MOTIVATION AND LANGUAGE LEARNING IN ENTERTAINMENT GAMES
The Impact of Instructions

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Abstract

This article strives to investigate the importance of instructions when using an entertainment game for language learning, and evaluate how instructions affect learning outcome and motivation. To narrow down the case study only one game and language was chosen, namely the popular entertainment game ‘Sly Cooper: Thieves in Time’ (Sanzaru Games, 2013) in Dutch. Eighteen test subjects were split into three groups, one group got no prior instructions to playing, one got basic instructions and the last got thorough instructions. They then played part of the game to afterwards answer questions regarding motivation and take a language test containing words and phrases from the game. The study showed a significant increase in language learning correlated to the increase of instructions, meanwhile also presenting a significant result indicating that instructions might have a positive effect on motivation when using ‘Sly Cooper: Thieves in Time’ to teach language.

Key words: Language, Learning, Entertainment games, Motivation, Instructions
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1 Introduction

Being one of the most popular entertainment mediums in the world, consumers spent a total of 24,75 billion USD on entertainment games in the year 2011 (Entertainment Software Association, 2012). On average today, a 21 year old person will have spent over 10,000 hours playing video games (Lucey-Roper, 2006). According to Gladwell (2008) practicing something for that amount of time is the key to success in any field. People are usually not even aware of how much time they spent on playing games over the years as they see it as something very enjoyable that they do in their spare time, they keep on playing because it makes them happy, they are immersed in the game – they feel intrinsic motivation. Teachers have been trying for years to make students feel the same motivation in when studying, presenting new alternative teaching methods, but constantly seem to encounter an issue of serious vs. fun. Either they make the task too focused on entertaining the students, consequently causing them to forget about the learning aspects completely, or they make it too serious thus removing the sought after intrinsic motivation and thereby the purpose of the alternative teaching method.

Serious games are an example of alternative teaching methods being used today - games with a serious purpose, entertaining and educational at the same time. However they are seldom as popular among students as the highly financed and well-polished commercial entertainment games. Noticing this, many researchers have started to evaluate the possibility to use entertainment games as educational tools instead, using history based entertainment games such as Age of Empires (Microsoft Studios, 1997) or Civilizations (Microprose, 1991) to teach history or massively multiplayer online games to teach language skills and train social abilities. Many of them however acknowledge the importance of a teacher or someone to guide the player towards the learning goals, as the players otherwise usually seems to focus solely on the entertaining gameplay rather than the educational aspects (e.g. Squire, 2006; Egenfeldt-Nielsen, 2006; Kirriemuir et al., 2004). Giving instructions to a player, to make them focus on something other than what they intended might however make them lose interest in playing or at least decrease their initial intrinsic motivation.

This thesis intended to research the impact on motivation and language learning when instructions on what to focus on were given before playing an entertainment game with an intended purpose for language learning. By letting three groups play the popular entertainment game “Sly Cooper: Thieves in Time” (Sanzaru Games, 2013) with no-, basic- or thorough instructions beforehand, data was collected to determine how motivation and language learning was affected and also to what degree instructions weighed in. After playing the game each test subject got to fill out three forms; one containing control questions regarding gaming habits, language proficiencies and gender, one evaluating their motivation during gameplay and their willingness to continue playing and finally a language form, evaluating whether they learned or recognized selected words and phrases from the game. The language form was handed out once again two days after playing to measure if the words and phrases learned were only due to intermediate-term memory. The article strived to answer; (1) What are the motivational and language learning outcomes from playing the entertainment game ‘Sly Cooper: Thieves in Time’ in Dutch without any instructions on what to focus on? (2) How is motivation and language learning affected when player is given vague hints and shallow guidelines towards what to focus on in the entertainment
game ‘Sly Cooper: Thieves in Time’ in Dutch? (3) How is motivation and language learning affected when a player is given thorough instructions on what to focus on in the entertainment game ‘Sly Cooper: Thieves in Time’ in Dutch?
2 Background

Whether entertainment is beneficial for learning has been discussed by many researchers. Some academics and educators insist that education and entertainment can’t, or should not be mixed together. This is however believed to be an outdated and largely ungrounded point of view (Prensky, 2002). Other researchers claim that entertainment is something the brain enjoys which makes it function more efficiently, making it both relaxed and motivated to learn (Rose and Nicholl, 1998; Bisson and Luckner, 1996).

Using tasks in education rather than reading is believed to increase students’ ability to remember what they have learned. Dale (1963) claims that students only remember 10% of what they read but up to 90% when they perform a task. Research investigating the impact of entertainment within education shows many different results. When using games to teach upper secondary school students about medieval Amsterdam, Huizenga et al., (2009) claimed that the students’ learning outcomes were significantly improved, but found that their motivation or interest in the subject was not increased. A study on using games as an entertainment medium to teach genetics to high school students however showed no significant difference in learning outcome from traditional learning, but proved a significantly increased level of engagement and motivation for the students playing the game (Annetta et al., 2008). The latter outcome was also shown when presenting an entertaining word-learning task for young elementary school students (Nguyen et al., 2011).

2.1 Motivation and learning in entertainment games

Entertainment games are one of the most popular entertainment mediums today. Studies show that an average person today will have played video games for 10,000 hours before the age of 21 (Lucey-Roper, 2006). Using games as an entertainment medium to stimulate motivation and analyze its effect on learning is thereby an expanding field of research. Prensky (2003) claims that the engagement and motivation players get from video games provides an attitude that would be very beneficial for learning. An attitude which is competitive, cooperative as well as result oriented and problem solving. Using entertainment games as educational tasks allows taking advantage of their ability to engage the learner and pushing them to complete the game/task and receive feedback afterwards (Willis, 1996). Gee (2006) agrees with this and declares games to be an incredible learning tool that motivates and encourages players to learn.

There are different classifications of motivation; the most common are Extrinsic and Intrinsic motivation. When an external reward, e.g. grades, prize or attention, is given, extrinsic motivation can be achieved (Iyengar, et. al., 2005). Although extrinsic motivation has been proven useful for learning, it is believed to be suboptimal for providing deeper knowledge as it lacks enjoyment and motivation from the actual learning (Lepper and Henderlong, n.d.). Motivation to continue a task because it is enjoyable and compelling is called intrinsic motivation (Iyengar, et. al., 2005). One of the most intrinsic states is defined as flow in the flow theory, developed by Csikszentmihalyi (1990). When in this state you have full focus on a task and your motivation is at its highest. Paras and Bizzocchi (2005) claim that this is one of the best states your mind could be in when it comes to learning. According to their theory an entertainment game, as an intrinsically motivating task, would be a very effective tool for teaching.
However, most theories about learning from games have been criticized for not taking issues such as knowledge transfer into consideration. Even if you learn while playing a game, if you get into a state of flow and master the game, your proficiencies might not be transferable to real life (Linderoth, 2010). The critique aimed at these theories rarely denies the possibility of getting knowledge and proficiencies from games, but they raise important questions about the efficiency of games as a learning tool. Wilson et al. (2009) declare that the motivation in games have shown positive outcomes on learning, but explains that further research needs to be conducted to show exactly which game elements provided the increased learning. For instance, working past the knowledge transferability issue, an issue of memory might still occur. Memorizing the educational aspects is an important part of evaluating entertainment games as learning tools. As short-term memory only lasts for up to 30 seconds (McLeod, 2007) and intermediate-term memory lasts up to 30 minutes (Rosenzweig, et al., 1993), the long-term memory is what matters when it comes to education.

Studying the history teaching potential of the entertainment game Civilization III (Firaxis Games, Westlake Interactive, 2001), Squire (2006) discovered that students recognized important excerpts of world history after playing through historical events. Due to a higher level of intrinsic motivation than in traditional teaching, the students consequently also developed a deeper understanding of historical colonization; e.g. how civilizations grow and flourish depending on geographical locations and the importance of natural resources such as oil, coal or sugar cane. Similar studies show that different genres of entertainment games can be used for other learning purposes (Hao-Jan Chen and Yang, 2011). Yager and Weeding (2012) claim that the entertainment game Minecraft (Mojang, 2011) has been studied as a learning tool on several occasions with positive results. Further they explain that students given a co-operative goal by their teacher tend to enhance skills within mathematics, problem solving and language as well as evolving their creativity and social abilities. Hao-Jan Chen and Yang (2011), investigated the potential of adventure games for language learning; more specifically learning English as a second language from the entertainment game Bone. The participants got to play the game after school and fill out questionnaires regarding their motivation to play and learn as well as their perception of learning outcomes. The test results showed significant levels of perception of increased learning as well as high motivation from every student. The reading speed of the English language also seemed to be increased after playing the game. Researchers (e.g. Squire, 2006; Egenfeldt-Nielsen, 2006; Kirriemuir et al., 2004) however believe that when learning from games; instructions on what to focus on and debriefing after playing could increase the knowledge transferability from games to reality.

2.2 Instructions’ effect on Learning and Motivation

When creating a serious game you always face an issue of whether to focus on entertainment or the games serious purpose - an issue of serious versus fun. This issue is also present when using entertainment games for learning or performing educational tasks in school. But in these cases the issue of serious versus fun may be found in the presentation of the task.

Nguyen, et al. (2011) claim that motivation increases significantly when an entertaining task is used as an educational tool. They however state that simply presenting a serious educational task in an entertaining manner does not necessary increase motivation. What kind of instructions used might however affect initial motivation. Their research was conducted on children in grade 1 to 5 and even though initial motivation was somewhat
increased with the entertaining instructions to the serious educational task, the children’s overall motivation was not significantly higher than the control group that got the non-entertaining instructions. Although the entertaining instructions did not show any significant effects on motivation in this specific case study, Nguyen et al. (2011) claim that previous studies have shown a positive effect on motivation when using entertaining instructions for serious tasks.

Turning the tables and using serious instructions on an otherwise entertaining task might on the other hand have opposite outcomes. Instructing students to focus on learning elements when performing an otherwise intrinsically motivating task, e.g. playing an entertainment game, might for instance change their intrinsic motivation to extrinsic; as they focus on learning to get high test scores or good grades, rather than enjoying the task itself (Lepper and Henderlong, n.d.). Thereby, the use of instructions might be harmful when using entertainment games for learning, since the main reason for using entertainment games for learning, rather than traditional teaching, is the intrinsic motivation it provides. At the same time instructions might be needed to guide the player towards the educational elements in an entertainment game. Otherwise there is always a risk of players only focus on the gameplay and completely miss the educational purpose of the game (Squire, 2006).

2.2.1 Instructions before playing entertainment games

When it comes to games; educational elements are mainly found in serious games but they can also be found in games created solely for entertainment. However, studies of students playing history based entertainment games like Europa Universalis II (Paradox Development Studio, 2001) or Age of Empires (Microsoft Studios, 1997) show that most of the students completely ignore the relevant history facts to focus on the major game elements, such as resource management and battle strategies (Egenfeldt-Nielsen 2006). This is usually a conscious design decision to make the game more graspable and entertaining for a larger audience, commercial entertainment games are after all designed to sell (Linderoth, 2011). With this in mind, instructions can be used to guide the player towards the preferred point of view.

When giving instructions, a solid knowledge base in the selected area is always important. Having significant understanding enables the possibility to foresee certain questions that may occur and facilitates the evaluation of depth needed to make the instructions comprehensible. By solely meeting the needs for foundational understanding, certain areas are left open for discussion and reflection – encouraging participation to gain deeper knowledge (Unknown, 1991).

When presenting instructions to guide the player towards focusing on learning aspects when playing entertainment games, the instruction form called ‘direct instruction’ is very useful. Direct instruction is a teacher-centered form of instruction often used to present new information or to introduce learners to an upcoming assignment or drill (e.g. learning from playing entertainment games for learning). Although it can be very effective, direct instructions should be kept short to help the learners maintain interest in the subject at hand (Boleware, 1996).
3 Problem

Previous case studies regarding entertainment games and learning (e.g. Squire, 2006; Egenfeldt-Nielsen, 2006; Kirriemuir et al., 2004) have shown that the role of a teacher or instructor is important to guide the player towards the learning aspects of the game. Without guidelines the players easily focus solely on the entertaining elements and gameplay. Too serious instructions can however affect entertainment and enjoyment negatively (e.g. Lepper, and Henderlong, n.d.). Decreasing the level of enjoyment will consequently lower intrinsic motivation which might have an impact on learning (e.g. Prensky, 2002; Rose and Nicholl, 1998; Bisson and Luckner, 1996).

This article intended to investigate how learning and motivation is affected by instructions regarding educational elements in entertainment games. To narrow down the research with regards to the time limit, it more specifically aimed to analyze whether instructions are beneficial, or even necessary, for learning languages from entertainment games and whether motivation is decreased when a player is instructed to focus on learning elements rather than entertaining gameplay. The following research question was formed: “In what way is language learning and motivation affected if written direct instructions are given regarding elements of language learning directly before playing an entertainment game?”. To create a solid foundation for testing this research question and calculate time consumption and resource demands a pilot study was conducted.

3.1 Pilot Study

To specify problem statement and method a pilot study was conducted before proceeding. The pilot study let two groups got to play the entertainment game Sly Cooper: Thieves in Time (Sanzaru Games, 2013) in Italian, one group got instructions beforehand (IG) and the other group didn’t (CG). The pilot study investigated whether instructions had any effect on motivation and language learning, focusing on intermediate-term memory due to time limitations, by asking the following questions (p1) “In what way is the motivation to continue playing affected if written direct instructions are given regarding elements of language learning in the entertainment game ‘Sly Cooper: Thieves in Time’ directly before playing?” (p2) “In what way is the intermediate-term understanding of specific words or expressions in the Italian language affected if written direct instructions are given regarding elements of language learning in the entertainment game ‘Sly Cooper: Thieves in Time’ directly before playing?”

The game, Sly Cooper: Thieves in Time (Sanzaru Games, 2013) was selected for the pilot test sessions as it met specific requirements regarding language and motivation. It needed to be playable in a language that the test subjects were unlikely to speak. The language level needed to be comprehensible and easy to grasp even after short play time. Being a popular entertainment game (at the time, it was among the top 5 in the category popular demos in PlayStation Store) the requirement of being entertaining, and thus motivating, was also met. The test subjects were selected using convenience sampling in lack of time and resources for a better sampling method. Test sessions were conducted in a home environment to imitate the test subjects’ perception of an ordinary game session.

After playing the game the test subjects were asked to fill out three separate forms. The first form, hereby referred to as the Control Form, contained control questions regarding matters
which may influence the test results, e.g. previous gaming experience, knowledge of the Italian language, interest in languages. The second form, hereby referred to as the Motivation Form, contained questions regarding the participants' motivation during gameplay. The third and final form, hereby referred to as the Language Form tested the participants' Italian language vocabulary using words and expressions selected from the demo.

3.1.1 Results
The test was conducted on six participants. There were three participants, two males and one female, in each group. Their answers in the Language Form were graded with a score of 1 for correct answers, 0.5 for correct answers but with spelling errors, and 0 for incorrect answers. The mean score of the test was \(~6.67\) for the Instruction Group (IG), and 2.5 for the Control Group (CG). Using an F-test determined that the variances could be assumed to be equal. Performing a two-tailed t-test assuming equal variances then showed that the null hypothesis was denied \((\sim 0.045 < 0.05)\), meaning that the IG learned significantly more than the CG.

Following the same procedure with the Motivation Form test results showed no significant differences between the two test groups, neither in specific questions nor on the whole. However, there were some minor indications of differences when specific questions were analyzed. Although not significant, the CG seemed to be more motivated to continue playing than the IG, however the IG seemed more inclined and motivated to learning the language.

Whether something other than the instructions given, or not given, could have affected the results in the two groups was investigated using the same type of t-test as previously described for the groups’ different means from questions in the Control Form. This showed either no differences or insignificant differences between the groups regarding the variables in the Control Form, e.g. gender, game experience or language learning capabilities.

3.2 Specified problem statement
Reevaluating the previous research question; “In what way is language learning and motivation affected if written direct instructions are given regarding elements of language learning directly before playing an entertainment game?” after conducting the pilot study led to some adjustments. Since the pilot study showed that written direct instructions before playing significantly affected the test subjects’ intermediate-term language learning, while also indicating that motivation might be negatively affected by instructions, the previous research question seemed valuable for further research. However, since the data showed no significant results in the motivation evaluation, the problem statement was modified to collect more data to compare.

Based on the pilot study, it was rendered ineffective to conduct research on more than one game within the time and resource limit of this research. The research question was therefore specified to examining one game. Though this could not be generalized to all entertainment games, it still raised questions for further research and gave hypotheses that could be applied to the original research question. To collect more varied data, striving to achieve significant results in the motivation evaluation, different levels of instructions were presented in the test sessions of this study. The data collected from the language form in the pilot study revealed an overall low test score (average score 4.6 out of 12pts). According to
comments received after testing, as well as analyze of pilot test data, one of the reasons for the low score was the difficulty level of the Italian language. To test whether this might have affected the data collection, the language was changed to Dutch in final testing, as Dutch is in the Germanic language family and is thereby related to both Swedish, which was the mother tongue of each test subject, and English, which was the second language of each test subject.

Adding three levels of instructions and specifying the research towards one game led to three new research questions: (1) What are the motivational and language learning outcomes from playing the entertainment game ‘Sly Cooper: Thieves in Time’ in Dutch without any instructions on what to focus on? (2) How is motivation and language learning affected when player is given vague hints and shallow guidelines towards what to focus on in the entertainment game ‘Sly Cooper: Thieves in Time’ in Dutch? (3) How is motivation and language learning affected when a player is given thorough instructions on what to focus on in the entertainment game ‘Sly Cooper: Thieves in Time’ in Dutch?

3.3 Method

The data collected from the conducted pilot study showed that the method used for intermediate-term language learning and motivation evaluation was successful. This method was thereby used to investigate the problem statement in this study as well. To be able to increase the number of test subjects, the test sessions however needed to be shortened down. In the pilot study, the test subjects got to play the entire demo-version of Sly Cooper: Thieves in Time (Sanzaru Games, 2013) which rendered a total test time of approximately 40 minutes. The test time was decreased in the final study by ending the game after the test subjects reached a specific checkpoint in the middle of the demo. This was also beneficial for the motivation evaluation as the test subjects were assumed to be more inclined to continue playing at this point of the game if they were engaged in- and motivated by the game. Total test time was reduced to approximately 25 minutes.

To collect the data needed to investigate the problem statement, different groups were selected, mainly by convenience sampling due to the fact that the test sessions had to be conducted in a home environment with one person at a time and a convenient test location was not available until a late state in the research. A few test subjects were however collected using snowball sampling. A total of eighteen test subjects, all university students from different programs with different language proficiencies and gaming habits, were consecutively given a number of one to three and thereafter split in to three groups. The three groups then got to play the entertainment game Sly Cooper: Thieves in Time (Sanzaru Games, 2013) in Dutch after receiving three different levels of written direct instructions beforehand. The first group (g1), n=6, got no prior instructions before playing the game, to determine the basic level of motivation and evaluate how much they would learn without instructions. The second group (g2), n=6, got brief instructions with telling them to focus on the language for an upcoming test [See Appendix A], to evaluate how it would affect their motivation and see if their learning would increase. The brief instructions merely instructed the players to focus on the learning as they would be tested on word knowledge afterwards. Finally the third group (g3), n=6, got thorough instructions on exactly what to focus on [See Appendix B], to evaluate if a high level of seriousness would distract the players from the gameplay and thereby lower their intrinsic motivation, while also investigating whether it was actually beneficial for their learning outcome. The thorough instructions told the players what type of information to focus on, where it would appear on the screen and what was
most important for the test afterwards. The main focus areas was the mission information on in the upper area of the screen and the control instructions on the lower right part of the screen (figure 1). They were told to ignore the intricate story dialogue, so they would not be distracted by this information, g2 was not informed about this.

**Figure 1**  Sly Cooper: Thieves in Time (Sanzaru Games, 2013), Language focus areas

The game was chosen at the same premises as in the pilot study to extend and renew the research data already acquired. After playing the game the test subjects answered three different forms each. First of they got to answer control questions treating their gender, gaming habits and language proficiencies [See Appendix C]. The next form regarded motivation and how much they enjoyed the game and felt that the language interfered or enhanced their gaming experience [See Appendix D]. The last form evaluated their intermediate-term memory language learning, with a glossary test containing words and phrases they encountered in the game [See Appendix E]. After two days the test subjects were asked via e-mail to answer the same language test again to see whether they remembered the words they learned and thereby evaluate their long-term memory language learning.
4 Results and Analysis

This chapter presents and analyzes the research data collected from the conducted tests. It first declares the calculated score and means from both the motivation evaluation forms and the language forms from the three different groups. After presenting the data from each individual test thoroughly, all data is compared and analyzed together.

The significance of the difference between the three groups; no instructions (g1), basic instructions (g2) and thorough instructions (g3), is primarily calculated using two sample T-tests assuming equal variance. To further analyze the data and get a general estimation of the significance of the difference in score calculated from the motivation evaluation and language test forms, ANOVA-tests with one factor is conducted on the combined research data as well.

4.1 Motivation evaluation

After playing the first two parts of the demo version of the game Sly Cooper: Thieves in Time (Sanzaru Games, 2013) the test subjects were told to stop playing and answer three forms. Although one of the forms regarded motivation, observation was also a part of estimating the different test subjects’ motivation to continue playing as well as their motivation to learn while doing so. The most crucial moment of the observation was at the end of the play session, when the test subject got to see that the game actually continued but they had to stop anyway. This proved to be a good complement to the motivation evaluation form and served well as an effective measure to see whether they actually were eager to continue or felt they had played enough.

Analyzing the answers in the motivation evaluation form, three main components were derived. First of all, ranking questions, ranging from 1 to 5, regarding motivation towards the game were combined to a total score for each test subject. The score was calculated stating the rank chosen on questions; “Did you feel motivated while playing the game?” and “Did you enjoy the game?” as positive, and the rank chosen on the question; “Did you ever want to stop playing?” as negative. The question “Did you feel like continuing after the test session?” gave three choices; “Yes”, “Neutral” or “No”, where Yes counted as +1, Neutral as +0 and No as -1 towards the full ranking score.

The second component analyzed was the motivation towards the language in the game as well as the language learning in the test session. Again the ranking score of each test member was calculated by combining the rank of the questions; “Did you feel motivated to understand the language?” and “Would you like to continue playing the game in Dutch?”. The question asking “How did the language affect your motivation to play?” gave three choices; “Positive”, “Neutral” or “Negative”, where Positive counted as +1, Neutral as +0 and Negative as -1 towards the full ranking score.

The third and last component analyzed in the motivation evaluation form was the test subjects’ own thoughts regarding the game and language assignment. They got to answer a free text question and comment on what was positive or negative about their gameplay experience and motivation. This was however optional as some of the test subjects’ did not have any specific input to share. Although some of their thoughts were still noticed from comments and reactions during the observation of the test sessions.
4.1.1 No instructions

As the first part of the motivation evaluation was to investigate the test subjects’ motivation towards the game, the collected data regarding this aspect was analyzed. The maximum score of the game motivation ranking system was 11 points. Calculating the score for each test subject in the group that got no instructions prior to playing (g1), gave a mean of 7 points (figure 2). Assuming 0 points represents no motivation and 11 points represents very high level of motivation, this result shows that the test subjects were generally motivated to play the game, but, as a group, did not appreciate it to a wider extent. Derived from the observation and answers to the question “Did you feel like continuing after the test session?” it was clear that three test subjects in this group was motivated to continue playing, two were uncertain on the matter and one felt inclined to stop. One of the primary reasons mentioned for not being fully motivated was that the language was incomprehensible to the test subjects and thereby failed to entice them in the games’ story.

![Gameplay motivation graph](image)

**Figure 2** Gameplay motivation, g1

Analyzing the test subjects’ appreciation of the language choice as well as their motivation to understand it showed a mean score of 5 points; where the maximum score was 11 points (figure 3). Being just below the middle (5.5 points) this indicates that the motivation to understand the language, although existing, was not very prominent. Also considering the fact that each individual test ranged from 0 to 9 points between test subjects, it shows that the motivation for language learning in g1 largely depended on personality and possibly other factors. This is discussed further in chapter 4.5 Control Questions and Potential Bias. Looking at the answers to the question “How did the language affect your motivation to play?”, two test subjects felt that the language obstructed their gameplay and therefore had a negative effect on their gameplay, two ignored the language and focused solely on the gameplay and two felt that it was an interesting addition to the game. However, while some found the language to be obstructing gameplay, one test subject saw it as a challenging and
entertaining addition to the gameplay. As suggested before, the obstruction of gameplay and story induced by the foreign language, might still have affected the overall motivation.

Combining the motivation from both language and gameplay gives an overall mean of 11.33 points. With a maximum score of of 22, this indicates that the overall motivation was just above the middle (11 points) (figure 4). Analyzing this shows that even though the motivation was lowered by the language to some extent it was still a motivating experience on the whole for the majority of the test subjects. As the test subject did not get any instructions, their motivation was not aimed toward any external reward and can thereby be assumed to be intrinsic (Iyengar et. al., 2005). The motivational purpose of using the entertainment game *Sly Cooper: Thieves in Time* (Sanzaru Games, 2013) as an educational tool was thereby fulfilled.

**Figure 3** Language motivation, g1

Combining the motivation from both language and gameplay gives an overall mean of 11.33 points. With a maximum score of of 22, this indicates that the overall motivation was just above the middle (11 points) (figure 4). Analyzing this shows that even though the motivation was lowered by the language to some extent it was still a motivating experience on the whole for the majority of the test subjects. As the test subject did not get any instructions, their motivation was not aimed toward any external reward and can thereby be assumed to be intrinsic (Iyengar et. al., 2005). The motivational purpose of using the entertainment game *Sly Cooper: Thieves in Time* (Sanzaru Games, 2013) as an educational tool was thereby fulfilled.
4.1.2 Basic instructions

Identical to the mean of g1, calculating the score for each test subject in the group that got basic instructions prior to playing (g2), gave a mean of 7 points (figure 5). However, looking at each individual test result reveals that the majority of g2 had a very high level of gameplay motivation. Although two test subjects differed widely from the others, subject 3 having no motivation and subject 6 having low motivation. As for the language motivation evaluation in g1 this is likely to be the result of different personal preferences. Looking at comments from the test subjects it is clear that the low gameplay motivation was mainly due to personal dislike of the action adventure type gameplay. Observation and answers to the question “Did you feel like continuing after the test session?” states that four test subjects in g2 was motivated to continue playing, one was uncertain and one felt inclined to stop. When given instructions the language did not seem as big an issue towards gameplay motivation.
When given basic instructions, the appreciation and motivation of the language reached a mean score of 7.33 points (figure 6). Relatively consistent individual test scores indicate that, as the basic instructions raised awareness of the purpose of the foreign language, the motivation for linguistic motivation rose. Derived from observations, comments and the answers to the question “How did the language affect your motivation to play?”, only one test subject felt that the language had a negative impact on their motivation, two did not feel that the language mattered and three claimed that it raised their motivation. Although, as g2 knew that a language test was going to be conducted afterwards, their motivation towards the in-game language might have been aimed at getting a high score on the upcoming test, thereby classifying the motivation as extrinsic (Iyengar et. al., 2005).

Figure 5  Gameplay motivation, g2
When the score from both language and gameplay was combined, g2 got an overall mean of 14.5 points (figure 7). An explanation to the higher motivational level might be the combination of intrinsic and extrinsic motivation that occurred when the test subjects knew about the upcoming language test. Assuming the generally high gameplay motivation was intrinsic, as entertaining tasks such as entertainment games usually are (Paras and Bizzocchi, 2005).

**Figure 6**  Language motivation, g2

**Figure 7**  Overall motivation, g2
4.1.3 Thorough instructions

The highest motivation in gameplay was found in the group that got thorough instructions prior to playing (g3), with a mean of 8.5 (figure 8). Looking at the individual test results shows an overall high motivation towards the gameplay. During observations this group seemed most focused as well as most entertained. Assumingly this was due to the fact that there were no uncertainties as to what to focus on, allowing the test subjects to relax and focus on only the important parts of the learning and spend the rest of their energy on enjoying the gameplay. Even as the group varied widely in personalities and gaming preferences the motivation seemed high throughout the test sessions. Based on observation and answers to the question “Did you feel like continuing after the test session?” reveals that five test subjects in g3 were very motivated to continue playing while only one was uncertain, which from comments was mainly due to that test subjects busy schedule. When given thorough instructions the language did not seem to effect gameplay motivation at all.

When given thorough instructions, language motivation gave a mean score of 6.83 points (figure 9). As individual test scores were quite even, the thorough instructions, much like the basic instructions, seemed to have a positive effect on motivation. In g3, observations, comments and answers to the question “How did the language affect your motivation to play?”, show that three test subjects felt that the language had a positive effect on their motivation while the other three stated that the language did not matter. However, just like g2, g3 knew about the upcoming language test and might thereby be mainly extrinsically motivated by the language.
Knowing exactly what to focus on resulted in an overall mean of 15.5 points when the score from both language and gameplay was combined for g3 (figure 10). Once again, this might well be due to the combination of intrinsic and extrinsic motivation. While not leaving any uncertainties as what to focus on, all the test subjects in g3 clearly expressed that they enjoyed both the educational and entertaining aspects of the game session.
4.2 Intermediate-term memory language test

After the motivation evaluation test was conducted the test subjects were asked to answer a language form. This form contained words and phrases from the game that the test subjects had to translate from either Swedish to Dutch or Dutch to Swedish (See ‘Language test’ Figure 11-16). It also asked ‘Did you recognize this word from the game?’ giving the possible answers ‘Yes’, ‘No’ and ‘I don’t know’ after each word or phrase question, to get estimation whether the test subjects consciously or purposefully learned the word from the game or if they happened to pick it up without knowing, guessed their answer or recognized it from before (See ‘Game Recognition’ Figure 11-16). All three test groups were handed identical forms the same amount of time after playing the game, more specifically between three to five minutes afterwards. Having passed the limit for short-term memory, what was tested at this time was their language proficiencies in intermediate-term memory (McLeod, 2007; Rosenzweig, et al., 1993).

4.2.1 No instructions

As indicated by previous research, giving no instructions when using and entertainment game as an educational tool seemed to cause players to focus mainly or solely on the gameplay and miss the educational part (Squire, 2006). This issue was prominent when calculating the score of the Language test in g1, which had a mean of 4.67 points out of a maximum score of 16 points (Figure 11). However, 50% of the words in the test was recognized from the game, with a mean score in Game Recognition of 8.1 out of 16 points. This means that even though g1 did not get any instructions they managed to recognize some of the words and phrases. So even though they did not know the purpose of their game session, given that the educational aspect of the test was a foreign language, they reacted to some of the words and phrases anyway.

**Figure 11** Intermediate-term Memory Language Test, g1
4.2.2 Basic instructions
Knowing the purpose of the test as well as being informed to focus on the language, g2 got a mean score of 7.33 points on the Language test and 10.17 points in Game Recognition (Figure 12). Although a higher mean than g1, comments and observation suggested that test subjects got confused on what words to focus on due to the high amount of dialogue and in-game instructions, which consequently kept their mean score under 50% of maximum. An obvious effect of the basic instructions was that when test subjects in g2 were told to focus on the language, they recognized more words from the game than g1.

![Language Test - Basic Instructions](image)

**Figure 12** Intermediate-term Memory Language Test, g2

4.2.3 Thorough instructions
Finally, removing the distracting confusion of not knowing what to focus on, g3 got the highest mean score at 11.33 points on the Language test and 12.38 points in Game Recognition (Figure 13). When told what to memorize for the upcoming language test, g3 could relax and just focus on the gameplay and the important information boxes that appeared at occasions and contained words that would appear in the test. With only one test subject placed below 50% of the maximum score, this was the highest scoring group both in learning and motivation. The test subject that got 5 points explained after the test session that he was not at all used to playing video games and basically never tried this type of game before, which caused him to lose focus on the language learning part to a large extent. He, however, also stated that this did not affect his motivation, as he saw it as a really entertaining challenge to both learn the entertaining gameplay and the interesting language.
The final test conducted was a long-term language test to evaluate whether the language proficiencies acquired from the test session were just preliminary or if they remained. This was tested sending out the same language form as in the intermediate-term memory language test about two days after the first test. Unfortunately two test subjects did not return this form leaving the test group at sixteen subjects for this test. On a general notice not much had changed since the intermediate-term memory language test. Since intermediate-term memory, according to Rosenzweig, et al. (1993), usually only lasts up to 30 minutes, this indicates that the language proficiencies was now part of their long-term memories, which is a sought after aspect of education. However there were some discrepancies, primarily on individual basis.

### 4.3 No instructions

Comparing the means of the long-term memory test, and intermediate-term memory test for g1 shows no significant differences (Figure 14). The means of the language tests were 4,8 points in the long-term memory test and 4,6 points in the intermediate-term memory test. The Game Recognition means were 7,9 points in the long-term memory test and 7,4 points in the intermediate-term memory test. Although little can be derived from this data, the fact that the long-term memory test produced a slightly higher score might indicate that time to process what had been learned increased the test subjects’ language proficiencies. However, as the differences in these results were insignificant (p=0,92 for each), the higher score was presumably just due to chance. Analyzing the results on an individual basis shows one particular discrepancy in test subject 5’s results. In the long-term memory language test the score was increased by two points and the Game Recognition score by four and a half points. This type of occurrence was found in the other groups as well.
4.3.2 Basic instructions

Just like the long-term memory language test for g1, not much differed from the intermediate-term memory language test in g2. The mean for language proficiency was 8 points in the long-term test and 7.33 in the intermediate-term (p=0.6), while the Game Recognition got 12.17 points in long-term and 10.17 in intermediate-term (p=0.1) (figure 12). Although still not significantly different on the whole, the interesting fact that the scores were higher on the long-term memory language test still remains. On an individual basis, the most interesting occurrence was that subject 1 got a massively increased score on the long-term language test, collecting seven more points than in the previous test. Recognizing the fact that this only happened for one test subject, it was most likely an exception due to personal stressful circumstances during the intermediate-term language test for the subject, making him answer fast without thinking the answers through.

Figure 14 Long-term Memory Language Test, g1
4.3.3 Thorough instructions

The mean score in language proficiency was practically identical at 11.33 and 11.4 points in both the long-term and intermediate-term memory language test (Figure 13). The Game Recognition mean differed only by 1.6 points (p=0.48). As seen in the two earlier tests the Game Recognition was generally increased in the long-term memory language test. Reconnecting with some of the test subjects for comments and feedback, this occurrence seemed to be partially due to an initial insecurity of Game Recognition that had passed when the second test was taken.
4.4 Analysis and Comparison of Research Data

Looking at the data from the motivation evaluation an increase can clearly be seen, as g1 got an overall score of 11,33, g2 got 14,5 and g3 got 15,5 points out of 22 points total. Calculating significance, using an ANOVA-test with \( \alpha=0,05 \), indicates no significant differences between the groups on a whole (p=0,073). Performing a two sample t-test assuming equal variance however shows a significant increase between g1 and g3 (p=0,0042). The increase between g1 and g2 (p=0,06) as well as g2 and g3 (p=0,31) is thereby rendered insignificant, consequently deeming the differences in score as a probable random occurrence (table 1). A logical explanation to this could be derived from observation data and comments. Knowing that g1 lacked extensive motivation due to the obstructive nature of the incomprehensible language, to which they saw no point, and g2 felt a decreased motivation as they were confused on what to focus on, due to their instructions not being thorough enough. With a clear picture on what to focus on g3 kept a high gameplay motivation, whilst also being able to follow the language learning elements of the test. This was also seen in the language test.

Comparing the data between the three groups in the intermediate-term memory language test using an ANOVA-test with \( \alpha=0,05 \), shows an overall significant difference (p=0,004). Breaking the result down using two sample t-tests assuming equal variance to calculate significance between two groups at a time gave a p-value of 0,024 between g1 and g2, 0,002 between g1 and g3 and 0,03 between g2 and g3 (table 1). This significant increase of test result between each group could thereby be directly correlated to the increase in level of instructions, consequently confirming the importance of instructions stated in earlier research (e.g. Squire, 2006; Egenfeldt-Nielsen, 2006; Kirriemuir et al., 2004). Using the same method to evaluate the data collected from the long-term memory language test the ANOVA-test still shows a significant difference between the three groups (p=0,017). However, when the significance is tested between each group using t-test, the increase between g2 and g3 is no longer significant (p=0,064), although the increase between g1 and g2 (p=0,023) as well as g1 and g3 (p=0,0092) still is. This means that no instructions contra instructions still seem to be of great importance but, derived from the long-term memory language test, the level of instructions does not seem to matter as much. Taking into consideration that the thorough instructions gave the overall highest motivation would however make a high level preferable for educational use.
4.5 Control questions and potential bias

To be able to estimate whether other factors than the instructions might have affected the test results every test subject got to answer a control form (Appendix C) containing questions regarding their gaming habits, game preferences, abilities to learn language as well as proficiencies in Dutch as well as German which is one of the closest languages to Dutch within the Germanic language family (En.wikipedia.org, n.d.). Analyzing the result of each control form shows that the groups answers were close to identically proportioned apart from two aspects. All three groups contained six participants which each consisted of five male and one female player. Their abilities to learn language varied from not good (2 of 5) to good (4 out of 5) and was equally scattered throughout the groups. Gaming interest and language proficiencies were also practically the same in each group.

However most test subjects in g1 had a considerably higher amount of game time per week than the other groups. Based on comments and observation during the test sessions, this did not seem to affect their performance and motivation as apart from the lack of instructions which seemed to confuse them and lower motivation. Chances are however that their gaming habits might have rendered the short game session insignificant in as opposed to their usual gaming session, making their motivation drop.

The other noticeable difference between the groups answer to the control forms was the fact that three of the test subjects in g3 had already played the game before. In g1 one test subject had played it, and in g2 none of the participants played it. Once again, based on observation and comments during and after the test sessions, this did not seem to have affected the results to a wider extent, as those who played it before had not played it much and also had not played it in Dutch, which, in their words, was a whole new experience. Chances are however that the players who had played it before had an easier time following the game flow and thereby had an easier time grasping the language. To investigate this possibility, two t-
tests were conducted with the three test subjects in g3 that had not played the game before. The first t-test evaluated significance between three test subjects in g1 (mean 3.33 points) that had not played the game before and the three subjects in g3 (mean 10.67 points), which gave a p-value of 0.045, proving the increase as significant. The second t-test evaluated significance between three test subjects in g2 and the three test subjects in g3, which gave a p-value of 0.1, deeming the increase insignificant. This shows that although the test subjects who played the game before might have altered the results, there is still an increase in the test scores in g3 as opposed to no prior instructions. As there were only three participants per group in this investigation, the theory that previous experience from the specific game do not affect learning outcome should be tested further.

As an addition to the control form, the Game Recognition questions in the language form investigated whether the words in the test were actually recognized from the game, or if the test subjects' knew them from before or if their answers were simply just guesses. Analyzing the data however shows that, not only did the test subjects recognize the words they answered correctly from the game, but they also recognized many of the others as well. Combining this data with the fact that none of the test subjects knew Dutch from before, indicates that the correct answers in the language test in fact was depending on the game session. Comparing the analyzed data to what could be derived from the pilot study shows that instructions do seem to be of great importance when using an entertainment game as a language learning tool. As opposed to the assumption in the pilot study claiming indications of motivation decreasing due to instructions telling the player what to focus on, the data collected in this study indicates that motivation is to increase as the instructions are clearer. As previously mentioned this might relate to the instructions not replacing, but adding, an extrinsic motivation to the intrinsic experience of playing the game (Iyengar et. al., 2005). While intrinsic motivation is usually the main reason for using alternative teaching methods, whether the combined intrinsic and extrinsic motivation is desirable for learning is not completely clear (Paras and Bizzocchi, 2005).
5 Conclusions

5.1 Summary of results

After all required material was developed and gathered for the test sessions, test subjects were contacted for participation in three groups; one that got no instructions prior to playing (g1), one that got basic instructions (g2) and one that got thorough instructions (g3). They all got to play the game Sly Cooper: Thieves in Time (Sanzaru Games, 2013) and answer three forms, one evaluating motivation, one testing whether they managed to learn any language from the game and one containing control questions to evaluate potential bias or impact of outside elements. The language test form was handed out once more two days later to evaluate whether the language learned was part of the long-term memory. All forms were graded with a simple scoring system. The control- and motivation evaluation forms were graded mainly by ranking questions on scales from zero to five, but also on yes or no questions, wherein “yes” gave 1 point “neutral” gave 0,5 points and “no” gave -1 point. The language test produced 1 point for correct answers, 0,5 points for misspelled or contextually correct answers and 0 points for faulty answers.

After collecting data from eighteen test subjects, the score and means were calculated from the motivation evaluation forms and the language forms. The data from each individual test was first analyzed thoroughly; to afterwards be compared to each other using two sample T-tests assuming equal variance to calculate significance in order to answer the questions: (1) What are the motivational and language learning outcomes from playing the entertainment game ‘Sly Cooper: Thieves in Time’ in Dutch without any instructions on what to focus on? (2) How is motivation and language learning affected when player is given vague hints and shallow guidelines towards what to focus on in the entertainment game ‘Sly Cooper: Thieves in Time’ in Dutch? (3) How is motivation and language learning affected when a player is given thorough instructions on what to focus on in the entertainment game ‘Sly Cooper: Thieves in Time’ in Dutch?

Starting off with question 1, the research showed that the subjects in this case study felt uneasy not really knowing what to focus on and therefore their motivation was affected negatively by the foreign language. Their overall motivation evaluation mean was 11,33 points out of 22 possible. Would the language be comprehensible to them, they would not be as confused by it and could thereby have enjoyed the gameplay without any distractions. This confusion also seemed to have a negative effect on their learning rendering an overall low test score in the language tests, giving a mean of 4,6 points in the intermediate-term memory language test and 4,8 points in the long-term memory language test out of 16 possible.

Researching question 2, indicated that adding basic instructions raises both motivation and learning outcome. However, comments from the test subjects reveals that the rather shallow instructions opened up for own interpretations of the task which confused them and made it hard to focus as the information flow was overwhelming. It however seems as though the knowledge of an upcoming language test prior to playing the game raised motivation to a mean of 14,5 points. However this might be extrinsic motivation brought on by the addition of the external goal of scoring high on the language test. Either way, calculating significance in the motivation increase between g1 and g2 gives a p-value of 0,127, deeming the difference insignificant. In the language test there was however a significant increase from g1, with a
mean of 7.33 points in the intermediate-term memory language test (p=0.024) and 8 points in the long-term memory language test (p=0.02). This strengthens the results from the pilot study claiming the importance of instructions when using entertainment games as a language learning tool.

Finally, when investigating question 3, the highest score in both the motivation evaluation and the language tests was found. From observations and comments during the test sessions it was clear that this group had the easiest time focusing as they got thorough instructions on what was important for the upcoming test, they could focus solely on this and use the rest of their energy to enjoy the gameplay. This gave them an overall motivation mean of 15.5 points which, although not a significant increase from g2, was a significant increase from g1 (p=0.008), showing that instructions not only matter when it comes to learning, but also motivation. In the intermediate-term language learning test their mean score was 11.33 and in the long-term memory language test they scored a mean of 11.4. In the intermediate-term memory language test this renders a p-value of 0.002 in comparison to g1 and a p-value of 0.009 in comparison to g2, showing a significance increase in both cases. When comparing the long-term memory language test however, there is only a significant increase from g1 (p=0.03) and not from g2 (p=0.064). The results however once again confirm the importance of instructions.

5.2 Discussion

Going back to the unrevised question in this study; “In what way is language learning and motivation affected if written direct instructions are given regarding elements of language learning directly before playing an entertainment game?”, some speculations can now be made, keeping in mind this case study was conducted on university students from the same school using only one specific entertainment game in one language, making it unable to generalize to all target groups, languages and entertainment games.

What can be derived most clearly from this study is, as previous studies has indicated as well; when using entertainment games for education, instructions seems to be a critical element (e.g. Squire, 2006; Egenfeldt-Nielsen, 2006; Kirriemuir et al., 2004). However, as opposed to previous assumptions, the overall motivation did also increase when instructions were given. This might be due to an addition of extrinsic motivation to the already present intrinsic motivation, when the test subjects found an external goal in getting a high score on the language test, or might simply have raised their intrinsic motivation if they happened to find the unfamiliar language an interesting puzzling addition to the gameplay. Either way this somewhat contradicts Lepper and Henderlong’s (n.d.) theory that extrinsic rewards might eliminate intrinsic motivation. However they also claim that in some cases weak intrinsic motivation can be strengthened by the addition of extrinsic rewards, which might have been the case in this study.

There is of course also a chance that motivation might have been affected by individual personality differences between the test subjects. This was however not apparent as an issue derived from the control questions; showing the test subjects’ interest in games and language to be almost identically divided between the groups. Investigating personality differences further in a more elaborate control question form, for instance asking questions about general interests, might have demonstrated different results. Another thing that might have generated a more equal starting point for the test would have been to have a pre-run, in
which every test subject got to play through the game once, before conducting the actual test. This might have made some of the insecure test subjects’ more comfortable in both the game and the language resulting in an overall higher motivation and language test score.

When considering the language test score in the pilot study, the language was changed from Italian to Dutch in final testing, as Dutch is in the Germanic language family and is thereby related to both Swedish and English and would thereby possibly increase the overall test score. Comparing the results from the pilot study and final test however showed no significant difference in test results, disproving the theory that Dutch would increase test scores. To further investigate this matter more languages and increased number of test participants would be needed. Another thing that should be considered for future research is an increased number of people correcting the tests, as free text answers sometimes can be interpreted in different ways. In this study only one person corrected the tests, risking a potential bias when deciding whether an incorrect free text answer was completely wrong, thus generating 0 points, or if it was somewhat correct, generating 0.5 points.

Egenfeldt-Nielsen (2006), explains that in a case study similar to this one, when students were supposed to learn history from playing entertainment games, without any prior instructions the students completely ignored the educational elements to focus solely on the entertaining gameplay. This did however not seem to be an issue in this study, as the foreign language was a quite obvious giveaway on what to focus on. The group that did not get any prior instructions did however encounter another issue. They did not know what to focus on anymore. If the educational element had been more subtle than a complete translation of the game to Dutch, they might have just enjoyed the gameplay, getting the same outcome as Egenfeldt-Nielsen (2006) mentions.

So, regarding the aforementioned unrefined research question; “In what way is language learning and motivation affected if written direct instructions are given regarding elements of language learning directly before playing an entertainment game?”, it can be assumed that, when it comes to language learning, written direct instructions, or verbal for that matter, is crucial to not confuse the player and thereby decrease both learning and motivation. Reviewing the test results it can also be speculated that thorough instructions are beneficial to avoid further perplexities and distractions and meanwhile increasing learning and motivation. To confirm this, further research would however have to be conducted in the field.

5.3 Future Work

Based on the results of this study some interesting observations and indications can be found. The importance of instructions to increase learning when using entertainment games for educating language seems clear; an importance that has also been found in other studies using entertainment games for other fields of education (e.g. Squire, 2006; Egenfeldt-Nielsen, 2006; Kirriemuir et al., 2004). This study however indicates that motivation might be increased by instructions as well when using entertainment games for language learning. This is an interesting discovery that would be useful to investigate further, as this study does not investigate instructions’ impact on motivation when using entertainment games in other fields of education such as math or history. Getting knowledge about how instructions affect motivation when using entertainment games as learning tools, might not only be beneficial
for the matter at hand, but also used as a measure of instructions needed when creating serious games.

As mentioned previously this case study was conducted solely on university students from the same school using only one specific entertainment game in one language, making it unable to generalize to all target groups, languages and entertainment games. Adding the fact that it only contained eighteen test subjects it should mainly be used as a guideline for further research within the field. Broadening the findings by researching other games, adding more test subjects, testing on different target groups in different languages, testing in schools and comparing it further to traditional education – the possibilities for future research are many.
References


Appendix A - Basic instructions

Original instructions, Swedish


Translated instructions, English

You will now play a part of the game: "Sly Cooper: thieves in time" in Dutch. When you are done playing you will answer a form in which you get to translate specific words and phrases from the game from Dutch to Swedish as well as Swedish to Dutch. It is therefore important that you pay attention to how words and phrases are spelled, what they might mean and in what context they are used.

You are allowed to use any method you want if you think it will help you. For example you could repeat words and phrases to yourself, to better remember them later. You are however not allowed to use external aids, such as pen and paper, as this would increase game time significantly.
Appendix B - Thorough instructions (Swedish)

Original instructions, Swedish


Translated instructions, English

You will now play a part of the game: "Sly Cooper: thieves in time" in Dutch. When you are done playing you will answer a form in which you get to translate specific words and phrases from the game from Dutch to Swedish as well as Swedish to Dutch. The words in the test will primarily be the ones used to instruct the player. These will be shown in the lower right end of the screen all through the game. Make sure you also pay attention to the mission briefing shown in the top center of the screen, as words and phrases from this will appear in the test as well. There will however no questions regarding the story or dialogue in the test.

It is important that you pay attention to how words and phrases are spelled, what they might mean and in what context they are used. You are allowed to use any method you want if you think it will help you. For example you could repeat words and phrases to yourself, to better remember them later. You are however not allowed to use external aids, such as pen and paper, as this would increase game time significantly.
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<td>Are you interested in languages?</td>
<td>How are your language proficiencies?</td>
<td>How are your proficiencies in the Dutch language?</td>
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<td>Do you like adventure games?</td>
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Appendix D - Motivation form (Swedish)

Motivationsutvärdering

* Required

Vad tyckte du om spelet? *

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Kände du dig motiverad att spela vidare under spelets gång? *

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Vill du någon gång sluta spela? *

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Hur påverkade språket din spelupplevelse? *

| | Negativt | | | | Positivt |

Kände du dig motiverad att förstå språket? *

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</table>

Skulle du vilja fortsätta spela? *

| | Ja | | | | Nej |
| | | | | | Vet inte |

Skulle du vara intresserad av att fortsätta spela på nederländska?

<table>
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<th>4</th>
<th>5</th>
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<tbody>
<tr>
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<td></td>
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Var det något specifikt som du anser påverkade din motivation att spela? (Frivillig)

Exempelvis grafik, svårighetsgrad, språk etc.
Appendix E - Language Form (Swedish)

Utvärdering av ordkunskap

I fritextfrågor kan du svara med ett eller flera ord, en förklaring eller med 'vet ej'.
* Required

Vad heter 'juven' på nederländska? *
Välj alternativ nedan:
  - De zwerver
  - De Overaller
  - De avonturier
  - De delf
  - Vet inte

Kände du igen ordet från spelet? *
  - Ja

Vad betyder 'Bewegen'? *
Välj alternativ nedan:
  - Köra
  - Flytta
  - Springa
  - Balansera
  - Vet ej

Kände du igen ordet från spelet? *
  - Ja

Vad heter 'svävdräkt' på nederländska? *
Välj alternativ nedan:
  - Zweefpak
  - Drijvend
  - Lucht kleeding
  - Vleken kostuum
  - Vet ej

Kände du igen ordet från spelet? *
  - Ja
Vad betyder 'Zakkenrollen'?
Välj alternativ nedan.
- Rulla undan
- Smyga
- Krypa
- Stjäla
- Vet ej

Kände du igen ordet från spelet?
- Ja

Vad heter 'kasta' på nederländska?
Välj alternativ nedan.
- Kaste
- Goolen
- Vallen
- Bussing
- Vet ej

Kände du igen ordet från spelet?
- Ja

Vad betyder 'sluipslag'?
Välj alternativ nedan.
- Smygånfall
- Hårt slag
- Snabbt antall
- Skydda
- Vet ej

Kände du igen ordet från spelet?
- Ja
Vad betyder ’springen’? *

Kände du igen ordet från spelet? *
Ja □

Vad betyder ’richten’? *

Kände du igen ordet från spelet? *
Ja □

Vad betyder ’controlekamer’? *

Kände du igen ordet från spelet? *
Ja □

Vad betyder ’het brein’? *

Kände du igen ordet från spelet? *
Ja □

Vad heter ’dubbelhopp’ på nederlandska? *

Kände du igen ordet från spelet? *
Ja □
Vad heter 'intersagera' på nederländska? *

Kände du igen ordet från spelet? *
Ja ▼

Vad ska du göra när du blir instruerad att 'breek in in het museum'? *

Kände du igen ordet från spelet? *
Ja ▼

Vad ska du göra när du blir instruerad att 'steel de steutel'? *

Kände du igen ordet från spelet? *
Ja ▼

Vad ska du göra när du blir instruerad att 'bom plaatsen' *

Kände du igen ordet från spelet? *
Ja ▼

Vad ska du göra när du blir instruerad att 'nou vast'?

Kände du igen ordet från spelet? *
Ja ▼
# Overall results:

## No instructions

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<th>Motivation to continue</th>
<th>Language motivation</th>
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= Mean

= Total