mode in the game Super Smash Bros. Ultimate. (2018). The tutorial is made mainly as text that depicts the character’s background and the character’s skills.

Figure 28. Tutorial in Super Smash Bros. Ultimate. (Bandai Namco Studios & Sora Ltd. 2018)

Figure 29. Tutorial mode is used in Bayonetta 2 (PlatinumGames 2014)

Figure 29 gives another example of tutorial mode tutorial in game Bayonetta 2 (2014). It is made as a training game where you can practice the controls following the instruction as much as you like. This tutorial is placed right before a battle in the very beginning of the game.

This type of tutorial is a good choice only when the controls or rules to be taught are complex since it thoroughly breaks the gameplay and usually takes long time to go through all of them. It is widely used in fighting and action games. It is recommended to place the tutorial where the player can easily find and access at any time they want.

5 DESIGN GAME TUTORIALS FOR GAME “HAMINA 1810_WORK NEVER CHANGES”

Hamina 1810_Work Never Changes (2019) is an RPG game made to teach young people how to find a job in Finland through Te-palvelut (the employment office of Finland) and by other approaches. In the game, the player has to get a job and make money in order to be able to pay for the life in Hamina.

After the practices of making game tutorial were researched, game tutorials were made following the multimedia learning theory of Moreno and Mayer (2003) for

the game Hamina 1810_Work Never Changes (2019) to test how well those theories and practices work in designing game tutorial. Tutorial mode practice was not used because it should be only used in games where complex controls are required.

In the original game, there is no tutorial teaching the player how to move and interact with objects such as NPCs and buildings (Figure 30). Maybe it is not difficult for experienced players to find out how to move and talk with NPCs by themselves. However, for novice players it would be a frustrating experience.

Figure 30. No tutorial of controls in original Hamina 1810_Work Never Changes (Xamk 2019)

In the game demo, a new tutorial was made to teach players how to move (Figure 31) and interact with objects (Figure 32). The move tutorial was made as a Flashcard according to the Flashcard practice discussed in chapter 4 and multimedia learning theory in chapter 3 (Figure 31). When the Flashcard pops up, a voice guide will be played teaching players how to move with keyboard or mouse. The content of the voice guide is, “Voit liikkua hiirellä tai näppäimistöllä.” In English it means “You can move with the keyboard or mouse”. When the player moves near enough to an NPC for the first time, an animation of right clicking the mouse and pressing down the spacebar of the keyboard will be

played to indicate that the player can talk with the NPC by clicking the right mouse button or pressing the spacebar of the keyboard (Figure 32). Animation instead of still image or text was used for this tutorial because as discussed in chapter 3, animation does a good job in attracting player's attention.

Figure 31. Move tutorial in the game demo (Chen 2021)

Figure 32. Interact tutorial in the game demo (Chen 2021)

After the player gets the job suggestion from an officer, a green arrow will appear near the player showing the direction of the job provider constantly as the player moves around the map. However, in Hamina 1810_Work Never Changes (2019), the function of the green arrow is not explained at all (Figure 33).

Figure 33. Green arrow in Hamina 1810_Work Never Changes (Xamk 2019)

In the game demo a text was made to appear and blink on the ground after the player gets the green arrow telling the player to follow the arrow (Figure 34). Blink animation was used to make it easier to spot.

Figure 34. Extra text is used to tell the player to follow the green arrow in the game demo (Chen 2021)

Figure 35 shows the original tutorial of the mini game in Hamina 1810_Work Never Changes (2019). In the original tutorial only “move with left” mouse button is instructed. Player will be put into the mini game after pressing the ok button. In

the game a big red arrow will guide the player to the red table. After the players get near to the red table the food on the table will be collected. Then another red arrow will point at the table where the players can swap the food they collected (Figure 36).

Figure 35. Original tutorial for mini game in Hamina 1810_Work Never Changes (Xamk 2019)

Figure 36. Original tutorial for mini Hamina 1810_Work Never Changes (Xamk 2019)

In the tutorial of the game demo, three Flashcards instead of one are shown to the player before the game starts. The first Flashcard teaches the player to move with the left mouse button (Figure 37). The second Flashcard teaches the player

to collect items on the table by standing near it (Figure 38). The third Flashcard teaches the player to swap items (Figure 39). In the game play there is also the red arrow directing the player as in the original game.

Figure 37. Original tutorial for mini game in the game demo (Chen 2021)

Figure 38. Original tutorial for mini game in the game demo (Chen 2021)

Figure 39. Original tutorial for mini game in the game demo (Chen 2021)

In Hamina 1810_Work Never Changes (2019), there is no tutorial teaching the player how to buy items. In the game demo, when the player visits a shop for the first time, a tutorial video of how to buy items from shop will be played (Figure 40).

Figure 40. Shopping tutorial in the game demo (Chen 2021)

Figure 41. Consuming items tutorial in the game demo (Chen 2021)

In Hamina 1810_Work Never Changes (2019), there is no tutorial teaching the player how to consume items from the inventory. In the game demo when the player opens their inventories for the first time, a tutorial video of how to use items will be played (Figure 41).

6 USABILITY TEST

Both unmoderated and moderated usability tests were used to test the efficiency of the practices and theories of making game tutorial. Four testers participated in the unmoderated usability test and one participated in the moderated usability test.

In the unmoderated usability tests, the game demo was uploaded to Google Drive, together with an instruction of how to test the game. The link generated by Google Drive was sent to the testers via WhatsApp and Discord group. Testers downloaded and played the game demos according to the instruction on their own computers.

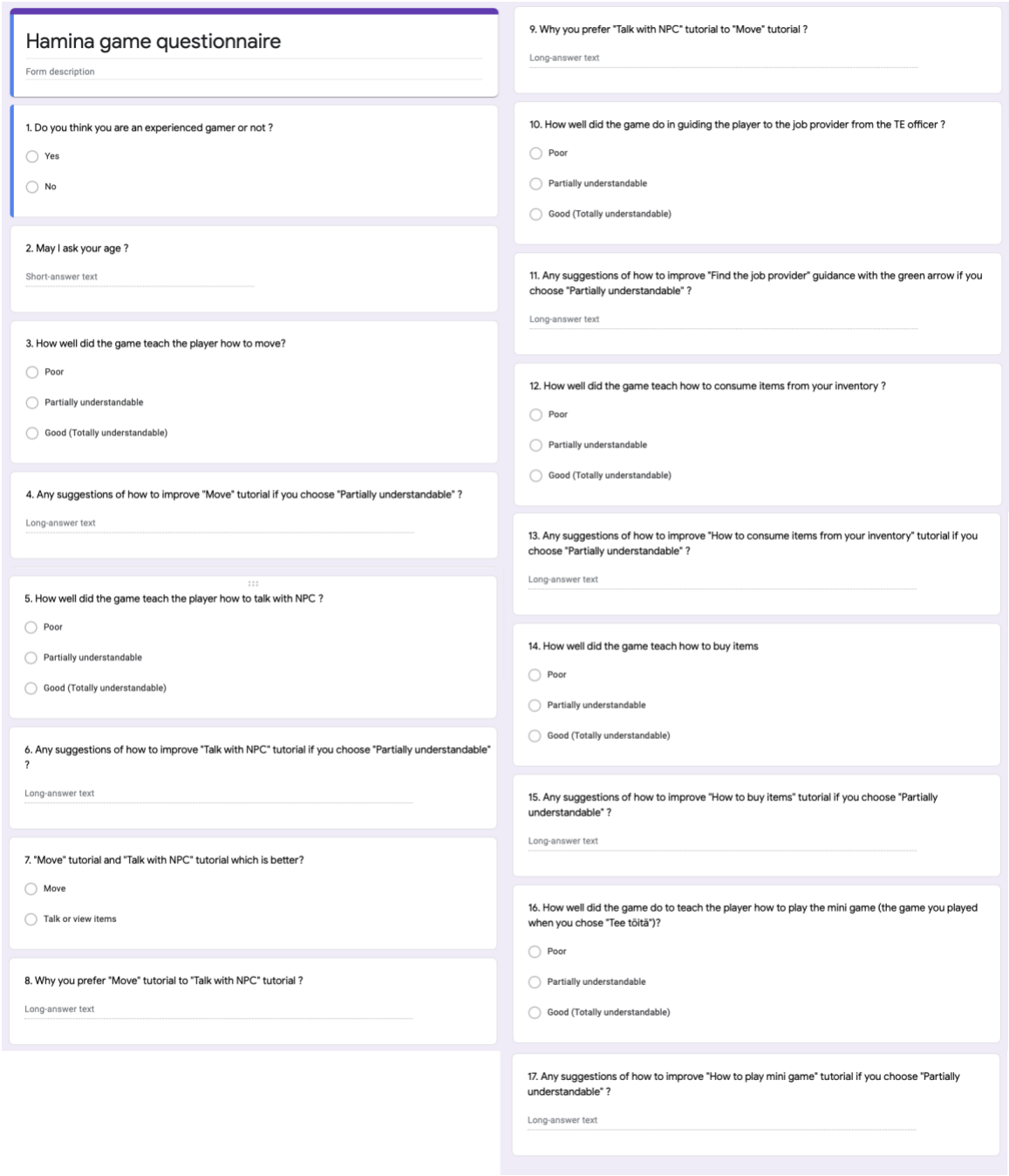

Figure 42. Questionnaire used in the test

After playing the game, testers responded to the questionnaires (Figure 42). The questionnaire includes seventeen questions covering all the new tutorials in the game demo. Testers could give suggestions if they chose “Partially understandable”. In this way, more opinions of the player could be collected. It was easier to understand what the players thought about those tutorials instead of only telling they were good or bad.

One moderated usability test was held where the tester played the game at the place where she would usually play games. Think-aloud mothed was used. In the beginning of the test, the moderator explained the purpose and rules of the test. The player was asked to finish 5 tasks in the game to fully test the tutorials made in the game demo. The player was asked to play the game, speaking out whatever was in the player's mind while playing the game. After the gameplay the moderator had an interview with the player asking further questions about the tutorials.

7 RESULTS AND ANALYSIS

Unfortunately, only four questionnaires were received and one moderated usability tests with interview were held. Even though the data gathered was too low to get valid results, analyses were still made.

7.1 Unmoderated usability test results

All of those four testers were experienced players. For the question "How well did the game teach the player how to move?", two of them chose "Good" and two of them chose "Partially understandable". One did not like the Flashcard tutorial and thought Follow-to-do tutorial would be a better choice. Another one thought the tutorial should appear again when the player tried to perform the action.

For the question "How well did the game teach the player how to talk with NPC?", two chose "Partially understandable", one chose "Good", and one chose "Poor". One who chose "Partially understandable" mentioned in the questionnaire that the pop-up animation was spotted but it disappeared too quickly before being checked carefully. Another one who chose "Partially understandable" wrote that the pop-up animation was not seen at first. The one who chose "Poor" mentioned that the pop-up animation was not seen at all.

For the question "'Move' and 'Talk with NPC' tutorial which is better?", all of them chose "Move". All mentioned that "Move" tutorial instructed them the control of move clearly.

For the question “How well did the game do in guiding the player to the job provider from the TE officer?”, two chose “Poor” and two chose “Partially understandable”. One who chose “Poor” mentioned there was no instruction of what to test in the game, so it took him a while to do something “useful” in the game. However, there was an instruction file at the same place where the tester downloaded the game instructing testers exactly what to do in the game. Maybe the tester missed it. Another one who chose “Poor” did not give a clear reason. One who chose “Partially understandable” did not give a reason. The other one who chose “Partially understandable” suggested that the arrow should also react to the distance between the player and the target location.

For the question “How well did the game teach how to consume items from your inventory?”, two chose “Partially understandable”, one chose “poor” and one chose “Good”. The one who chose “Partially understandable” and the one who chose “Poor” both wrote that they did not see any tutorial about that. Another one who chose “Partially understandable” suggested it would be better to use Follow-to-do tutorial instead of video.

For the question “How well did the game teach how to buy items?”, three chose “Good” and one chose “Partially understandable”. However, the one who chose “Good” mentioned it was not a good idea to use video as the tutorial since the video popped out right after the shop was opened. The tester got confused for a moment without realizing it was a video. The tester thought that it was already in the shop and the game was doing the purchase automatically. The one who chose “Partially understandable” thought that it would be better to use Follow-to-do tutorial instead of video.

For the question “How well did the game do to teach the player how to play the mini game?”, one chose “Good”, two chose “Partially understandable” and one chose “Poor”. The one who chose “Partially understandable” suggested Follow-to-do tutorial instead of Flashcard. Another one who chose “Partially understandable” thought the Flashcard tutorial was fine but there was not enough

information for the player to understand how to play and what was the goal of the game. More text was suggested by this tester. The one who chose “Poor” suggested the goal of this game should be introduced for the player to understand the rules better.

7.2 Moderated usability test results

The tester was a 21-year-old female with little game experience. Questions from the questionnaire were asked by the moderator in the interview.

For the question “How well did the game teach the player how to move?”, she said the tutorial instructed the move control very well.

For the question “How well did the game teach the player how to talk with NPC?”, she also thought the tutorial did it very well. However, she only noticed the tutorial showed that the player could talk with NPC by pressing the spacebar on the keyboard. She did not see the tutorial also showed that the conversation could also be triggered by clicking the right mouse button.

For the question “‘Move’ and ‘Talk with NPC’ tutorial which is better?”, she answered that she preferred the “move” tutorial since it was clearly introduced at the very beginning. For the “Talk with NPC” tutorial she only got half of the idea.

For the question “How well did the game do in guiding the player to the job provider from the TE officer?”, she said the tutorial was partially understandable. During the game demo test, it was noticed that she tried to head to the direction where the green arrow was pointing right after she got the arrow. Because the character was right under the TE office building and the arrow was pointing at the northwest direction, she got blocked by the building. She headed to another direction after realizing that she could not go through the building. Then she noticed that the arrow would change the direction which it was pointing at simultaneously as the character moved. She found the job provider finally with the help of the green arrow.

For the question “How well did the game teach how to consume items from your inventory” and “How well did the game teach how to buy items”, she thought they were poorly introduced because she did not see any video tutorials. During the gameplay the moderator did not see the tutorial videos pop out neither through the screen sharing. The reason might be that the tester did not unzip the game file correctly.

For the question “How well did the game do to teach the player how to play the mini game?”, she thought it was partially understandable. She did not understand why the character moved slower after a while. In the mini game there was a bar at the right of the screen representing how many loads the character was carrying. The more loads the character was carrying the slower the character moved. This rule was not taught in the tutorial with the hypothesis that the players would understand the rule naturally by themselves. She also mentioned the goal of the game was not clear.

After analyzing the results, four conclusions were made as below.

1. **Flashcard is a useful and informative practice.** Half of the testers thought the “Move” tutorial was good and totally understandable. Half of the testers thought it was partially understandable. The feedbacks for the “Move” tutorial were quite positive.

2. **Follow-to-do tutorial is difficult to design.** Follow-to-do tutorials got much more feedbacks on how to make them better than Flashcard tutorials overall. “Talk with NPC” tutorial got mixed feedbacks. Testers thought the idea of the Follow-to-do tutorial was good, but it was not visible enough. The tutorial was made too small and too short. It was designed to disappear in five seconds which was not long enough to clearly teach players the rule. What’s more, it only appeared once when the players got near to the first NPC. Those were possibly the reasons why three testers mentioned they did not see or see clearly what was in that tutorial.

One tester gave a good suggestion that distance between the player and the target location should be displayed near the green arrow. In this way this tutorial could be much better than just an arrow reacting to the direction.

3. **Follow-to-do practice was preferred to Flashcard by the testers.** It was mentioned four times that some testers thought Follow-to-do would be better than Flashcard (a video is also a Flashcard). No tester thought Flashcard was better than Follow-to-do. The reason why testers all preferred “Move” tutorial (Flashcard) to “Talk with NPC” (Follow-to-do) was likely to be that “Talk with NPC” tutorial was not properly made as discussed before.

4. **Should reducing the cognitive load be considered only if the tutorial is informative enough.** In order to reduce the cognitive of the player, in the mini game tutorial minimum images and text were used. It turned out that this tutorial did not clearly teach the rules to the players. A better solution would be making the job provider pop out introducing the rules with voice acting while the player is checking the Flashcards. Flashcard with voiced introduction would be a good combination in the game tutorial. They are informative enough to teach the rules while maintaining a low cognitive load for the player.

8 CONCLUSIONS

Starting from the background of the video game tutorial and learning theories, two major elements of the game tutorial (visual and auditory elements) were broken down into elements of lower tiers. Three practices of making game tutorial were introduced. A game tutorial demo was made based on the game Hamina 1810_Work Never Changes (2019) following the learning theories and practices. The object of the thesis was to research on elements and practices of making game tutorial and test their efficiency. The goal was achieved by usability testing and result analyzing. However, the result of the usability test was not as valid as

expected attributable to the lack of testers. It was not expected that the most difficult part of the thesis would be having enough participants to test the demo and answer the questionnaire. Nevertheless, useful information was still gathered. Four conclusions were drawn based on the limited data collected.

Further research on the efficiency of Tutorial mode practice could be done. It was not tested in this thesis because the game chosen to build the tutorial on was a casual RPG game. Tutorial mode tutorial works best in game that requires complex controls. In addition, in the game demo auditory element was not used often enough to test its efficiency. Tutorial demo could also be made longer to include more variations of tutorials. With the aim of comparing different combinations of elements in a specific practice, an A/B test could be designed. For example, in the “find the job provider” tutorial, a version of using only the green arrow could be made in game demo A. The version of adding distance between the player and the target location to the green arrow could be made in game demo B. Game demo A will be sent to a group of people to test and game demo B will be sent to another group. After comparing and analyzing the feedbacks from both groups, a reasonable decision of which tutorial is better to use in that specific scenario can be made.

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