

March 2006

Game Tutorial Analysis

Aaron B. Shea

Worcester Polytechnic Institute

James Wilson Tyrrell

Worcester Polytechnic Institute

Scott J. Glajch

Worcester Polytechnic Institute

Follow this and additional works at: <https://digitalcommons.wpi.edu/iqp-all>

Repository Citation

Shea, A. B., Tyrrell, J. W., & Glajch, S. J. (2006). *Game Tutorial Analysis*. Retrieved from <https://digitalcommons.wpi.edu/iqp-all/660>

This Unrestricted is brought to you for free and open access by the Interactive Qualifying Projects at Digital WPI. It has been accepted for inclusion in Interactive Qualifying Projects (All Years) by an authorized administrator of Digital WPI. For more information, please contact digitalwpi@wpi.edu.

Project Number: DXF 1039

GAME TUTORIAL ANALYSIS
An Interactive Qualifying Project Report
submitted to the Faculty of
WORCESTER POLYTECHNIC INSTITUTE
in partial fulfillment of the requirements for the
Degree of Bachelor of Science

By:

Scott J. Glajch

Aaron B. Shea

James W. Tyrrell Jr.

Approved:

Professor James Doyle, Co-Advisor

Professor David Finkel, Co-Advisor

Date: February 28th, 2006

Table of Contents

Abstract.....	4
1. Introduction.....	5
2. Research.....	7
2.1 Literature Review.....	7
2.2 Thief 3: Deadly Shadows: Game Background.....	9
3. Experimental Approach	11
3.1 Subject Selection.....	12
3.2 Conducting the Experiment	15
4. Analysis of Findings	18
4.1 Overall Findings.....	18
4.2 Analysis of the Tutorial	26
5. Future Work.....	31
6. Conclusions.....	34
Appendix A: Charts	36
A.1 Total Lives of Players by group.....	36
A.2 Average Lives of Players per group.....	37
A.3 Total Kills per Player by group.....	38
A.4 Average Kills per Player by group.....	39
A.5 Total Successful Uses of the Blackjack per Player by group	40
A.6 Average Successful Uses of the Blackjack per Player by group	41
A.7 Total Guards Alerted per Player by group.....	42
A.8 Average Guards Alerted per Player by group.....	43
A.9 Total Pieces of Special Loot Collected per Player by group	44
A.10 Average Pieces of Special Loot Collected per Player by group	45
A.11 Total Pieces of Loot Collected per Player by group.....	46
A.12 Average Pieces of Loot Collected per Player by group.....	47
Appendix B: Surveys Used.....	48
B.1 Initial Questionnaire.....	48
B.2 After Session Survey.....	49
B.3 Informed Consent Document.....	52

B.4	Key Map.....	54
B.5	Record Sheet.....	55
Appendix C: Session Review Notes.....		56
C.1	Player 1: Tutorial Subject.....	56
C.2	Player 2: Non-Tutorial Subject.....	59
C.3	Player 3: Tutorial Subject.....	63
C.4	Player 4: Non-Tutorial Subject.....	66
C.5	Player 5: Tutorial Subject.....	72
C.6	Player 6: Tutorial Subject.....	81
C.7	Player 7: Non-Tutorial Subject.....	84
C.8	Player 8: Non-Tutorial Subject.....	88
C.9	Player 9: Tutorial Subject.....	94
C.10	Player 10: Non-Tutorial Subject.....	97
Appendix D: Bibliography.....		103

Abstract

In this study we observed players from two groups playing the game *Thief: Deadly Shadows*. By having one group play the tutorial level and the other group not play it, we were able to examine the effects that the tutorial level had on the performance of the players. We concluded that the tutorial was effective in teaching players the basic style of game play, as well as some of the game play techniques unique to the game.

1. Introduction

With this project we sought to gain a better understanding of the ways in which players use game tutorials to learn the games they play, and how the tutorials improve the players' game play. A tutorial is a section of a game that teaches players how to play the game. Often there will be a general tutorial in the beginning of a game, and later tutorials in the game that cover more advanced sections of game play. Most tutorials teach the players the basic controls of a game, and not much else. We feel that tutorials can have a very positive effect on a player's performance, and we think that game developers should look into ways of making more effective tutorials. We decided to do a study on the benefits of using a game's tutorial. More specifically, we wanted to determine in what ways using the tutorial improved the players' game play.

To determine the benefits of using a tutorial we first had to analyze how players learned basic skills and developed game play strategies. We sought to determine if players learned certain aspects of the game more effectively through tutorials or through game play. We also looked at what the player retained from the tutorial. This information will enable game makers to build more helpful game tutorials which will improve the quality of game play for the players. A game with a more effective tutorial enables players to get into the actual game sooner, and allows people who do not play games frequently to learn how to play more easily.

We gathered two groups of volunteers of roughly equal composition in regards to their level of experience with certain types of video games. These groups then played *Thief: Deadly Shadows*, one group using the tutorial included in the game, the second playing the game without any previous instruction. The participants' actions were recorded as they played the game.

From these recordings we looked at several skills important to game play, and how the players learned to use these skills. For the game *Thief: Deadly Shadows*, we defined three skills that are essential to *Thief* and other games of the stealth-action genre, and studied how well players from both groups used these skills. The skills defined were *passive game play*, *stealth movement*, and *information collecting*, and are explained in detail in Section 4.1. We also looked at the players' scores at the end of every level, as well as statistics provided by the game such as completion time.

Based on these findings we were able to determine that overall, the tutorial group performed notably better than the non-tutorial group. The tutorial group was able to accomplish more objectives than the non-tutorial group, while dying less often. The tutorial group was also stealthier than the non-tutorial group, alerting and killing fewer guards. From what we have observed in this study, we can conclude that effective game tutorials can give players a better understanding of how to accomplish their objectives, and how to play the game. *Thief: Deadly Shadow*'s tutorial effectively showed players how to avoid stationary and patrolling guards, and how to collect information to aid in completing objectives.

2 Research

2.1 Literature Review

To improve our study and give it direction, we decided to research the techniques of studying game play and the different methods of analyzing game play that have been employed in previous studies similar to ours. There have been a number of studies done analyzing the different aspects of game play in video games, and most of these studies we found to have been published in the *GameStudies* journal. *GameStudies* is a quarterly scholarly journal that focuses on computer game research and player studies. One book that gave us insight into categorizing player behavior was *What Video Games Have to Teach About Learning and Literacy* (Gee). Gee is considered to be one of the leading authorities on video game studies and player analysis. Though his findings provided good background information for video game analysis, it gave us no specific example of a player study to build upon.

Two other highly referenced articles that had similar goals and methodologies to what we were trying to do were “Utility of Game Instructions” (Chen) and “The Things We Learned on Liberty Island” (Pelletier). Besides these two studies, we found no other analyses into player behavior that fit our experiment’s goals. Many of the papers we found examined methods of instructing players to play a game without investigating why players learn some methods better than others.

“Utility of Game Instructions” (Chen) described a study of 44 male game players playing an anti-terrorism First Person Shooter game, *Rainbow Six-Rogue Spear*. The experiment employed a consent form and questionnaire on gaming experience. Based on the results of these questionnaires players were divided into one of four groups. One group had no tutorial help, and 3 groups had various combinations of tutorial methods. A practice session was held, followed by a short quiz on the game interface. The game play session lasted 40 minutes, after which players were given a final survey. The study measured specific gaming elements such as score, as well as quiz scores. “Utility of Game Instructions” concluded that players that received tips during the game, and used the tutorial had much higher mission success rates than those that did not. The groups that had tips provided during the actual missions performed better than other groups at things

such as shooting enemies, talking to hostages, and using weapons and objects. The groups that used the tutorials to teach them how to use the mission planner had a much higher rate of accomplishing what the authors defined as *key objectives*, such as escorting the hostages. The group that had both tips and the tutorial fared best of all of the groups.

From “Utility of Game Instructions” we learned how to group and test a large number of participants. We used a similar method as this study to categorize our test subjects, but made only two groups of participants, for tutorial and non-tutorial players. We also used end-game statistics as a measure of player performance, and a questionnaire (Appendix B.2) that helped us include qualitative data in our conclusions.

“The Things We Learned on Liberty Island” (Pelletier) used a different method of analysis. This experiment involved only two players; one used an interactive tutorial, the other did not. Each player played the first level of the PC game *Deus Ex*; the training level was titled *Liberty Island*. They used video cameras to monitor game play. The video data were used to break down game play into specific strategies. These breakdowns allowed the researchers to understand how players learned new strategies. The authors of “Things We Learned on Liberty Island” concluded that players who used the tutorial were better at parts of the game that were unique to it. The authors also concluded players relied heavily on their previous gaming experience when faced with new problems. Based on what we learned from this paper we decided to use a similar set up to record the players’ game sessions and used a similar study of events to analyze the players’ learning methods.

2.2 Thief 3: Deadly Shadows: Game Background

Thief 3: Deadly Shadows is the third installment in a series of games produced by Eidos Interactive. Both Thief: The Dark Project and Thief II: The Metal Age were developed by the now defunct Looking Glass Studios, while the most recent episode was created by Ion Storm. Starting with The Dark Project, the release dates of the games were 1998, 2000, and 2004. Often referred to as the father of the stealth-action genre, the Thief series also included elements from role playing and horror games. The third game, being more graphically intensive, was designed to run on a personal computer in first-person mode just as the previous two. The Xbox version however had the default camera set to a third-person view.

With Thief: Deadly Shadows, the player must control the main character, Garrett, to complete set objectives. Once the player completes all of the objectives he or she finishes the level and moves on to the next one. There are three main game play techniques that define the stealth-action genre, and these techniques assist the player the most in completing these objectives. The first is the use of *stealth movement*, where the player can often be more successful by avoiding guards than confronting them. One of the main ways players tend to achieve this is by staying in the shadows and moving when the guards have their backs to the player. *Passive game play* is something the player must learn, and applies to more than just avoiding guards. If you must confront a guard, using the dagger to kill him would alert other guards, while using the blackjack to merely knock him out will usually not alert other guards. Another technique that this genre of games relies heavily on is *information collecting*. Though this is not limited to the stealth-action genre, very often objectives can be completed or new objectives can be obtained by simply overhearing conversations. Also, since the character is ideally sneaking around instead of simply clearing the guards in the rooms, collecting information about the level is pivotal to the player's performance.

The player is given many devices to aid his or her efforts. Close range weapons such as the knife or blackjack can be used to kill or incapacitate a guard. Long distance arrows can be used to attack enemies, extinguish lights, and create noises to attract guards elsewhere in the level. The player can use flash bombs to blind enemies or create a diversion while moving through the level. Gas bombs are also available to incapacitate

guards. Health potions come in vials and are hidden throughout the levels; they increase the maximum amount of damage the player can receive before his or her character must restart the level.

Other techniques are made available to the player more discretely. It becomes obvious to most players that dimly lit areas are better for remaining unseen at closer distances to the enemy. Softer terrain creates a quieter surface for the character to travel on, which allows for quicker movement without being heard. Many doors and containers contain a lock that the player must pick. Often times, areas of a level that a player must gain access to have multiple entrances, some of which are more beneficial than others. In the third level, the player has the opportunity to scale the side of a church via a series of boxes, pipes, and ledges, rather than pick the front door's lock. The benefits of this are a quicker entrance into the church and a lower risk of being spotted by guards, but the path is difficult to find in the shadows and shrubbery, and it takes a greater amount of skill to time the jumping from one object to the next.

Thief 3: Deadly Shadows offers players many different possible solutions to the same problem. The flexibility of the game allows players to all approach the same situations differently. However, the game emphasizes a stealth based play style, and any player who does not use stealth will be at a distinct disadvantage. The game's emphasis on stealth play requires players who are not familiar with the genre to have to learn how to accomplish their mission objectives without being detected.

It is because of the learning requirement in this game that we selected *Thief 3: Deadly Shadows* for our study. Players in both groups will have to learn how to overcome *Thief's* unique set of challenges to accomplish their missions. Even among stealth games *Thief 3: Deadly Shadows* had unique elements, such as weapons like the Blackjack and Water and Moss Arrows. Every player playing this game for the first time will have to learn at least a few new strategies to be able to accomplish the missions. This emphasis on learning new game play strategies led us to pick *Thief 3: Deadly Shadows* as the game we would use for our study.

3. Experimental Approach

Our project used the follow method of experimentation to research the effectiveness of game tutorials. This approach required us to design a survey to help us select participants for our study. Then we divided these participants into relatively equal groups based on their previous gaming experience and how often they played video games. We then created a setup which allowed us to observe our participants playing *Thief 3: Deadly Shadows* in a controlled environment. From these observations we developed qualitative and quantitative results from their gaming sessions that helped us draw some conclusions about the effectiveness of the tutorial in *Thief 3: Deadly Shadows*.

3.1 Subject Selection

In order for us to easily determine what effects the tutorial had on our participants, we made sure that the participants in both groups had similar gaming experience. To do this, we found two people with similar gaming experience and backgrounds, and put one in each group. Our reasoning for dividing the groups in this fashion was that a person who predominantly plays games of a certain type may react differently than a person who plays a different type of game. Therefore, the more a person plays a single type of game, the more conditioned they are to approaching a problem a certain way. For example, a person who plays mainly first person shooter games might just assume that he or she is supposed to kill all of the enemies in a level, where as a person more familiar with stealth based games knows that sometimes it's easier to avoid enemies.

In order to find these participants we designed a survey (see Appendix B.1) that would determine what their game experience and preferred genres were. We also had to make sure that none of the participants had played *Thief: Deadly Shadows*, or any game of the Thief series before, since that would give them an unfair advantage over the other participants. We distributed our survey in three classes here at WPI, including one social science class and two Interactive Media and Game Design classes in order to ensure a variety of demographics. Out of the students in these classes, 45 filled out our surveys. We analyzed the surveys that were returned to us, and rejected 6 students because they had played a game in the *Thief* series before. We then emailed the 39 eligible students and asked them to participate in our study. Of the 39 people that were notified, 20 signed up to participate. Of those 20, only 10 showed up to participate in our study. As the students showed up, we assigned them to the tutorial or non-tutorial groups, depending on their game experience. For example, Player 1 from the tutorial group played video games an average of less than one hour a week, but was familiar with games of the First Person Shooter genre. Similarly Player 7 from the non-tutorial group played video games less than one hour a week, and was familiar with First Person Shooter games. At the end of our study we had five people in the tutorial group, and five in the non-tutorial group.

The ten participants who were selected to take part in the study were well distributed by experience. They were all college students ranging from Freshmen to

Seniors, and were mostly male. Some of the majors of the students included areas of study such as Psychology, Physics, and Interactive Media and Game Design. To gather the appropriate information that would allow us to create two balanced groups, we asked the volunteers to answer a few survey questions (Appendix B.1). The survey asked what types of games the players had experience with, and the number of hours they typically spent playing video games per week. To populate the two groups, tutorial and non-tutorial, we tried to distribute players with respect to the number of hours played by each group evenly. There was no way to comprehensively measure the abilities of each player before hand, however we were able to accumulate more information from the players after each game session to further estimate any deviation in each group's average level of skill.

Information about the players' previous gaming experience was collected following each game session via a final survey (Appendix B.2). The information included each player's numeric rating (1 through 5, 1 being the lowest) of the game's difficulty, how enjoyable they felt it was, and their personal gaming experience level. We charted this data, as seen in Figure 1, and were able to calculate if the experience each player claimed to have affected the group he or she was in.

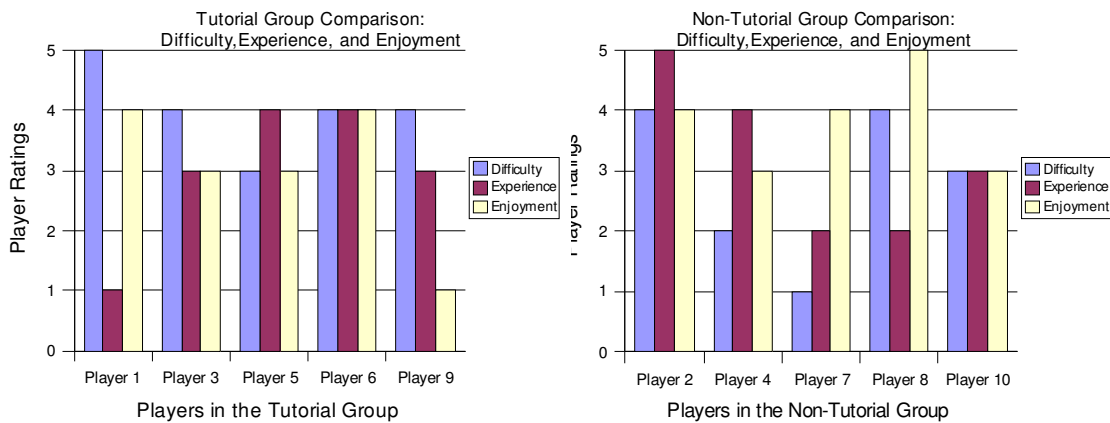


Figure 1: Each player's numeric ratings of three aspects of the game session: The player's opinion on the difficulty of *Thief: Deadly Shadows*, video game experience, and level of enjoyment while playing the game.

From the graphs shown in Figure 1, we have calculated the average level of experience each group believes it has. On average, the tutorial group responded to this question with a rating of 3. The non-tutorial group had an average response of 3.2. The

closeness in the average level of experience between the groups is a result of our group assignment process. For these values, our assignments appear balanced, but it should be noted that these ratings come from the players themselves, and do not necessarily reflect the players' actual gaming experience.

We also used the graphs displayed in Figure 1 to detect any patterns in the player's rating of the game. Based on the accomplishments of the tutorial group, we hypothesized that the group's average level of enjoyment would have been higher than that of the non-tutorial group's. In actuality, the averages of their ratings were the opposite of what we expected. The non-tutorial group responded to the enjoyment question with an average ranking of 3.8, while the tutorial group responded with an average of 3.0. We also thought that players with more experience in video games would exhibit a noticeable trend in their enjoyment of *Thief: Deadly Shadows*. A correlation between difficulty and enjoyment does not appear to exist.

It can be argued that the non-tutorial group enjoyed the game more because they did not feel confined to the play style that was suggested to the tutorial group. Without an explanation of what the game expects the player to accomplish, it doesn't seem that many players would maintain a high level of enjoyment for an extended period of time. The claim is evident in the rest of the survey results, as 4 out of 5 of the non-tutorial group players mentioned the lack of instructions and the vagueness of their objectives. When asked what aspects of the game were most difficult, Player 10 (of the Non-Tutorial group) responded with "Figuring out what to do (Objectives not clear)." Players 2 and 6 (also of the Non-Tutorial group) made comparable comments, using similar wording. It is our opinion that a game with no known objectives would be redundant and tiresome to most players after a while, despite the enjoyment they might have while being introduced to the game. If the non-tutorial group were to continue playing the level, they might lose interest in the game, thus their average level of enjoyment would go down. A future work could easily incorporate this factor to test its accuracy.

3.2 Conducting the Experiment

Upon arrival to the testing center the subjects were required to sign a consent form (Appendix B.3). Each subject was given a key map sheet (Appendix B.4) that contained a listing of what all the keys did. The purpose of the key map was to ensure that participants who played games more often, and therefore were more familiar with basic control layouts, did not have an advantage over less experienced players. Since the manual that comes with *Thief: Deadly Shadows* includes a key map, anyone buying this game would have access to one.

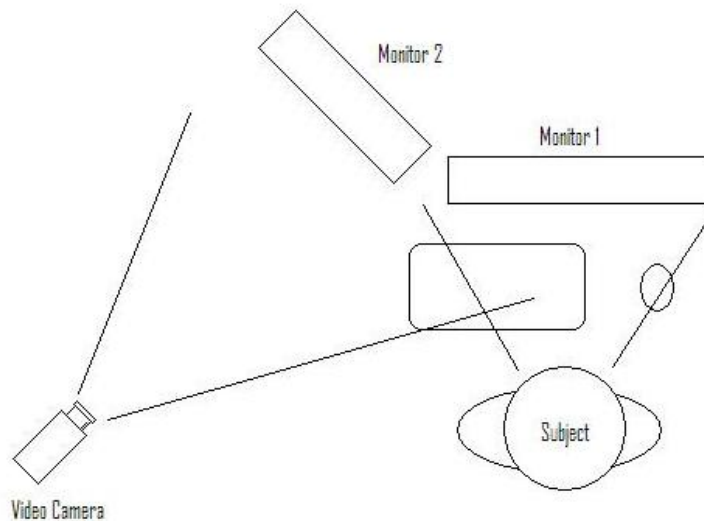


Figure 2: Set up diagram

Since the tutorial level is not long, usually taking 5 to 10 minutes, and since it does not expose the player to too much combat experience, we considered players in both groups to be about as equally unfamiliar with topics or techniques not discussed in the tutorial. Also we verbally instructed the players to quick save at any time so that if they die they do not have to do parts of the level over again.

The physical layout of our study involved the game being run on two monitors, one facing the player and the other facing to the side where we had a video camera

recording the screen. Also the video camera was positioned so that it could record the keyboard to note when the player was making keystroke mistakes or reading the key map. The camera was hooked up to a TV in another room where we watched the game in progress, so that we could take notes and help the player with loading games. We used the recordings of the player's sessions after the play session was over to analyze their gameplay based on the notes we had made.

The tutorial level itself was the first small level of the game, intended to introduce the player to the character and the story as well as the techniques the developers thought necessary to the player. The tutorial level started off with an instruction screen explaining how the player can move around and how to avoid enemies using shadows. Once the player presses OK, he or she follows a set of blue footprints provided to guide them where they are supposed to be going (Figure 3). Staying within the footprints' path is not required. At the end of the footprints is a blue circle on the ground where the player must step into to receive the next set of instructions. Again, the player reads the instructions and follows the next set of footprints. This sequence of events continues all the way to the end of the level. (For a more detailed overview of the tutorial see Section 4.2)



Figure 3: View from the player's perspective during the tutorial level

At this point, we load the third level for the player, and they would start playing from there. After each death, or if the game crashes, we helped them load the third level again, or if they quick saved, helped them load from their quick save. Other than that we did not interfere with the game play of the player. After roughly 50 minutes of play time during level three, we would stop the subject upon their next death.

After they were done playing we had them fill out a survey about the game (Appendix B.2), how they liked it, and how they thought it could be improved. Only after they were done playing did we actually tell them that our study was specifically about game tutorials. These surveys were used in conjunction with the information recorded from their play sessions (record sheets, Appendix B.5, detailed notes Appendix C) to help us make conclusions about their game play and the effectiveness of the tutorial.

4. Analysis of Findings

4.1 Overall Findings

In this study we compared and analyzed the scores and behaviors of two groups of people playing *Thief: Deadly Shadows*. The purpose of our study was to determine if the players learned more effectively through trial and error or through game instructions. We used recorded videos of the players, game statistics, and surveys to examine and quantify the players' performances.

We collected data about each player over the entire session, which lasted about an hour, but split up the recorded data into lives. Each data record from each life consisted of the information about the player from the start until the player was killed or loaded a saved game. Once this saved game was loaded, information would start being collected about their next life. The data for each life was recorded in a separate column on a spreadsheet. We used the spreadsheets of each player to calculate averages for specific statistics. The statistical findings were recorded along with a written summary of the player's actions, which provided us with an overall summary of the players' performances.

From the statistics and our summaries, we observed that players from the tutorial group were more effective at specific game play elements. We divided the elements that the tutorial group was better at into three categories. These categories were *passive game play*, *stealth movement*, and *information collection*.

We defined passive game play as avoiding combat, and using techniques that avoid further detection. The most obvious conclusion that can be drawn from the statistics was that the tutorial group showed strong evidence of passive game play. For instance, most guards in the game patrolled around specific areas of the level. The players can either choose to engage the guards, or wait for the guard to walk by. If the player chooses to engage the guards, that player can either kill the guard, or use the blackjack to incapacitate the guard instead of killing him.

The advantage of using the blackjack is that the guard makes no noise when falling, and therefore does not alert any other guards. The tutorial players chose to use the blackjack more often than killing the guards. The tutorial group blackjacked 19

people and killed 28, while the non-tutorial group blackjacked 14 people and killed 63 (See Figures 4 through 7). The higher ratio of blackjacks to kills and the low kill count of the tutorial group demonstrate the group's effort to make more passive decisions when faced with the possibility of combat.

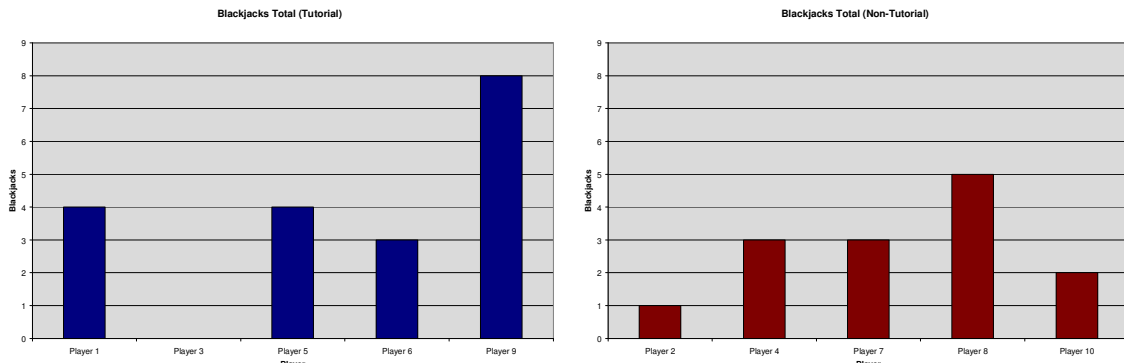


Figure 4: Total successful uses of the blackjack per player by group

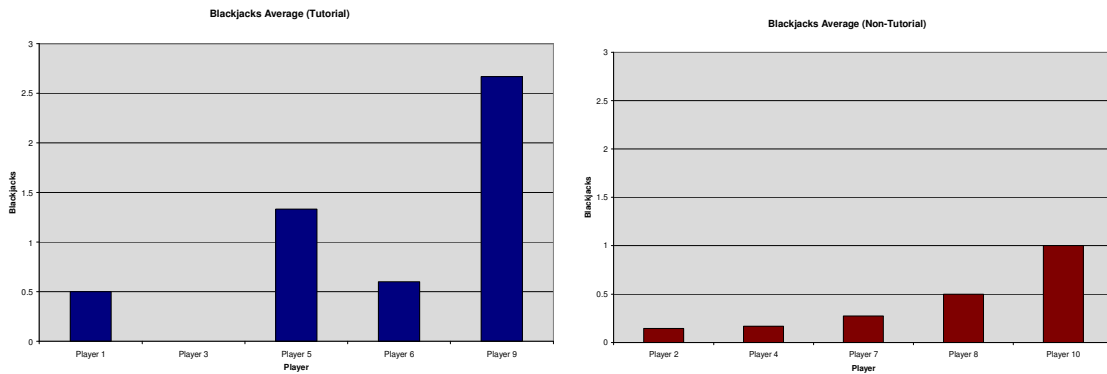


Figure 5: Average successful use of blackjack per life

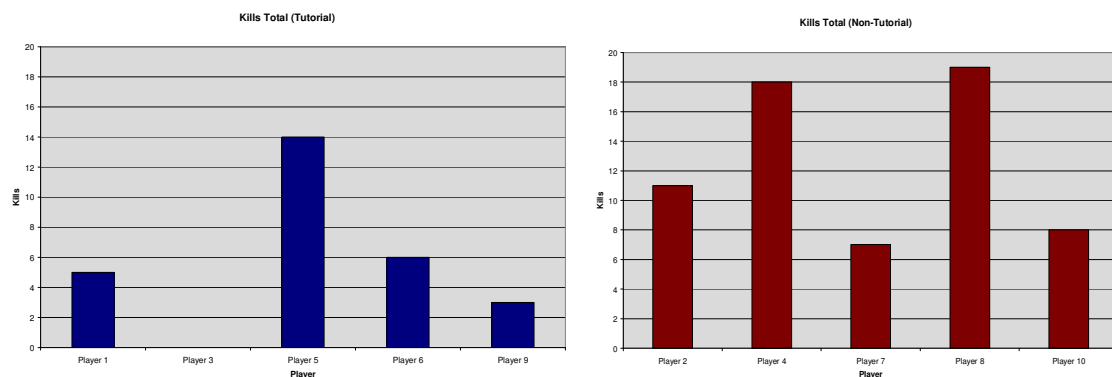


Figure 6: Total Kills per Player by group

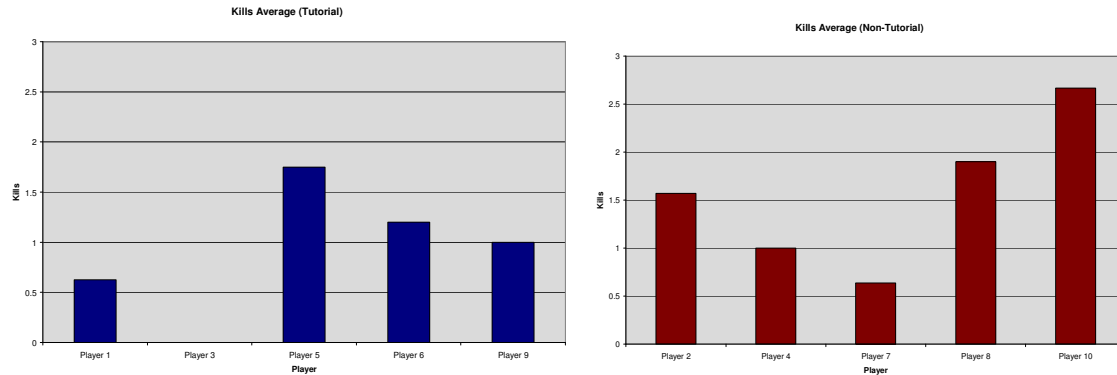


Figure 7: Average Kills per Player by group

Another result of passive play is fewer player deaths. The tutorial group players died on average 5.2 times, while the non-tutorial group had 11 deaths on average (See Figures 8 and 9). The lower number of deaths can be attributed to the tutorial group playing less aggressively. The game often punishes an aggressive player, and the non-tutorial group was only able to come to this conclusion by trial and error. The tutorial players also alerted fewer enemies, 68 in total, than the non-tutorial group who alerted 116 enemies (See Figure 10). The number of deaths each player received and the number of enemies he or she alerted show a direct correlation. A player has a higher chance of progressing through the level if fewer enemies are encountered. When we reviewed each subject's video, it was obvious that avoiding enemies was a more successful tactic, so we computed the mean number of guards a player alerted per life. The tutorial group clearly chose to play more passively.

Also Player 3's data is so different than the rest of the Players that it requires some explanation. This person played the entire session without killing a single guard, and alerted only one guard. Though this person was in the tutorial group, we assumed that there was an outside factor affecting Player 3's game play, since the other tutorial members didn't act quite as stealthily. Perhaps this person took the suggestion of staying in the shadows more seriously than the other players, or their natural play style was to avoid confrontation. In the survey administered after the gaming session, the player noted that they don't usually play computer games, so that could have been a factor in the more passive play style compared to other participants.

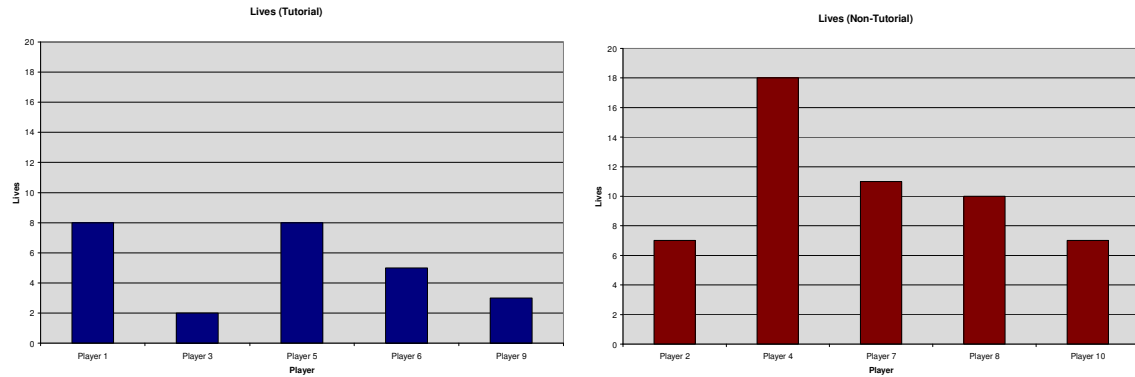


Figure 8: Total Lives per Player by group

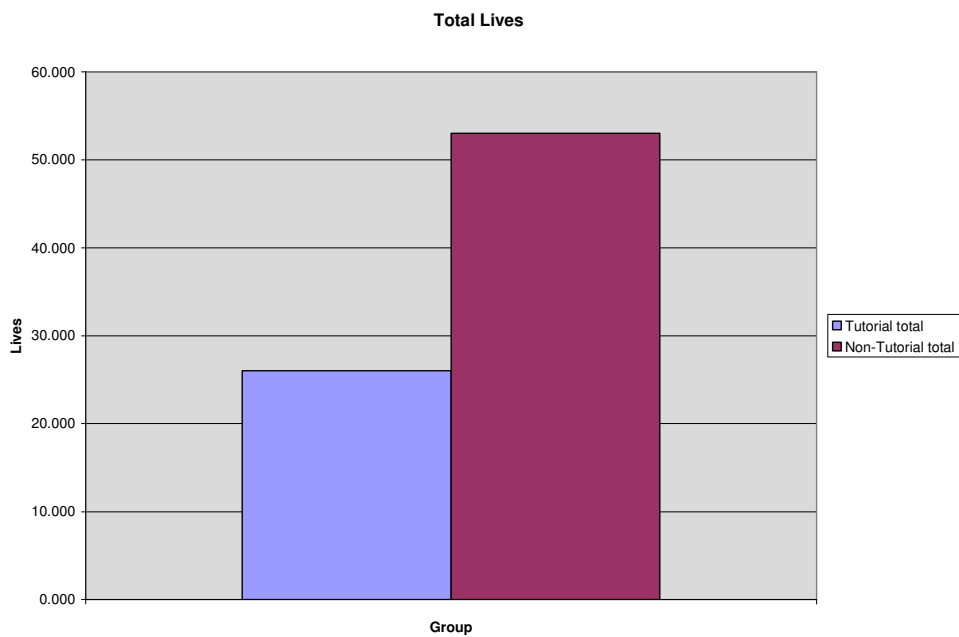


Figure 9: Total Lives by group

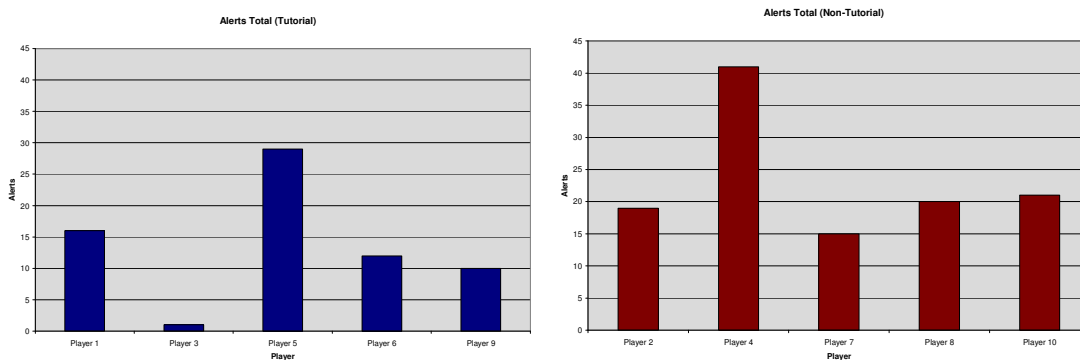


Figure 10: Total Times Guards Were Alerted per player by group

To prove that the tutorial group players chose a better style of play, and weren't simply better players than the non-tutorial group, we calculated the average survival rate

of a player who had alerted an enemy. A player can survive an encounter if he or she can kill the enemy, or flee from the enemy before dying. The tutorial group survived about 62% of the time when encountering an enemy, and each player died an average of 5.2 times in his or her session. The non-tutorial group survived about 54% of the time, and each player died an average of 11 times in his or her session. Because of the closeness of these numbers, we can see that the average skill of each group was nearly the same when fighting an enemy. The proportion of alerted enemies between the groups does not mean that the tutorial group avoided combat more than the non-tutorial group, since there are ways to kill guards without alerting them. However, when considering the tutorial group's lower number of kills, enemies alerted and deaths together, it is apparent that the tutorial-group exhibited a more passive play style than the non-tutorial group. This style allowed the players to live for longer amounts of time without being killed. Tutorials are generally made to teach players how to play the game, and it is assumed that part of what this tutorial was trying to teach was how to play this stealth-based style of game play. According to our observations teaching this style of play succeeded.

There are many ways to kill an enemy without alerting him. Any attack that kills a guard in one hit can be performed without alerting the enemy. Some players killed guards with one broad head arrow shot from a distance; players can also walk up behind enemies and use a dagger to kill them. Also, if the player uses the blackjack directly from behind, an enemy will become incapacitated without being alerted. Many times a player would ignore the benefits of implementing passive game play, and resort to an alternate play style, which we classified as stealth movement.

The stealth movement technique also contributes to the tutorial group's smaller number of alerted guards. Some players, especially those in the tutorial group, tried to avoid alerting guards by staying in the shadows, walking or crouching instead of running, and using certain items to their advantage. The visual presentation of the game makes it fairly clear where there are enough shadows for the players to hide in. Also, the player can look at the "light gem", a gauge which represents the player's level of visibility to enemies. When the light gem dims, the player is less visible to the enemies. Some players chose to use water arrows to extinguish torches on the walls around the level, thus decreasing the amount of light in an area.

The non-tutorial players took much longer to learn that using stealth movement, particularly standing in the shadows, aided their game play. By staying in the shadows, a player could wait until a guard's back was turned and either attack him using the blackjack or passively sneak by. Also, most non-tutorial players did not use the water arrows properly, if they used them at all. The first attempt to use water arrows was usually to try to attack the guards. After learning that water arrows do no damage to the guards, most of the non-tutorial players gave up on using these weapons, except for player 2. Player 2 thoroughly read the descriptions of the weapons in the game's menu, and learned to use water arrows properly. The arrows in Thief are unique weapons in the game. Some are used to attack enemies from a distance, and others, like the water arrows, allow the player move more stealthily. The tutorial only taught players how to use the water arrows.

We defined information collecting as when a player looks for information that helps the player complete objectives. This technique can be accomplished through overhearing conversations, reading notes and books found throughout the level, and checking mission objectives. The tutorial explicitly told players to read notes and listen in on conversations to gain information about the level. Most non-tutorial players did not start out by actively collecting information, and instead would only do so when they were uncertain of their next goal. The tutorial players in general read the notes that they found throughout the level. When used correctly, information collecting would help players complete the level in less time. Overall, this level did not seem to put as much emphasis on information collecting as the other levels in the game, and the notes available for collection were generally less helpful than in other levels.

The basic techniques of passive game play, stealthy movement, and information collecting that were taught to the tutorial group allowed them to progress further than the non-tutorial group. Unfortunately, only a few players saved their games, meaning that whenever they died they had to start the level over from the beginning. Because of this, we could not simply look at how much the player had accomplished at the end of the time limit. Instead we had to look at the statistics across all of their lives, and determine progress by comparing things like their average number of lives, kills, and loot.

A statistic we used to measure the success of a player was if and when they found a piece of special loot. The mission objectives for level three require that the player find at least one piece of special loot, and they are scattered around the level near other mission objectives. On the players' first two lives, two of the tutorial group players had found a piece of special loot, while the first of the non-tutorial players to find a piece of special loot did not until his seventh and final life. Two of the five non-tutorial players found the special loot, but that was done on their last life (See Figures 11 and 12). All of the tutorial players that did find special loot did so by their fourth life.

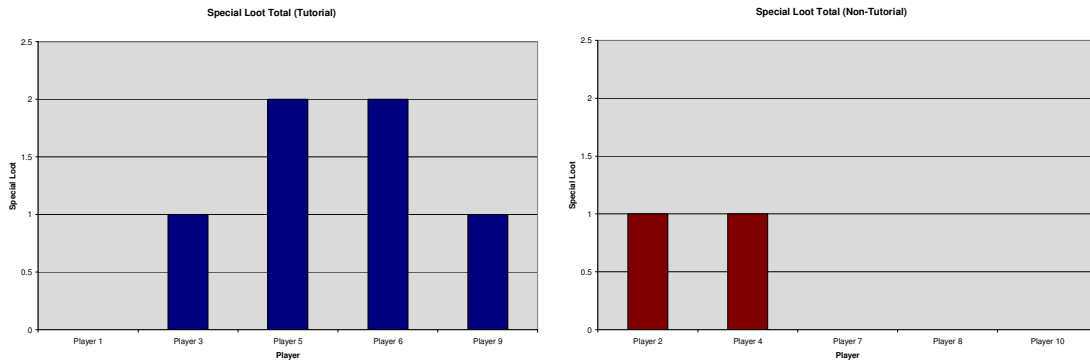


Figure 11: Total Pieces of Special Loot Collected per Player by group

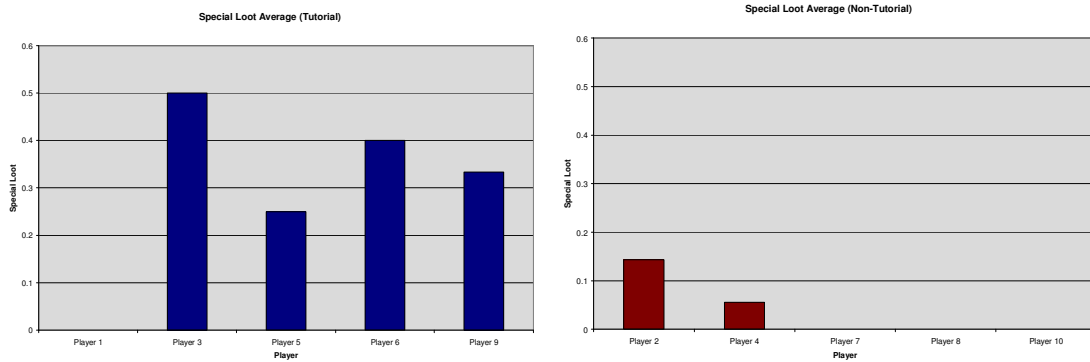


Figure 12: Average Pieces of Special Loot Collected per Player by group

One of the problems with looking at just the total number of pieces of loot collected was that since the players had to restart the level every time they died, they could just pick up the same few pieces of loot every time. In order to keep the statistics from favoring players who died more often and ended up picking up the same pieces of loot each time, we divided the total loot from each group by the total number of lives of that group. This showed that the tutorial group actually picked up far more loot than the non-tutorial group. The total loot from the tutorial group was 112, and the non-tutorial

total was 102 (See Figures 13 and 14). However, when you look at the per life amount of loot, the tutorial has more than double more than the non-tutorial group. (4.308 per life and 1.925 per life respectively). Players 5 and 9 from the tutorial group were largely responsible for the higher average loot per life of the tutorial group, as shown by Figures 13 and 14. The other players in the tutorial group had approximately the same loot per life as the players in the non-tutorial group.

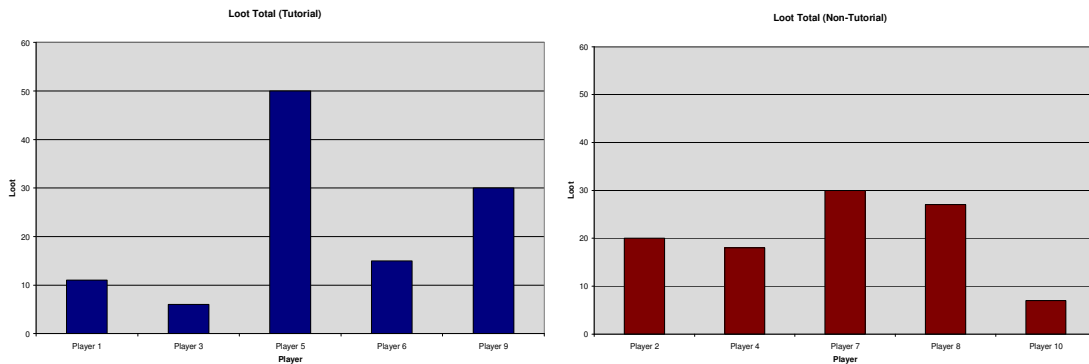


Figure 13: Total Pieces of Loot Collected per Player by group

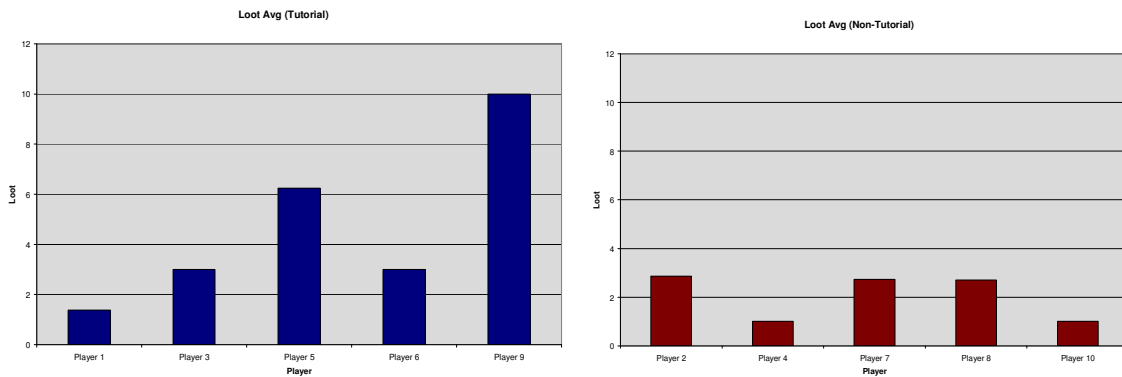


Figure 14: Average Pieces of Loot Collected per Player by group

Overall, the tutorial group performed notably better than the non-tutorial group. The tutorial group gathered more loot and special loot than the non-tutorial group, and did so with fewer lives. The tutorial group also accomplished their objectives while killing, and alerting fewer guards than the non-tutorial group. These conclusions show that the players in the tutorial group had a better understanding of how to accomplish their objectives, and how to play the game.

4.2 Analysis of the Tutorial

From our analysis of the players' sessions, we noticed that there were several things that the tutorial was particularly effective at teaching. However, the members of the tutorial group only benefited from certain sections of the tutorial, and there were sections that gave them no advantage over the non-tutorial group.

- The tutorial effectively demonstrated the importance of light, and how to read the light gem. Players in the tutorial group knew to avoid well lit areas. However it is difficult to quantify how much time a player was exposed to light during their session. We did however observe that players from the tutorial group stayed in the shadows more. It was observed that players in the non-tutorial group would alert guards by being in well lit areas more than players from the tutorial group. These players usually learned to stay in the shadows later on during their session.
- The tutorial showed how to avoid alerting both patrolling and stationary guards. For patrolling guards it showed players how to wait for them to pass, and then move by, as well as instructing them to wait in the shadows while they passed by. For stationary guards the tutorial showed the benefit of walking and crouching to make the player less noticeable to the guards. For an example of a patrolling guard, see Figure 3 in Section 3.2.
- The tutorial shows the player how to use water arrows to put out torches. Every player succeeded at this portion of the tutorial on the first attempt. However, only 40% of the players within the tutorial group effectively used water arrows.
- The tutorial shows how to jump over obstacles. 80% of the tutorial players tried to jump the obstacle by only tapping the jump key, but quickly corrected the mistake by holding the jump key.
- The tutorial does not clearly explain how to lock pick. Most of the problems encountered with the lock picking tutorial were a result of the counter-intuitive lock picking mechanics in the game. In addition, the tutorial tells the player to use the mouse to lock pick, when it is actually easier to use the keyboard. Since the lock's "sweet spot" could only be in one of 8 locations, it was much easier to use the keyboard to find it, rather than using the mouse to rotate through 360 degrees

looking for it. Due to the inaccuracy of using the mouse to lock pick, both the tutorial and non-tutorial groups had approximately the same average lock pick times, 59 seconds and one minute respectively. (See Figure 15)



Figure 15: View from the player's perspective of lockpicking during the tutorial level

- The tutorial requires the player to 'blackjack' a guard. The blackjack weapon will incapacitate an enemy, but only if the enemy is unaware of the player's presence, and the player attacks directly from behind. The proper use of the blackjack is not explained well because the tutorial sets the player up directly behind the target. The tutorial does not show that the blackjack is ineffective when it hits a guard anywhere but the back of the head, and that it will not work at all when used on an alerted guard. Because of the limited effectiveness of the blackjack, many non-tutorial players gave up on using it after one or two failed attempts. 60% of the tutorial group preferred to use the blackjack over the knife, while only 40% of the non-tutorial preferred to use the blackjack. We feel the players that preferred the dagger did so because it doesn't rely on the player being directly behind the guard. Since the dagger works even when the guard is alerted, even players who

preferred the blackjack would have to use it once discovered. Also, the players in the non-tutorial group, who were detected more often, preferred to use the knife more, since the blackjack was often useless in combat.

- The tutorial shows players how to find and pick up objects. However, it demonstrates picking up objects on several pieces of loot. In the game, loot always appears as shiny to the player, where as non-loot objects do not (See Figure 16). Many players did not bother to try and pick up objects that were not shiny, because they did not think that they were important. However “special loot” and mission objectives were not shiny, meaning that many players did not think that they were important, and ignored them.

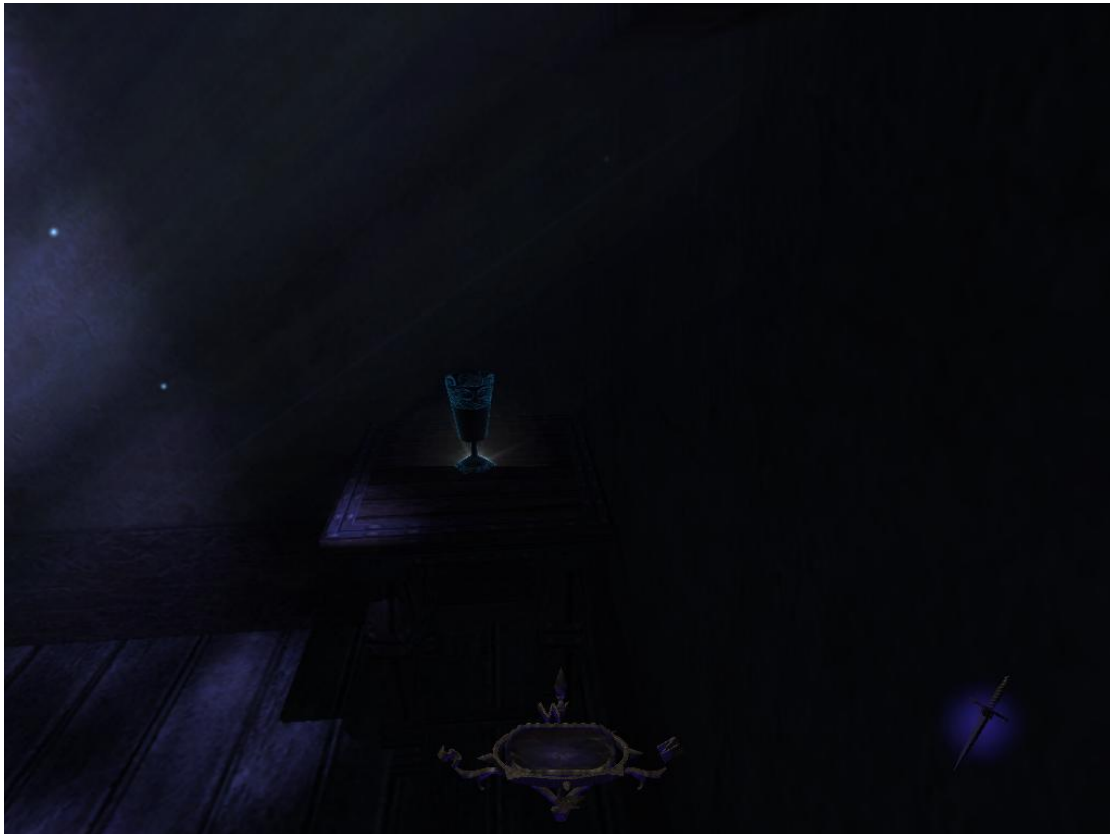


Figure 16: View from the player’s perspective of a piece of loot during the tutorial level

- The tutorial goes over how to “wall press”, which is when the player presses flat against a wall. This is intended to keep the player from projecting a shadow across a room that could alert guards. However the player is allowed to go through this section of the tutorial without actually executing the wall press. Since they were not required to wall press successfully, the players just went on to the

next part of the tutorial. Not one player in the tutorial group used the wall press during level three.

- The tutorial teaches players how to divert a guard's attention by shooting a "noisemaker arrow" past the enemy. In the tutorial, every player in the tutorial group succeeded at distracting the guard and sneaking into the nearby room he was protecting. However no players within the tutorial group used noisemaker arrows to distract a guard during game play.
- The tutorial explains the importance of collecting information from surrounding books and scrolls by requiring the player to read a book to obtain the next objective. The tutorial did not explicitly tell players to check the objectives list when a new objective was received. As a result, many players in the tutorial group did not check the updated objectives list on level 3.
- The tutorial then requires the players to apply what they have learned to steal an item from heavily guarded room. After successfully retrieving the item, the player proceeds into the last room, which appears empty. The tutorial explains how to use a "flash bomb", which allows the player to blind an enemy and proceed to the exit. However the instructions on using the flash bomb are displayed poorly. In the font used, the 'I' key, which is used to throw the flash bomb, looks like the '1' key. Many people failed this section of the tutorial because of the ambiguity.

There were other problems associated with the tutorial that should have been addressed. For example, the tutorial did not recognize when a player changed the default control settings. For each section of the tutorial, the player is given a series of keys to press to perform a specified action. The keys allow the player to walk, crouch, wall press, switch weapons, and jump. It is necessary to provide the correct keys to the player. If, however, the player has decided to reconfigure the keys in the game's options, the tutorial does not make a note of these changes. Whatever the configuration may be, the game tutorial only recognizes the default controls, thus reporting incorrect keys to the player.

The tutorial did not mention that certain actions required the player to hold down a key, while others did not. Actions such as walking, firing an arrow, and climbing,

require a key to be pressed until the action is complete. However, some actions such as picking up an object only require the player to press the associated key once for the action to be complete. The ambiguity of the key requirements caused problems for some players. For example, one of the players picked up a guard's corpse by pressing the associated key once. The player did not know that the corpse was being carried and alerted a guard. He was unable to fight because he did not realize that he needed to drop the other guard's corpse.

5. Future Work

For each player, the analysis of play we recorded for his or her session demonstrates the value of the tutorial to the player's performance on the following levels. Players in the tutorial group gave insight into why the tutorial was useful, and players in the non-tutorial group showed us where the tutorial would have been helpful. In some cases, the tutorial was obviously valuable, while in other cases it becomes difficult to tell whether a player's reaction to a situation was a result of the tutorial, their prior gaming experience, or some other factor. The information that was not accounted for in our experimental design could have been controlled given more time and greater resources.

One such issue was the amount of game experience the player had. In "The Things We Learned on Liberty Island" (Pelletier), the player's experience was defined as *transfer*. We limited our subject selection to players who had not yet played *Thief: Deadly Shadows* or any other game in the series. Removing these players assured that no player in either group would have a specific advantage over the other. However *Thief* is not the only game of its kind. Players with experience in similar games can utilize previous strategies to complete objectives in this game. Many times, players in the non-tutorial group would solve problems much differently from players in the tutorial group. For example, player #8 chose to scale a wall rather than enter the front door, like all of the other players would. Some players would close doors behind them and remember to hide evidence of their presence. In every case, it was impossible to judge whether or not these actions occurred as a result of prior gaming experience or simply the player's reaction to the realistic characters and world around them.

We acknowledged the issue of transfer in a limited way. Each participant was asked for his or her gaming background. The participant's background information gave us a simple way to analyze certain actions in the analysis of play, but did not completely account for every action the player made. To correct the issue, the subject selection could have been more specific. Given enough time and more participants, subjects with a definite level of game experience could be chosen. For example, a group of subjects with nearly no prior gaming experience could be selected by specifying an age range that is uncommon to most game players. A range of 30 to 50 years old would remove much of the transfer that existed in our experimental design. A study comparing an all male group

and an all female group with similar gaming backgrounds might also prove useful in generalizing the different play styles exhibited by each gender.

With our subject selection, it was apparent that too much qualitative data existed to collect and analyze accurately with only 3 project members. The abundance of data could have been easier to manage if it were distributed throughout more staff, which was not an option for us. Another way to handle the data could have been to select a different game for the players. *Thief: Deadly Shadows* is a relatively modern game, and utilizes a realistic lighting and physics engine. A modern game is a good title to analyze because most players would have not played it, and subject selection would be easier. However, an older game with simpler visuals and objectives would require less analysis. A less complicated game might be 2-dimensional rather than 3-dimensional, not rely so heavily on the player's reaction to sound, and have clear objectives. For example, older side-scrolling games such as *Super Mario Bros.* or *Sonic the Hedgehog* would have created less data to record and better quantitative results, mainly because players are familiar with the objectives of these games, which only require the player to reach the end of the level. Some games can be used in a similar experiment to analyze specific abilities a player can learn. A fighting game, for example, could be used to measure the ability of a player to remember certain button combinations. A tutorial for a fighting game might give some players measurable insight into different fighting techniques.

One factor that inhibited progress with our experiment was that when a player died, he or she would have to start the level over, repeating what they have done. Often the player would repeat exactly what they had done the previous life, up until just before the part that they died at. One way to avoid this is to have the players quick save, by pressing a quick save key, as they went along. Despite the fact that we instructed players how to use the quick save, most did not. For future experiments, using a game that automatically quick saves at points during the level, or making the player quick save every so often, would improve the quality of recorded game play.

After compiling the information we acquired from the subjects of our experiment, we proposed a few different experimental designs, and ways the outcomes could have applied to game developers. After a play session, each subject was asked a series of questions about the game. Given a more specific set of questions, we could have learned

much more about the incorporation of the tutorial level. For example, with more subjects, it would be easy to analyze whether or not the tutorial affected a player's enjoyment of the rest of the game. To acquire a general measurement, we would only have to ask each player to rate their level of enjoyment after each session. To get a more accurate result, the player could have been asked to play for a short period of time, after which they could have been asked if they would like to continue playing. A study like this could be gender neutral, but the information received from the analysis could still be separated by gender.

A game development company could also use a modified experimental design to fine-tune the tutorial method of their game. An optimal tutorial method might actually consist of multiple tutorials. In fact, it can be assumed that some players respond to different tutorial methods better than others. Such an experiment would require more subject groups: a non-tutorial group, and groups that feature different tutorials. Multiple subject groups would allow a game developer to learn more about the game and its players; that is, the quality of one tutorial method over another, the usefulness of one tutorial method over another, and the effectiveness of a given tutorial method for a specific audience. If a game was a first-person shooter game, then the target audience could be gamers who play first-person shooters. Doing a study on the tutorial with a group of gamers who play first-person shooters would help determine whether that tutorial was useful to that audience.

There are many ways our study can be expanded upon. These include, but are not limited to, increasing the participant size, grouping participants by gender or gaming background, and using several types of tutorials. Depending on what game is chosen, some methods of experimentation might be more effective than others. We feel that our basic experimental setup is versatile and can be adapted to fit various applications.

6. Conclusions

In conducting this study we successfully created a format for analyzing player studies that we feel could be use by others for similar projects in the future. This format allowed us to evaluate the large volume of data that was collected during our study efficiently. Using this format, we were able to quantitatively analyze the information collected to determine general trends in each group's behavior.

From these findings, we have concluded that the tutorial group showed notable improvement over the non-tutorial group. The players in the tutorial group completed more objectives, and acquired more loot than the non-tutorial group, in fewer lives and while alerting the guards less. One of the most notable areas of improvement was that the players in the tutorial group seemed to have a much better idea of what their objectives were, and how to go about accomplishing them. The players also seemed to learn the basic play style required by *Thief: Deadly Shadows* after only a 10 minute tutorial. Learning this play style was a key factor in their performance.

The tutorial was created to teach the players the basic play style of the game, and it succeeded in doing that. By requiring players to stay in the shadows, and failing them whenever they alerted a guard, they learned that combat was not the focus of the game. The tutorial was effective at teaching players the basic concept of stealth games: accomplishing the mission is made easier by avoiding combat.

After we analyzed the player sessions, we concluded that the tutorial was not always responsible for the player's success. One of the problems with tutorials in general is that they only teach the players the style of game play that the game was designed for. Teaching only one style of game play is not always beneficial. Some situations in *Thief* could be approached using methods not taught in the tutorial. Many of the tutorial players only solved problems with techniques that were taught in the tutorial. Non-tutorial players, however, were forced to solve problems on their own. Forcing the non-tutorial players to think for themselves in some cases resulted in innovative strategies that players from the tutorial group did not develop on their own, such as Player 8 scaling the wall and entering the castle through a second floor window.

Overall we have concluded that while tutorials are effective for teaching the basic play style of a game, allowing players to develop their own strategies is also essential.

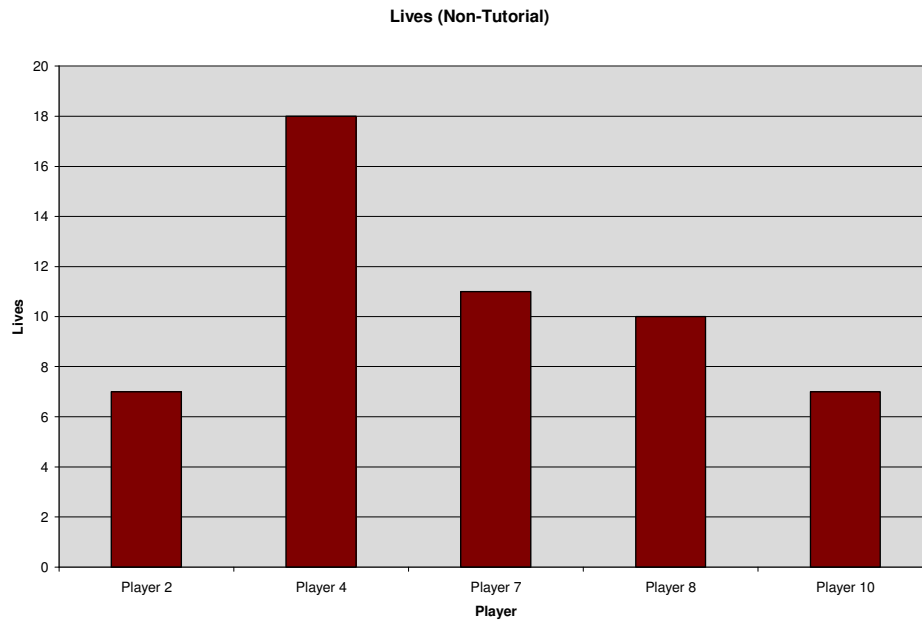
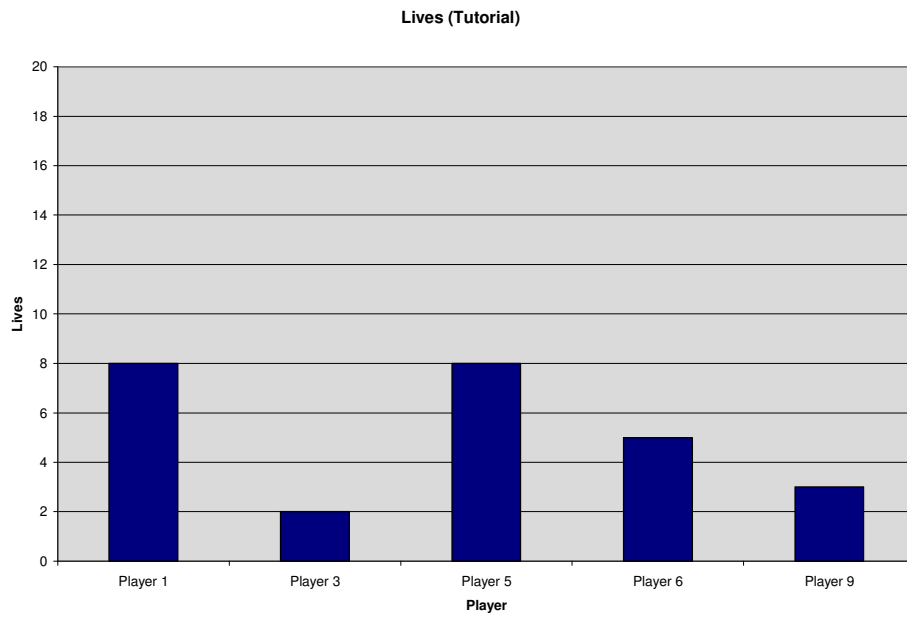
The final portion of the tutorial allows players to use the skills that they had learned to accomplish a goal, in this case stealing an item. We feel that this was a very good way to allow players to develop their own strategies; however this portion of the tutorial did not require many of the skills covered in the tutorial. Most of the skills that the players in the tutorial group did not use in the final portion of the tutorial were also not used in level three. If the tutorial had included more sections that allowed the players to think creatively, they may have been more creative in their approach to problems later in the game.

In summary, we have found that tutorials are effective in teaching players the basic play style of the game. More importantly, players learn key elements of game play from tutorials, but the tutorial designers should be aware of exactly what it is that they are teaching. Furthermore, aspects of game play that are not emphasized through the tutorial are often overlooked by players that use the tutorial. An effective tutorial is one that teaches the player the game's basic elements, in addition to the importance of developing additional skills on their own.

Appendix A: Charts

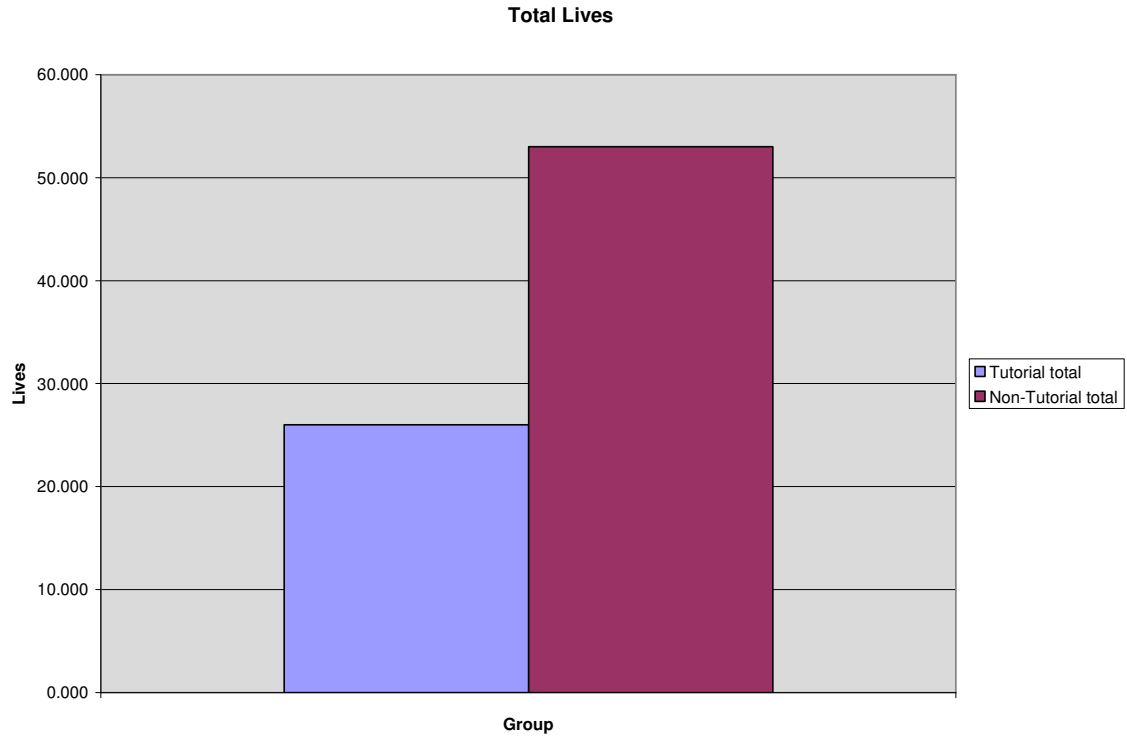
A.1

Total Lives of Players by group



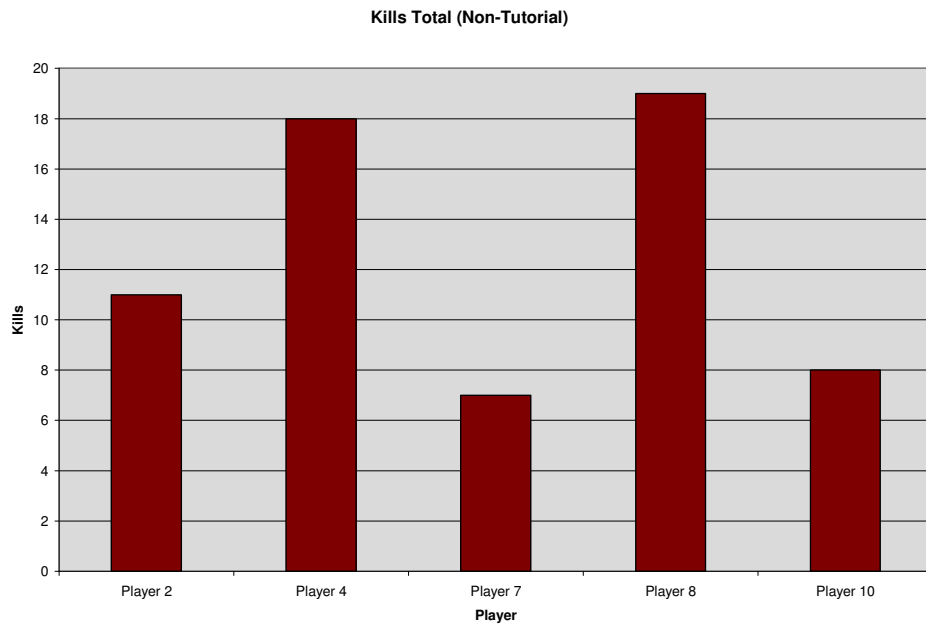
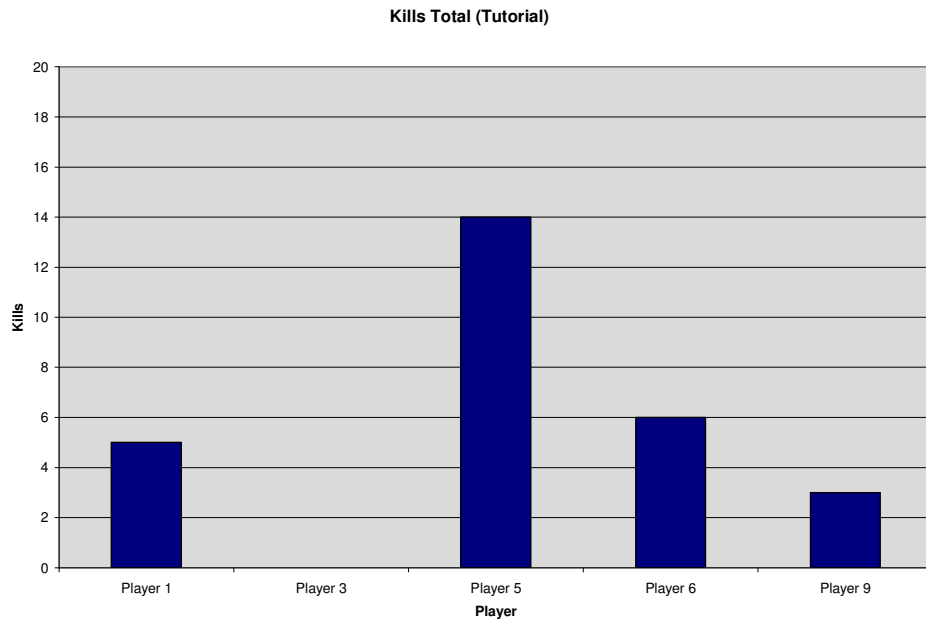
A.2

Average Lives of Players per group



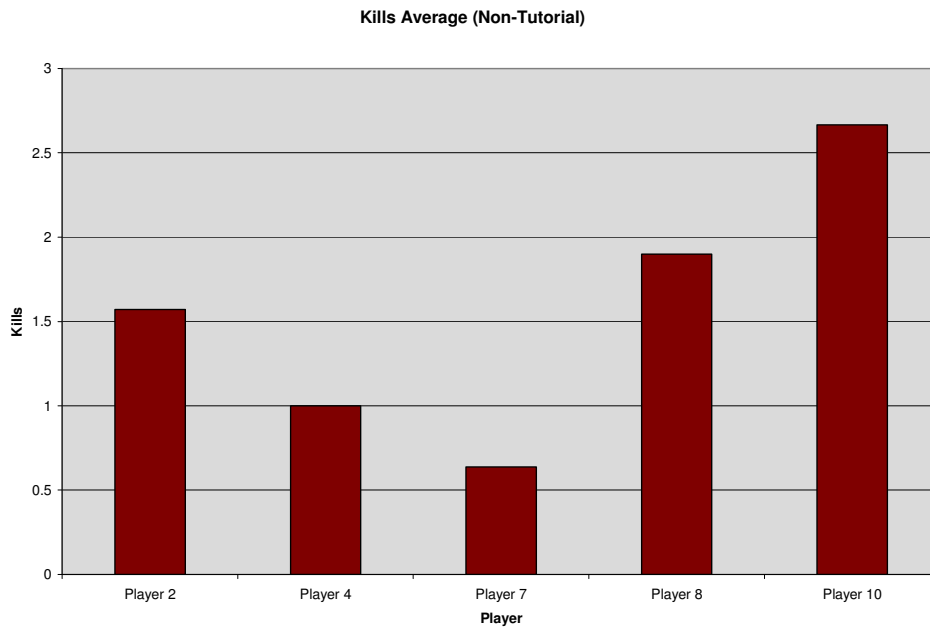
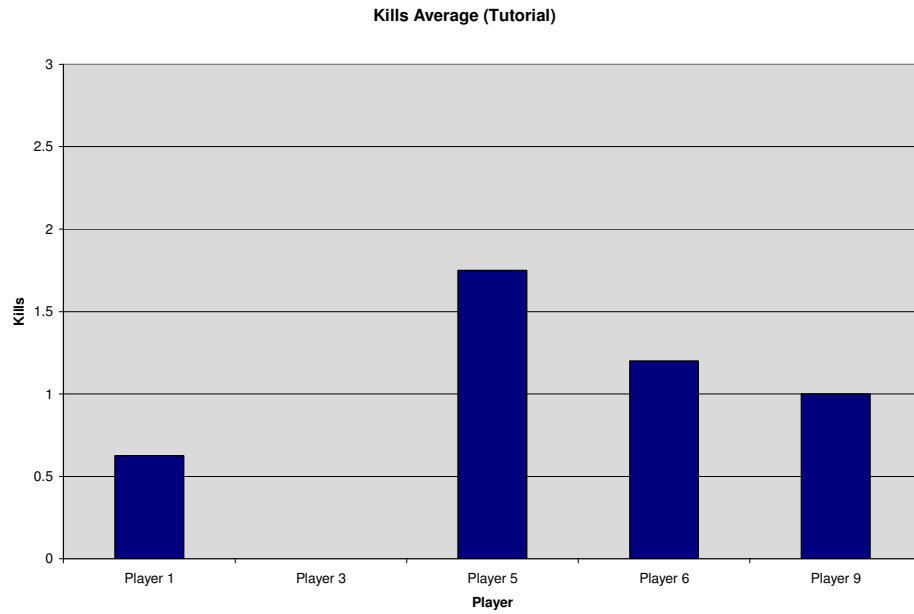
A.3

Total Kills per Player by group



A.4

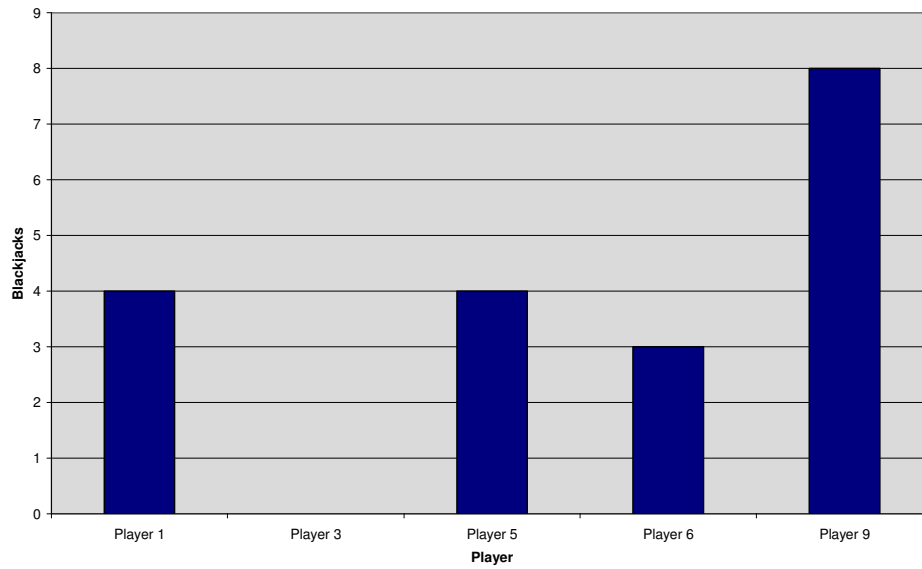
Average Kills per Player by group



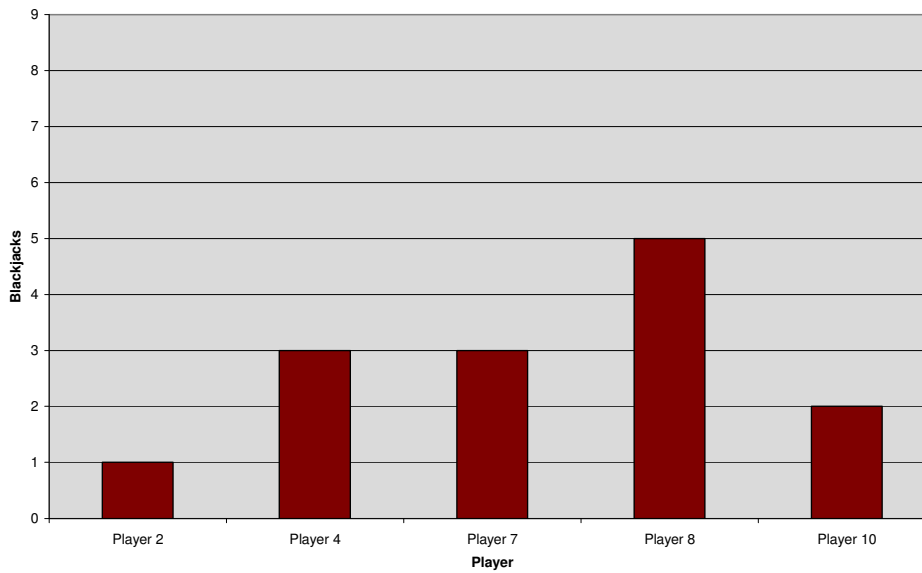
A.5

Total Successful Uses of the Blackjack per Player by group

Blackjacks Total (Tutorial)



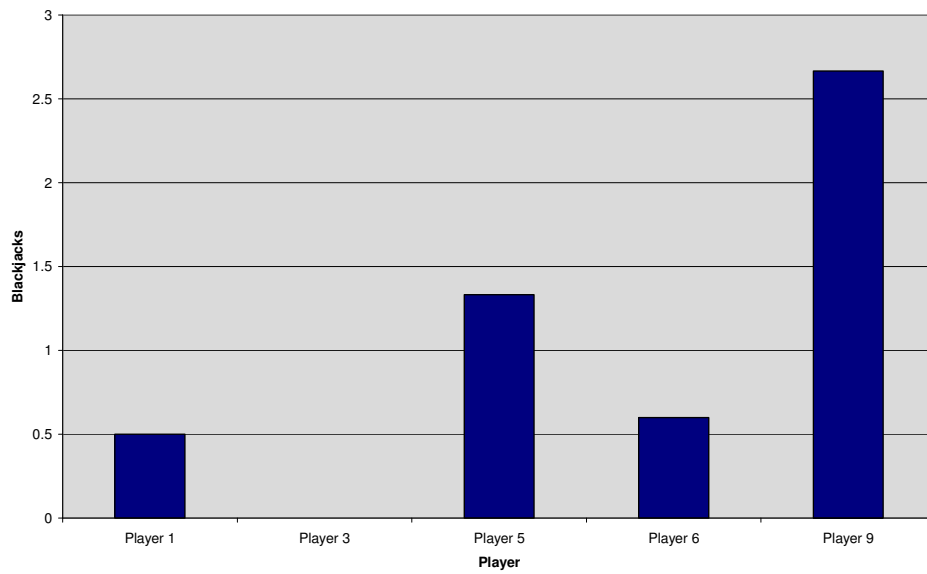
Blackjacks Total (Non-Tutorial)



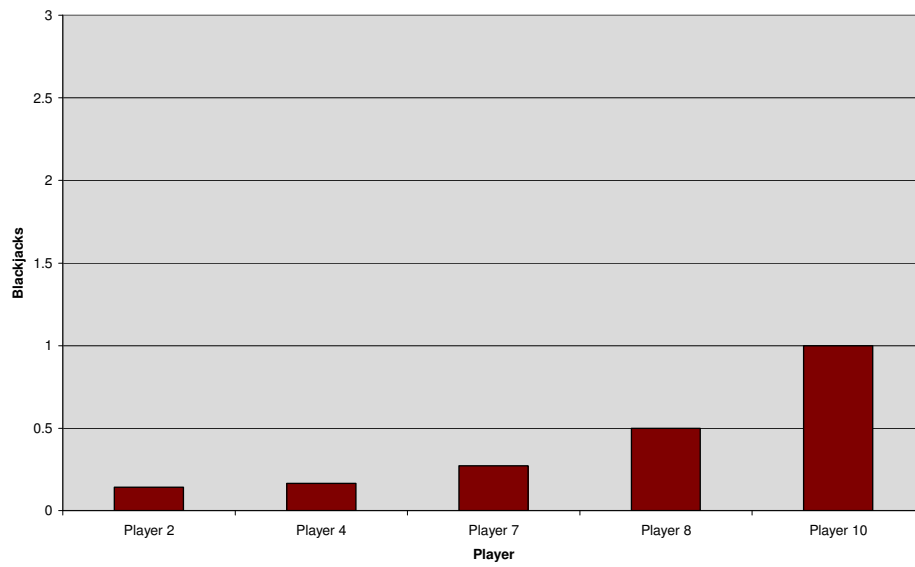
A.6

Average Successful Uses of the Blackjack per Player by group

Blackjacks Average (Tutorial)



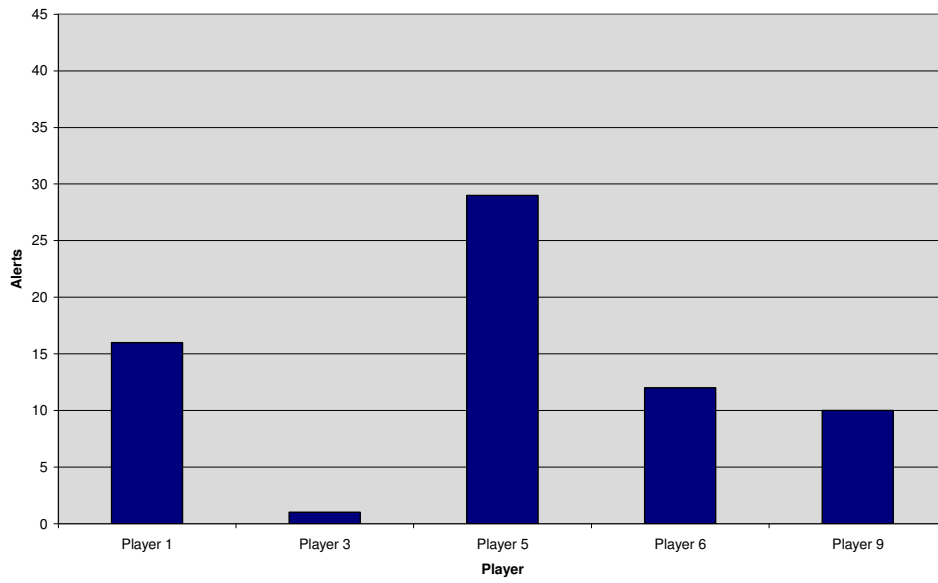
Blackjacks Average (Non-Tutorial)



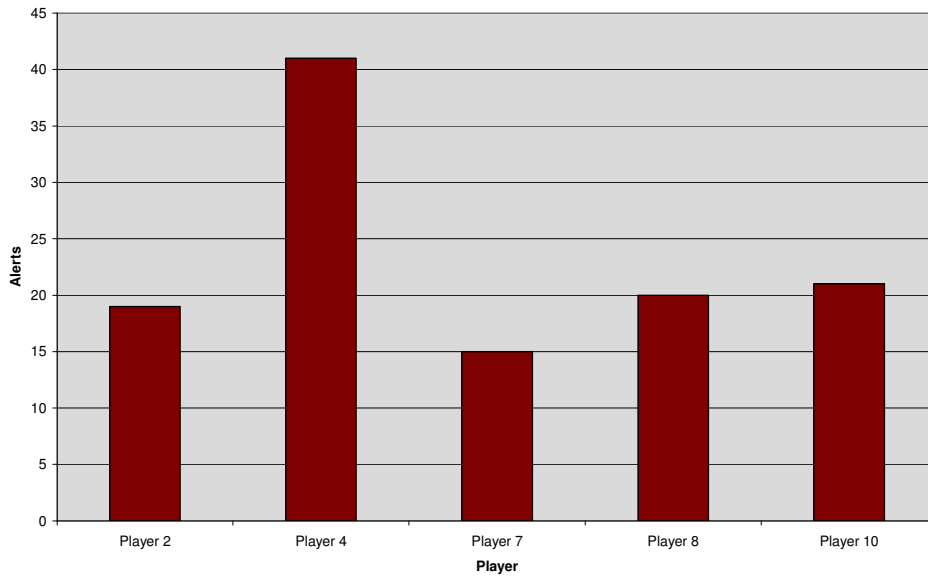
A.7

Total Guards Alerted per Player by group

Alerts Total (Tutorial)



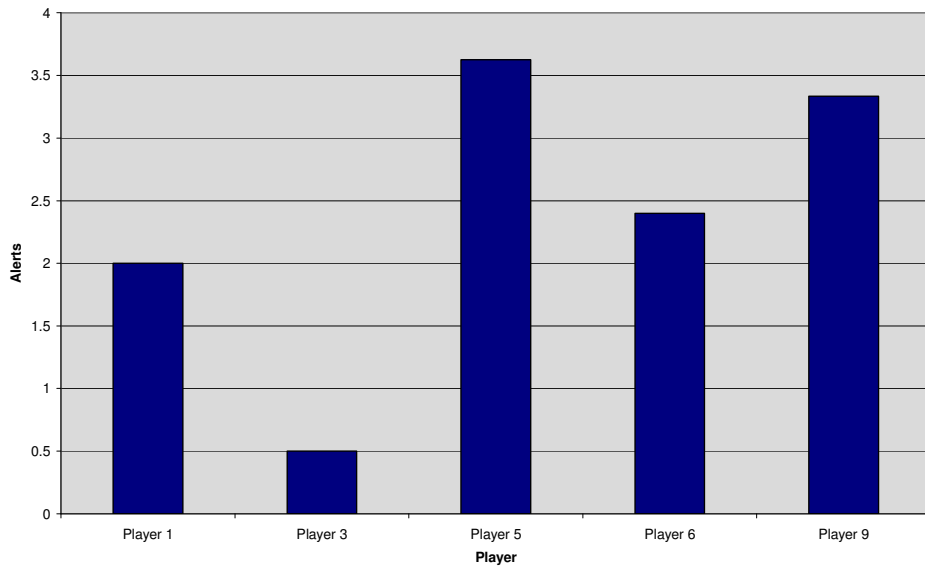
Alerts Total (Non-Tutorial)



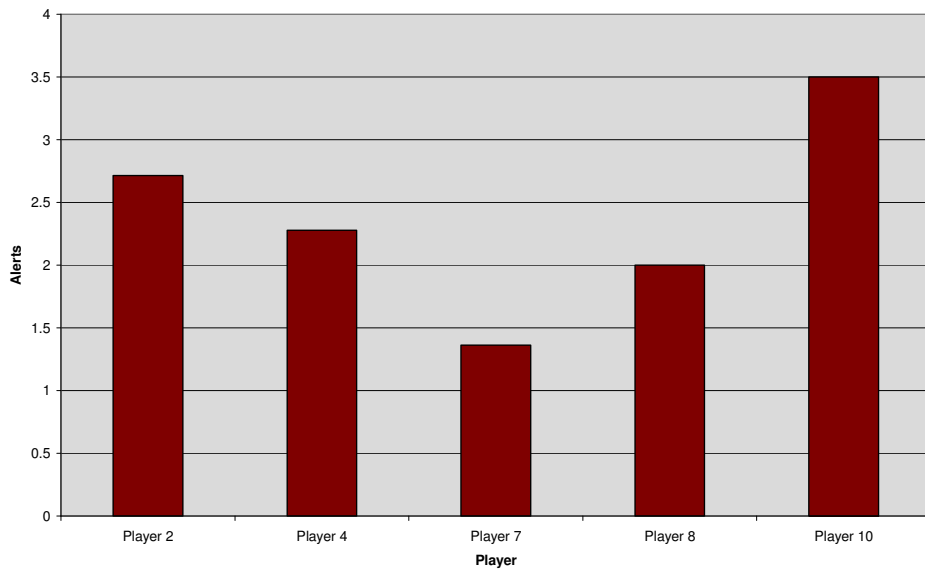
A.8

Average Guards Alerted per Player by group

Alerts Average (Tutorial)

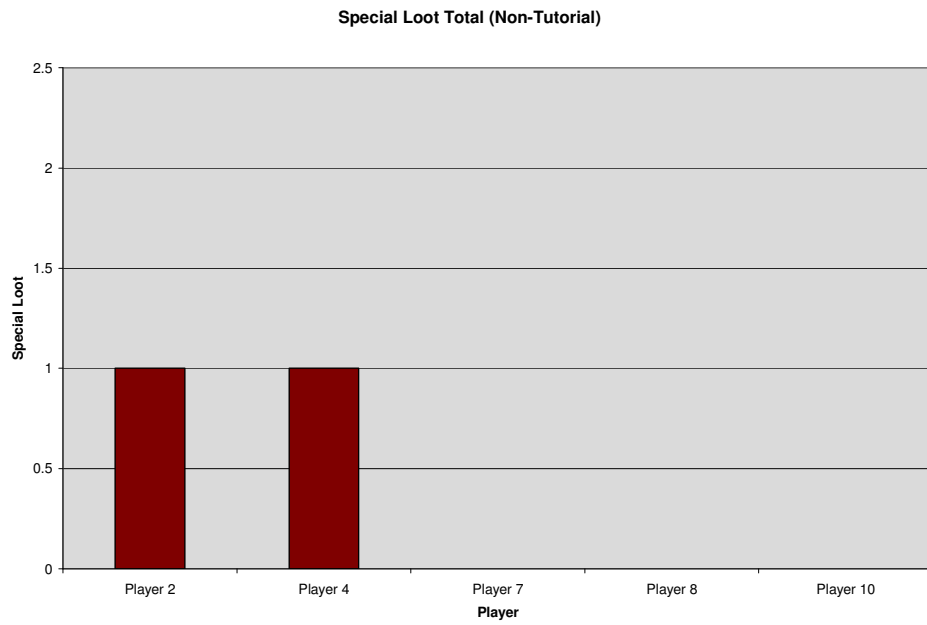
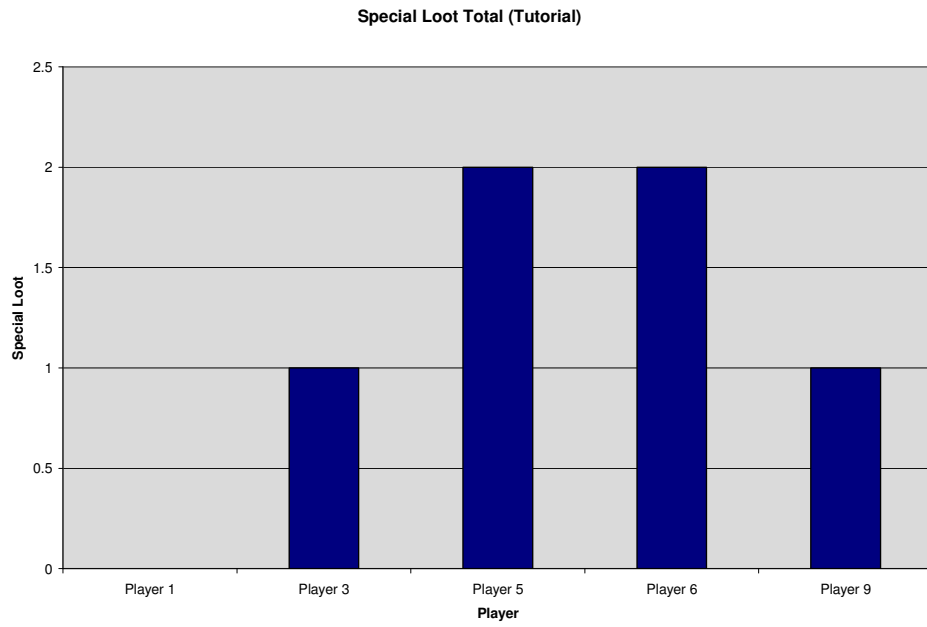


Alerts Average (Non-Tutorial)



A.9

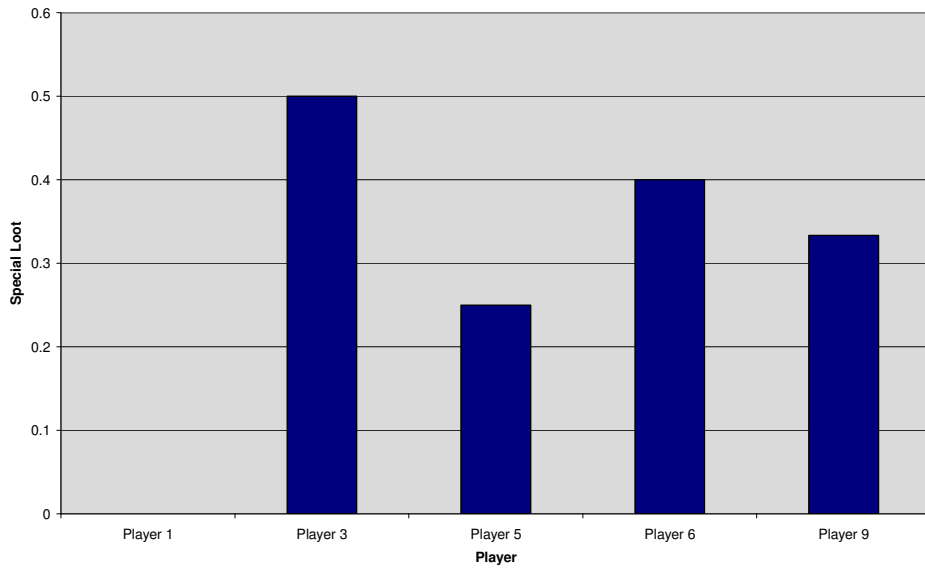
Total Pieces of Special Loot Collected per Player by group



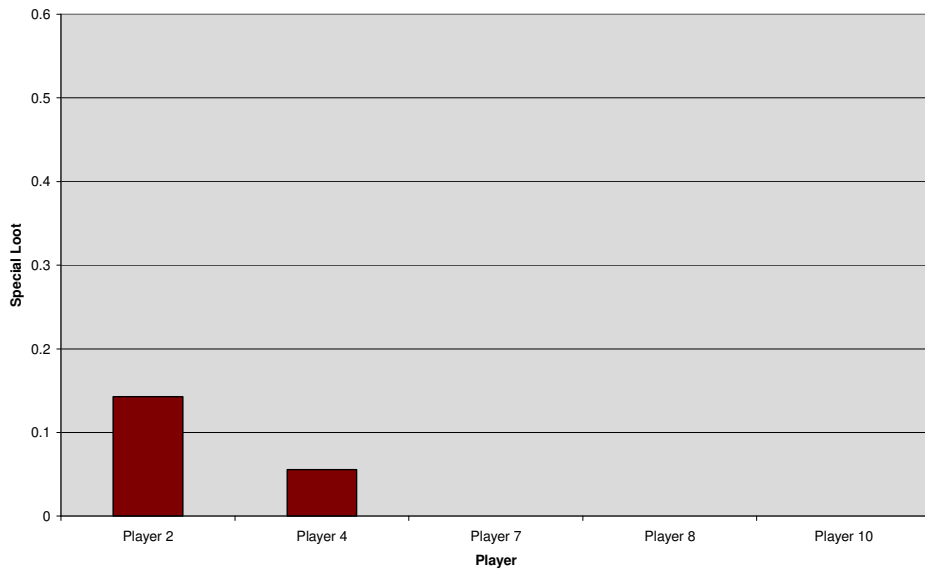
A.10

Average Pieces of Special Loot Collected per Player by group

Special Loot Average (Tutorial)

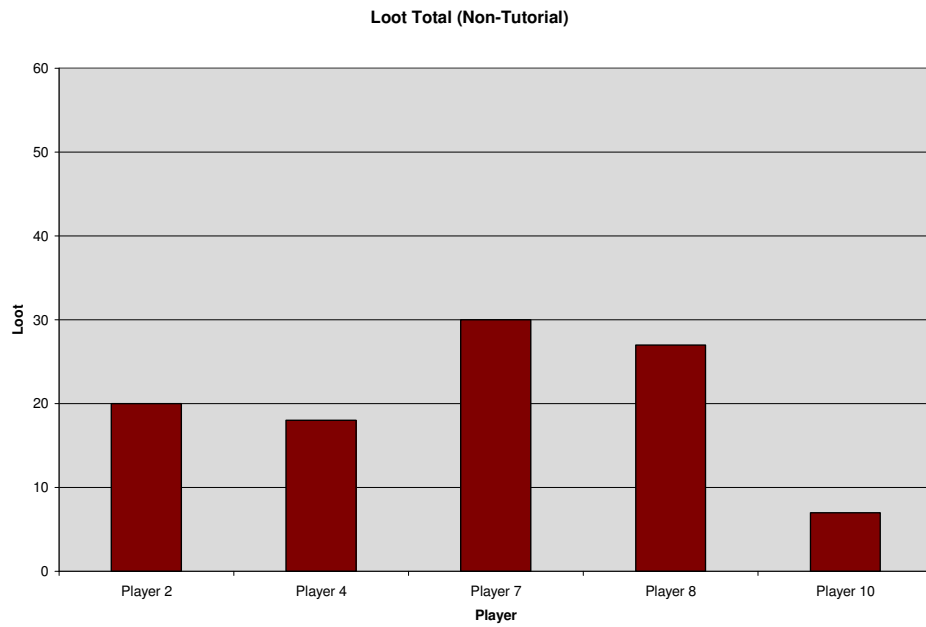
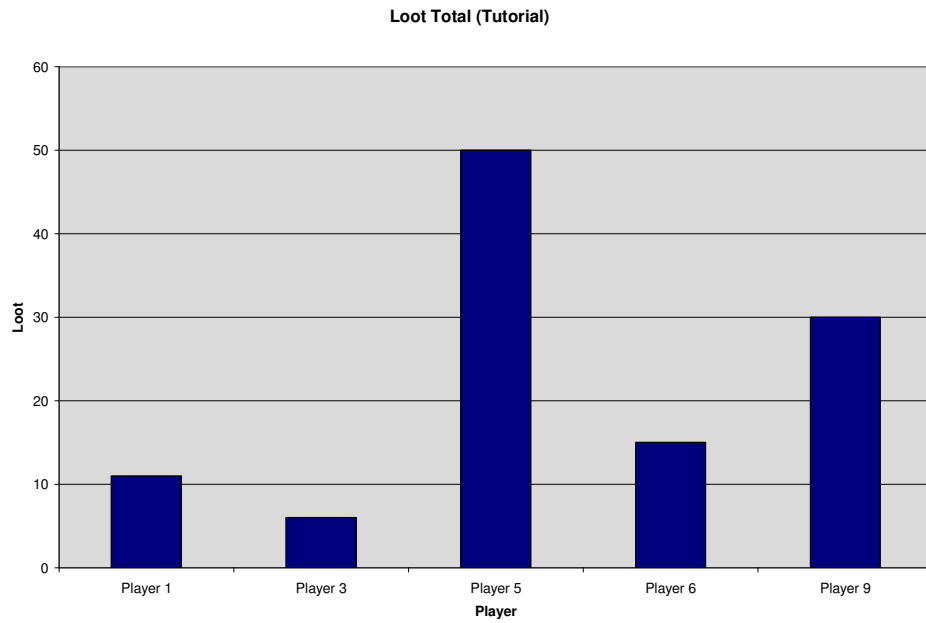


Special Loot Average (Non-Tutorial)



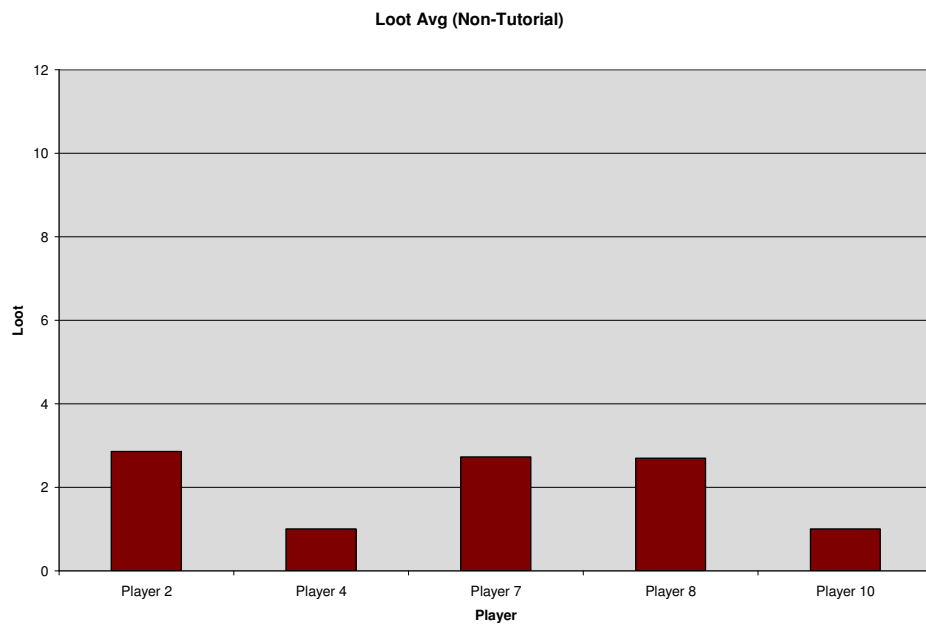
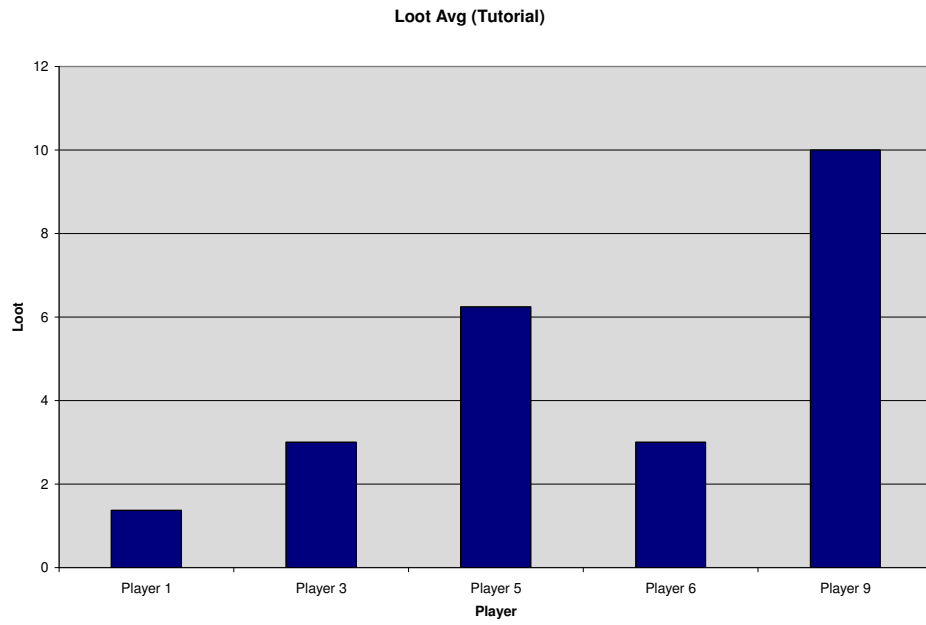
A.11

Total Pieces of Loot Collected per Player by group



A.12

Average Pieces of Loot Collected per Player by group



Appendix B: Surveys Used

B.1 Initial Questionnaire

Game Study Questionnaire

Name: _____

E-Mail: _____

Release Information

This questionnaire helps us identify candidates for a study on video games. If you are selected to, and choose to, participate, you will donate an hour of your time to playing a video game and then be asked some questions about the game and your gaming experience.

The following questionnaire is voluntary, and you may choose not to participate in it. You may omit answers to any questions you choose, however only completed questionnaires will be reviewed. Your name and e-mail may be used once the data is analyzed so that we can contact you about participation. Your name or e-mail will not be released to any third party or for any other use, nor will it be used to affect the outcome of our results. By submitting this questionnaire you agree to the release of this information contained on this survey.

1.) Which of the following games (or series) have you played? (check all that apply)

- Metal Gear Solid
- Final Fantasy
- World of Warcraft
- Half-Life
- Thief: Deadly Shadows
- Doom
- Soul Calibur
- Steel Battalion
- Starcraft
- Counter-Strike
- Zelda
- Quake
- Splinter Cell
- Unreal

2.) How many hours a week do you spend playing video games?

- 0-1 hours
- 2-5 hours
- 6-10 hours
- 11-20 hours
- 21 or more hours

B.2 After Session Survey

Game Study Survey

Name: _____

Release Information

The following survey is voluntary; you may choose not to participate in it. You may omit answers to any questions you choose, however only fully complete questionnaires will be accepted. Should you choose not to complete all of the questions, we will consider all data gathered from your test session to be invalid. Your name will be used only to organize your session data and survey information. Although the survey and session results may be presented publicly, your personal information will never be included nor associated with the results.

Thief: Deadly Shadows

1.) On a scale of 1 - 5 how difficult did you find this game?

- 1 (Very Easy)
- 2
- 3
- 4
- 5 (Very Difficult)

2.) What aspects of this game, if any, did you find difficult?

3.) What do you feel could be done to make these aspects less difficult?

4.) On a scale of 1 - 5, how much did you enjoy this game?

- 1 (Not Enjoyable)
- 2
- 3
- 4
- 5 (Very Enjoyable)

Gaming Background

- 1.) How would you rate your skill level as a gamer?
 - Unskilled
 - Somewhat skilled
 - Skilled
 - Expert

- 2.) On a scale of 1 - 5, how much experience do you have with video games?
 - 1 (Little)
 - 2
 - 3
 - 4
 - 5 (Veteran)

- 3.) How do you think that your gaming background helped prepare for this game?

- 4.) What types of games do you usually play? (check all that apply)
 - Platformers
 - First Person Shooters
 - Role Playing Games
 - Sports
 - Action
 - Fighting
 - Simulation
 - Strategy
 - Puzzle

Demographic

- 1.) Gender
 - Male
 - Female

- 2.) Year
 - Freshman
 - Sophomore
 - Junior
 - Senior
 - Other (specify) _____

- 3.) Major

B.3 Informed Consent Document

Informed Consent to Take Part in a Research Study

Title of Project: GTIQP

Investigators: Scott Glajch, James Tyrrell, Aaron Shea

Project Advisor: Professor David Finkel

Project Sponsor: Professor James Doyle

Purpose of Study

The purpose of this study is to gather information about the learning procedures of players in video games and the effectiveness of different aspects of video games.

Experimental Protocol

You will be asked to play *Thief: Deadly Shadows* for approximately one hour. During this time your scores will be recorded as well as your game play via a video camera. You will be asked to play two levels of the game. If in an hour you have not completed these two levels we will ask you to stop at your next death.

Risks

We do not foresee any risk associated with this research study.

Participation

Your participation in the study is voluntary. You are free to withdraw consent and discontinue participation at any time. You are free to seek further information regarding the experiment at any time. The project investigators retain the right to cancel or postpone the experimental procedures at any time they see fit.

Confidentiality

Though this information will be used in our study and report, it will never be associated with your contact information or your identity. You will be referred to by player number, and the matching of the player number to name and email will be confidential. Your information will only be used to contact the teacher of your class to indicate that you have completed the study for extra credit. By signing this you give us the right to use the video footage of the game play, and to have the footage available to other projects wishing to build off this project. The name to player number records will be destroyed at the end of the term.

Withdrawal

Data obtained in this experiment will become the property of the investigators and WPI. If you withdraw from the study, data already collected will remain in the study.

Initials _____

Volunteer's Statement

I have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. I may contact Dr. Clancy if I have any more questions about taking part in this study.

I understand that my participation in this research project is voluntary. I know that I may quit the study at any time without losing any benefits to which I might be entitled. I also understand that the investigators in charge of this study may decide at any time that I should no longer participate in the study.

If I have any questions about my rights as a research subject in this study, I may contact Mr. Michael J. Curley (University Compliance Officer) at (508) 831-5519.

By signing this form, I have not waived any of my legal rights.

I have read and understand the above information. I agree to participate in this study. I have been given a copy of this signed dated form for my own records.

Study Participant (Signature)

Date

Print Participant's Name

Director (signature)

Date

B.4 Key Map

Key Map for Thief 3: Deadly Shadows

Interact - *Right Mouse*

Use Weapon - *Left Mouse*

Use Item - **I**

Forward - **W**

Left - **A**

Back - **S**

Right - **D**

Jump - **Spacebar**

Weapon Select

BlackJack - **1**

Dagger - **2**

Broadhead Arrow - **3**

Water Arrow - **8**

Moss Arrow - **6**

Fire Arrow - **4**

Gas Arrow - **5**

Noisemaker Arrow - **7**

Item Select

Oil Flask - **F5**

Holy Water - **F4**

Health Potion - **F3**

Gas Bomb - **F6**

Explosive Mine - **F2**

Flash Bomb - **F1**

Quick Save - **F10**

Quick Load - **F12**

Creep - **Ctrl**

Walk - **Shift**

Lean Left - **Q**

Lean Right - **E**

Zoom In - **Up**

Zoom Out - **Down**

View Map - **M**

Clear Item - **-**

Clear Weapons - **=**

Previous Item - *Left Bracket* **[**

Next Item - *Right Bracket* **]**

Previous Weapon - *Mouse Wheel Up*

Next Weapon - *Mouse Wheel Down*

View Objectives - **O**

Change Perspective - **V**

Crouch - **X**

Flatten Against Wall - **R**

Zoom With Bow - **Z**

B.5 Record Sheet

Life																	
Time Played																	
Loot Count																	
Special Loot																	
Max Loot %																	
Times alerted enemies																	
Times Killed																	
Enemies Avoided																	
Blackjacks																	
Kills																	
Locks Picked																	
Time of first lock pick																	
Objectives completed																	
Weapons used																	
Preferred weapon																	
Items used																	

Appendix C: Session Review Notes

C.1 Player 1: Tutorial Subject

Thief Survey Answers

- 1.) 5 for game difficulty. (1-5, 5 = very difficult)
- 2.) What aspects he/she found difficult: "Navigation"
- 3.) What could make the game less difficult: "Location of player on map."
- 4.) 4 for game enjoyment (1-5. 5 = very enjoyable)

Gaming Background Answer

- 1.) Skill level = Unskilled (from unskilled to expert)
- 2.) 1 for video game experience (1-5, 1 = little)
- 3.) How his gaming background prepared him for this game: "None I haven't played video games in about 5 years."
- 4.) What types of games does he/she usually play: None checked

Tutorial Level

- At the first guard, where you have to walk around the guard who has a light behind him, failed and was caught.
- After that player read the instructions on screen and snuck around the guard.
- Failed the walk/sneak trial once.
- Lockpicked in 3:00.
- Failed the blackjack once.
- Failed the jewel theft once.
- Failed the flashbomb once.

Final stats:

11 minutes
25% loot
3 times caught
1 blackjack
0 kills
0 stealth kills
0 civilian kills
1 lock picked
0 pick pockets
0 bodies found
16 damage taken
16 healing done

After initial failure, the player read all tutorial popups thoroughly.

Level 3

Life 1:

- Gets the first two pieces of loot outside the castle.
- Then fights the guard outside and dies after 1:45 of play time.

Life 2:

- Tries to lockpick before taking care of the guard and eventually is discovered. Then kills the guard with a dagger and not much health left.
- The lockpicking again took about 3 minutes.
- Once inside, the player kept to the shadows and walked most of the time.
- The player goes to well alley and is discovered.
- The player is killed (1 hit kill).

Life 3:

- Kills the guard outside directly this time and picks the lock in 25 seconds.
- Goes upstairs and kills a guard with a broadhead arrow on the ledge.
- Picks up the body but the player forgets he/she has body in his/her hands.
- The player is trying to figure out why he/she can't kill.
- Discovered up top and killed (1 hit kill).

Life 4:

- Blackjacked the guard outside.
- Lockpicks the door in 20 seconds.
- Kills the guard in backalley with one hit.
- The second guy in back alley, the mage, kills him.

Life 5:

- Went straight to lockpicking, skipping the guard.
- Still picks the lock quickly.
- Makes way to the priest room and gets 1 cup loot.
- Misses the cross (hammer).
- Water arrows a flame in the barracks, but this still alerts the guard.
- Tries to broadhead arrow the guard who found him/her but is killed in the process.

Life 6:

- Goes straight to lockpicking again, and finishes in less than 1 minute.
 - Gets a candle loot on the stairs.
 - Used the bell (randomly it seems) and then ran.
 - Jumps way down from ledge to well alley.
 - Gets a cup loot in well alley.
 - Goes through the crawl space and gets a gas bomb.
 - Also gets a loot sack right next to the gas bomb.
 - Also gets a loot pot near there.
-

- Blackjacks a guy in there and then reads a book.
 - Gets a new objective to go to the hammer factory, from reading that book.
 - Picks a level 5 lock in 27 seconds.
 - Quick saves at this point (we told player to between deaths).
-
- Blackjacks another guard in well alley, but seems pretty lost.
 - Gets discovered near the priest room, and switches from the blackjack to arrows, after getting hit once, the player runs.
 - Is rediscovered and gets killed.

Life 7:

- From quick save: Fails the blackjack on the guard this time, and kills the guard with a dagger, but only has 1 health bar left.
- Runs back to the beginning stairs, and gets discovered on top and runs, but dies.

Life 8:

- From quick save: Just runs around for a while.
- The well guard discovers the player, but the player runs that off.
- Gets discovered near the cathedral and runs inside, and lives.
- Is checking the map a lot at this point.
- Blackjacks a guard and keeps running.
- Picks up two shot glass loots (37% now).
- Lockpicks the level 5 locked chest in the priest room in 35 seconds.
- Reads the book inside but the computer freezes then and the player's session is over.

Total time (real time) on level 3 was 48 minutes.

General notes on his session:

Map starting point drawn incorrectly

No correlation between level position and map position

Lock picking – was using 3 dimensions when only 2 are necessary

Didn't use items – healing potions would have helped for instance.

Good use of arrows!

C.2 Player 2: Non-Tutorial Subject

Thief Survey Answers

- 1.) 4 for game difficulty. (1-5, 5 = very difficult)
- 2.) What aspects he/she found difficult: "Picking locks, stealth kills."
- 3.) What could make the game less difficult: "Explain how to do this stuff, tutorial maybe."
- 4.) 4 for game enjoyment (1-5. 3 = very enjoyable)

Gaming Background Answer

- 1.) Skill level = Skilled (from unskilled to expert (3 of 4 = skilled))
- 2.) 5 for video game experience (1-5, 5 = veteran)
- 3.) How his gaming background prepared him for this game: "I know the basic WASD setup for computer games, and I like Splinter cell games, so I know how to creep up on people"
- 4.) What types of games does he/she usually play: First Person Shooters, and Sports Games

Reads the level information and looks through inventory for about 5-10 seconds

Level 3

Life 1:

- Goes through weapons, then alerts the guard and tries to kill him with moss arrows.
- Dagers the outside guard to death.
- Tries to loot the body but the player doesn't pick it up.
- Lock pick takes 1 minute.
- After lock picking, doesn't go inside yet, goes back and tries to pick up the moss arrow but the player doesn't know how to pick it up.
- Then looks up and tries to jump up to the window for a while.
- After failing, the player goes inside.
- Opens all the doors first and then water arrows an unnecessary torch.
- Goes into the cathedral and listens for a while.
- Removes hands from the keyboard to look at the key map we gave the player.
- Goes to the objective screen.
- Then aims an arrow at someone but doesn't know how to un-load the bow so ends up shooting the arrow at the wall and wasting it.
- Goes back to the stairs and gets a candle loot.
- Puts out another two torches.
- Kills a guard via a dagger to the back of the head in the statue room.
- This time, picks up the body.
- Also gets the bag of loot that the guard dropped.
- Misses the special loot in the statue room.

- Tries to dagger to the back of the head another guard but misses.
- Ends up killing that guard with the dagger while only taking 1 hit.
- Gets a piece of loot upstairs.
- Reads a book upstairs for a while, shoots out another torch, and rings the bell, but the guard on duty there was already dead.
- Continues to walk around upstairs.
- Shoots another torch out in the cathedral.
- Tries a noise maker arrow, and stays back in the shadows.
- Eventually gets 2 cup loots from the table in the cathedral.
- Hits the guards in the cathedral twice in the shoulder with broad head arrows from the shadows, and then is discovered and gets killed by the fire mage. (Life time from 2:40 – 25:00).

Life 2:

- Kills the guard outside with a dagger to the back of the head.
- Moves the body slightly to try and loot.
- Finds the 2 pieces of loot outside.
- The guard up top hears the player get the kill, and the player looks to the balcony.
- Then the player goes to lock pick, which takes 3 minutes.
- After the people in the cathedral disperse, the player gets the New Note.
- Is almost discovered, and then misses the first water arrow to a torch in the cathedral. Hits the second time.
- Misses a dagger to the back of the head on a guard, but still kills the guard with a dagger after taking 1 hit.
- Gets the two cup loots on the table in the cathedral.
- Reads the book on the table.
- Goes to the well alley and gets a moss arrow.
- Puts out another two torches.
- Tries to get the dagger to the back of the head kill in the well alley but misses.
- Still kills the guard in two hits while taking no damage.
- Picks the barracks door in two minutes and reads the book on the bench to get the New Note.
- Puts out another torch.
- A guard notices this and runs away.
- A guard notices the player and kills the player, but before the player can die, reloads the map.

Life 3:

-
- Kills the guard outside in 2 hits with the dagger.
 - Lock picks the door in 1 minute.
 - Dagger kills the guard leaving the cathedral.
 - Quick saves here.
-
- Dagger kills the guard in well alley but also alerts the priest, who kills the player.

Life 4:

- Tries to get a dagger to the back of the head kill on the well alley guard, but misses, and alerts both the guard and the priest.
- The well blocks the priest's fire attacks for a while, but eventually they kill the player.

Life 5:

- Again tries to get a dagger to the back of the head kill on the well alley guard and misses, alerting both the guard and the priest.
- This time the player kills the guard before the priest finishes the player off.

Life 6:

- Tries to water arrow a torch and misses the first time but hits the second.
- Accidentally starts to climb the wall from well alley up to the ledge, but stops.
- Puts out another torch from halfway up to the ledge, and then gets down to get a cup loot outside the priest room.
- Runs by the priest in the priest room, but alerts the next room.
- Runs back through the priest room and alerts the priest as well.
- Lock picks the barrack doors in 1 minute while the guard tries to find him.
- In the barracks, the player water arrows a torch but alerts a guard and kills the guard with the knife while only taking 1 hit.
- Alerts another guard from a water arrow and kills him while only taking 1 hit.
- Picks up a healing potion, but alerts another guard and dies.

Life 7: (53 minute mark)

- Loads from the quick save and goes back from the well alley to the cathedral.
- Reads the book so he gets the new objective.
- Gets 2 cup loots from the table, and checks his objectives.
- Walks around upstairs for a while, water arrows a torch on the stairs, rings the bell, and gets the candle loot near the stairs on the bench.
- Walks back to well alley and puts out two torches, one by the priest room and one on the stairs towards the priest room.
- Gets 1 cup loot off the priest's table, and reads the note on the bed.
- Misses the hammer.
- Picks the chest's lock in 1 minute, reads the book inside, and gets the special loot inside. Then alerts a guard, but eventually the guard goes back.
- Puts out another torch, and gets a healing potion.
- Then in the bed room, the player blackjacks the sleeping priest, gets two cup loot in the bedroom, and goes to look at inventory.
- Then the game freezes at 1 hour and 2 minutes in.

Total time (real time) on level 3 was 1 hour.

General notes on his session:

- Used the water arrows well.
- Tried the moss arrows.

- Knifed to the back of the head a lot.
- Had played Morrowind and Splinter Cell.

C.3 Player 3: Tutorial Subject

Thief Survey Answers

- 1) 4 for game difficulty. (1-5, 5 = very difficult)
- 2) What aspects he/she found difficult: “The controls were hard to get used to, moving with the keyboard and moving the camera with the mouse and using other keys to select items.”
- 3) What could make the game less difficult: “Make some of the item keys a little closer to the movement keys maybe to allow a little more reaction time.”
- 4) 3 for game enjoyment (1-5. 5 = very enjoyable)

Gaming Background Answer

- 1) Skill level = Somewhat skilled (from unskilled to expert)
- 2) 3 for video game experience (1-5, 1 = little)
- 3) How his gaming background prepared him for this game: “I’m used to movement with wasd keys and things like numbers being used as item selection, but I don’t have too much experience with keyboard controls in general.”
- 4) What types of games does he/she usually play: Platformers, RPGS, Fighting, Strategy, Puzzle

Tutorial

Life 1

- Player moves very stealthily
- Looks around a lot, analyzes surroundings
- Waits for second guard to walk by twice
- Reads thoroughly through all in game messages
- Looks at water arrow, does not pick it up
- Lock pick attempt finishes after 55 seconds
- Reads the book
- Reviews overhead map
- Picks up 1 cup of loot upstairs
- Picks up 1 candle loot upstairs
- Waits a long time before entering the final room of the tutorial
- Picks up bottles in final room
- Throws a bottle at an enemy, objective failed

Life 2

- Fails flashbomb objective, tries to hit the ‘1’ key but fails (2 times)
- Completes tutorial successfully

Statistics:

Locks picked: 1
Time Taken: 11 minutes
Health taken: 32
Loot percentage: 37%
Times caught: 3

Blackjacks: 1
Damage taken: 38

Level 3

Life 1:

- Checks map immediately
- Picks up 1 moss arrow
- Picks up 2 cups loot
- Looks around outside area
- Checks map again
- Hides in corner
- Avoids main entrance guard
- Starts picking front door
- Completes lock picking in 30 seconds
- Alerts guard before entering door
- Fights guard with dagger
- Dies

Life 2:

- Uses water arrow to extinguish torch at front door
- Picks front door lock
- Completes lock picking in 40 seconds
- Goes up stairs to bench room
- Picks up 1 candle loot
- Reads book
- Checks map
- Check objectives
- Goes to bell tower
- Rings bell
- Alerts guard outside bell tower
- Runs to statue room
- Throws a flash bomb at the guard
- Runs away to 2nd floor of cathedral
- Puts out torch on balcony
- Picks up 1 candle loot
- Goes to 1st floor cathedral
- Read bible
- Walks back to balcony
- Goes back to first floor
- Goes to well alley
- Gets water arrow from well
- Returns to starting area
- Gets moss arrow

- Gets 2 cups of loot
- Goes back to cathedral
- Goes up stairs to bench room
- Goes to cathedral 2nd floor
- Avoids guards on balcony
- Goes to statue room
- Wanders around 2nd floor for a while
- Gets special loot item from statue room

Total time (real time) on level 3 was 43 minutes and 28 seconds

C.4 Player 4: Non-Tutorial Subject

Thief Survey Answers

- 1.) 2 for game difficulty. (1-5, 5 = very difficult)
- 2.) What aspects he/she found difficult: "Figuring out what to do"
- 3.) What could make the game less difficult: "More of an on-screen guide."
- 4.) 3 for game enjoyment (1-5. 5 = very enjoyable)

Gaming Background Answer

- 1.) Skill level = Somewhat Skilled(from unskilled to expert)
- 2.) 4 for video game experience (1-5, 1 = little)
- 3.) How his gaming background prepared him for this game: "Controls mostly"
- 4.) What types of games does he/she usually play: Platformers, FPS, Sports, Fighting

Level 3

- The player does not read the briefing

Life 1:

- Runs right at the first enemy with moss arrows, and uses all of them
- Did not look at what weapon the player had
- Uses a moss arrow, and runs passed the guard
- Picks up 1 loot
- The guard runs off and opens the door to the cathedral for the player.
- Runs past the guard straight into the cathedral, with no weapon out
- Gets killed

Life 2:

- Walks slowly past the guard
- Picks up one moss arrow and 2 loot
- Runs past the guard again
- Tries to shoot a moss arrow at the guard, but misses
- Runs in and uses a moss arrow point blank
- Uses all of his moss arrows
- Switches to the dagger
- Fights the guard and kills him with the dagger
- The player has 30% of health remaining
- Picks up the body and puts it back down
- Uses a health potion
- Picks up the key that the guard dropped
- Goes to the cathedral
- Goes to the well alley
- Picks up a water arrow from the well
- Hides in a corner and waits for a guard to pass by

- Runs past the guard, into the barracks
- Starts lock picking the door of the barracks
- Picks the lock in 2 minutes and 18 seconds
- Reads a letter in the barracks and gets a new objective
- Sees 2 guards in the room nearby
- Turns around and goes to the second floor of the cathedral
- Quicksaves
- Goes through the crawlspace into the bunk room
- Alerts a guard
- Runs around behind the guard
- Fights the guard and kills him with the dagger
- Moves the guard's corpse
- Goes to the priest room
- Picks up 1 cup of loot
- Does not see the holy relic
- Reads a letter on the bench
- Exits to the well alley
- Reads a note on the cathedral wall
- Enters the cathedral via the side entrance
- Gets 1 loot in the cathedral
- Goes to the back alley
- Alerts 2 guards in the alley, and tries to run away
- Does not escape, and is killed

Life 3:

- Loads from a quick save
- Goes to the gas bomb room
- Picks up a gas bomb
- Alerts a guard
- Gets killed

Life 4:

- Loads from a quicksave
- Goes to the crawlspace
- Alerts a guard
- Kills the guard, and has 10% of his health remaining
- Goes through the crawlspace
- Alerts a guard
- Hides in the crawlspace
- Goes to the barracks
- Kills sleeping guard
- Alerts guard
- Guard kills player

Life 5:

- Loads from a quicksave
- Cycles through weapons
- Selects blackjack
- Goes through crawlspace again
- Closes the door behind the player
- Shoots a noisemaker arrow at the sleeping priest
- Alerts several guards due to the noise, and wakes up the priest
- The guards kill the player

Life 6:

- Loads from a quicksave
- Goes to the gas bomb room and gets some bombs
- Runs into a guard outside
- Gets killed by the guard with a knife

Life 7:

- Loads from a quick save
- Goes to the Priest's room
- Enters the library hallway
- Bumps into a guard
- Engages the guard with dagger
- The player has 20% of health left
- Wakes up the sleeping guard, kills him with the dagger
- Picks up the priest's staff
- Wanders around the cathedral for a while
- Drops the priest's staff
- Sees a guard on the second floor
- Sneaks up behind the guard, kills him in 1 backstab
- Goes to the gas bomb room
- Gets killed by a guard in the room

Life 8:

- Does not load from quicksave
- Restarts from beginning of level
- There is no guard out front this time
- Wanders the outside area, looking for a guard
- Picks up 1 moss arrow and 2 loot
- Picks the front door's lock in 1:55
- Goes to the second floor balcony
- Alerts a guard, and kills the guard in 2 hits
- The player has 90% of health remaining
- Does not pick up the guards loot
- Goes to the statue room

- Gets a New Note from listening to the conversation going on in the cathedral
- Goes to the bell tower room and rings the bell
- Looks around, rings the bell again
- No guards come because the player has already killed the one that investigates the noise
- The player quicksaves
- Walks around the cathedral area
- Walks into guards on the 1st floor of the cathedral
- Alerts all guards in the cathedral, kills 2 of them
- Gets killed by a priest

Life 9:

- Loads from a quicksave
- Blackjacks a guard in the cathedral
- Picks up 2 loot from the cathedral table
- Goes to the priest room
- Sees a guard, walks away
- Approaches the guard again, tries to black jack him
- Alerts another guard
- Gets killed by guard

Life 10:

- Loads from a quick save
- Bumps into a guard in the cathedral
- Tries to black jack the alerted guard
- Gets killed

Life 11:

- Loads quicksave
- Bumps into a guard in the cathedral
- Tries to blackjack him again
- Quick loads before the guard kills the player

Life 12:

- Blackjacks a guard in the cathedral
- Goes to the priest's room
- Black jacks a guard
- Tries to stab a priest, but gets hurt and flees
- Alerts another guard while running
- Gets killed by guard

Life 13:

- Loads from a quick save
- Backstabs a guard in the cathedral

- Runs toward the priest room
- Quicksaves
- Alerts a guard and priest
- Gets killed

Life 14:

- Kills a guard while going to the priest room in 1 hit
- Runs back to cathedral
- Quicksaves
- Alerts a guard in well area
- Gets killed

Life 15:

- Loads a quick save
- Alerts guard again
- Quick loads

Life 16:

- Goes to the priest room
- Quick saves
- Goes to the library hall
- Alerts a guard
- Quick loads

Life 17:

- Gets loot in library
- Tries to quicksave, hits wrong key
- Picks the lock on the chest in the priest room in 25 seconds
- Get the special item, 'Cat o' Nine Tails'
- Quick saves

Life 18:

- Alerts a guard in the library
- Kills the guard
- The player has 50% of health remaining
- Gets loot from the bunk room
- Enters the crawlspace
- Gets a gas bomb from the gas bomb room
- Picks up 1 loot
- Falls down an elevator shaft, and alerts an enemy
- Takes the elevator back up
- Picks up loot from the second floor of the cathedral
- Completes the loot objective
- Goes back to the priest room

- Quick saves
- Picks up a moss arrow from the well alley
- Sneaks behind a guard in the well alley
- Back stabs the guard
- Starts picking the barracks' door lock
- Completes in 20 seconds
- Backstabs the guard in the hallway
- Backstabs another guard in the gas bomb room
- Picks up a gas bomb
- Wanders around to the well alley
- Gets a water arrow from the well
- Goes back into the cathedral
- Picks up 2 loot
- Reads the bible on the altar
- Gets a new objective
- Wanders back into the priest room
- Quick saves
- Gets killed by the priest

Total time (real time) on level 3 was 59 minutes.

General notes on his session:

- Picks up locking very well after a few tries
- Learned to use the dagger effectively
- Did not use items much (except in beginning)
- Did not use arrows effectively
- Did not use shadows well

C.5 Player 5: Tutorial Subject

Thief Survey Answers

- 1.) 3 for game difficulty. (1-5, 5 = very difficult)
- 2.) What aspects he/she found difficult: "Finding objectives"
- 3.) What could make the game less difficult: "On screen indicators."
- 4.) 3 for game enjoyment (1-5. 5 = very enjoyable)

Gaming Background Answer

- 1.) Skill level = Skilled (from unskilled to expert)
- 2.) 4 for video game experience (1-5, 1 = little)
- 3.) How his gaming background prepared him for this game: "I play many action based First Person Shooters"
- 4.) What types of games does he/she usually play: All checked

Tutorial

Accidentally walks into the guard at the beginning of the tutorial.
Did not read the on screen instructions, but avoided the guard the next time
Violently moved the mouse during lock picking
Lockpicked in 2:57.
Failed the flashbomb once.

Final stats:

8 minutes
25% loot
1 times caught
1 blackjack
0 kills
0 stealth kills
0 civilian kills
1 lock picked
0 pick pockets
0 bodies found
5 damage taken
0 healing done

Level 3

Life 1:

- Reads / Listens to briefing (45 s)
- Looks through gear before starting
- Watches entire intro video
- Goes straight to first locked door
- Attempts lock pick
- Does notice lock diagram in bottom right corner of screen
- Gives up lock picking to hide from guard.
- Switches weapon to dagger

- Accidentally jumps behind guard, does not alarm him
- Backstabs guard
- 2 Loot
- 1 Key to front door
- Picks up dead body, accidentally drops it once.
- Picks up again, drops body in bushes
- 1 Health Vial
- Opens front door, Objective Complete
- Enters Well Alley
- Receives Well Water Arrow
- Stops to look at key map
- Backstabs guard in Well Alley
- Picks up corpse, drops in lit area
- 1 Loot (top of Well Alley Staircase)
- Enters Priest room
- 1 Loot
- Reads Priest's scroll
- Attempts to lock pick Priest check
- Moves mouse around violently not realizing the diagrams relation to the mouse movement (1 minute)
- Notices diagram, picked 2 rings in 30 s
- Gives up lock picking after 2 minutes
- Jumps on chest to grab hidden items
- 1 Loot
- Goes to painting hallway
- 1 Health Vial
- Alerts guard, attacked headon
- Kills 1 guard with knife
- Picks up body
- Kills sleeping civilian with knife, picks up body, drops on other bed
- Picks up civilians scepter, then drops
- 2 loot
- Picks up scepter again, accidentally throws scepter
- Carries scepter to crawlspace
- Uses wrong key multiple times to open crawlspace exit door, corrects key
- Shoots arrow at guard, 1 hit
- Shoots arrow at guard, 1 hit
- Changes weapon to dagger
- Kills guard with dagger
- Picks up scepter, carries to Gas Bomb Room
- Picks up gas bomb
- Reads scroll
- Picks up scepter
- Picks up gas bomb

- 1 loot
- Picks up scepter
- 1 Loot
- Picks up scepter
- Drops scepter at elevator
- Cycles through secondary-items
- Selects flash bomb
- Throws flash bomb off balcony
- Falls down elevator
- Flashes guard
- Attacks guard head on
- Dies

Life 2:

- Restarts from Beginning (14:30)
- Attempts to backstab guard, fails, fights guard
- Kills guard
- 3 Health
- Uses Health Vial (9 health)
- Picks up corpse, drops in bushes
- Hears another guard alerted, switches to knife
- 1 Moss arrow
- 2 Loot
- 1 Key
- Opens front door, Objective complete
- Goes through left door up stairs
- Stops mid way, turns around to close door behind the player
- Continues walking up stairs
- Looks at each entrance / corner before approaching
- 1 Loot
- Reads book on floor
- Continues walking on outside balcony
- Enters bell room, rings bell
- Alerts guard, fight guard with knife
- Dies

Life 3:

- Restarts from beginning (19:30)
- Sneaks up to first guard with knife
- Backstabs guard
- 2 loot
- Picks up corpse
- Drops corpse in shadow
- 1 Key (front door)

- 1 Moss arrow
- Opens front door (Objective complete)
- Walks into cathedral
- Notices enemies in center
- Cycles through weapons, selects moss arrow
- Shoots moss arrow at center
- Attacks enemies with Blackjack
- Dies (21:55)

Life 4:

- Restarts from beginning (22:30)
- Sneaks up on guard
- Swaps weapons, chooses blackjack
- Accidentally alerts guard, blackjack fails
- Shoots moss arrow at guard
- Blackjacks guard, attempt fails
- Switches to knife, fights guard head on
- Uses health vial during battle
- Shoots arrow to guard head, head shots, kills guard
- Moves body to shadow
- Picks up key
- 1 Health Vial
- 2 Loot
- Looks up to see if he has alerted any guard
- Opens front door (objective complete)
- Switches to moss arrow
- Enters cathedral
- Shoots moss arrow at center table
- Switches to broadhead arrows
- Shoots 1 guard 4 times, kills guard
- Switches to moss arrow
- Shoots moss arrow at guards
- Switches to dagger
- Attempts to stab 1 guard, is noticed by priest
- Starts running to well alley
- Continues to alert guards and runs to well alley staircase
- Enters priest room
- Read priest's scroll
- Obtains 'Holy Symbol': Objective Complete
- Attempts to pick priest's chest (26:03)
- Opens chest (26:43)
- Reads scroll inside
- Obtains Cat O' Nine Tails: Objective Complete
- Cycles through weapons after obtaining special item

- Reads scroll on bench
- Walks into guard in bunk room
- Runs from guard
- Runs into sleeping priest
- Priest attacks
- Dies (28:30)

Life 5:

- Restarts from beginning (29:03)
- Walks up to guard
- Changes weapon to blackjack
- Blackjacks guard
- Picks up key
- Knives corpse
- Corpse screams loudly, alerts guard overhead
- Picks up corpse, drops in bushes
- Picks up moss arrow
- 2 Loot
- Player looks up to see alerted guard, walks, then runs
- Opens front door (Object complete)
- Enters left door, runs up staircase
- 1 loot
- Reads book on bench
- Continues to top of stairs
- Notices guard, waits for guard to turn his back
- Falls back when guard walks to the player
- Guard notices the player
- Player runs from guard and switches to boadhead arrow
- Fires one shot, runs away
- Fires another shot in head, headshot, kills huard
- Picks up body, throws off balcony
- Picks up health vial
- Notices object on ground, attempts to retrieve, fails
- Leaves balcony
- Enter statue room
- Enters upper cathedral
- Switches weapon to water arrow
- Does not fire weapon, switches to blackjack
- Enters balcony again
- Enters upper cathedral Left
- Enters upper cathedral right
- Enters balcony
- Enters upper cathedral Right
- Player appears to be lost

- Obtains New Note by listening to priests in cathedral
- Fires broadhead arrow at guard, misses
- Switches weapon to noisemaker arrow
- Switches weapon to dagger
- Enters balcony
- Enters upper cathedral Left
- Cycles through weapons, to Noisemaker arrow
- Fires noisemaker at upper cathedral right
- Switches weapon to moss arrow
- Attempts to shoot arrow, falls down to cathedral floor
- Shoots moss arrow at guard in mid air, but lands on him, alerting guard
- Takes damage from fall and dies from guard

Life 6:

- Restarts from beginning (35:16)
- Sneaks up on guard
- Black jacks guard
- 2 loot
- Picks up corpse
- Drops corpse on cobblestone
- Picks up key
- Picks up corpse
- Drops corpse on bench
- Attempts to knife corpse on ground
- Does not know he must crouch to hit corpse
- Gives up, enters front door (Objective Complete)
- Enters cathedral
- Cycles through weapons
- Switches to Noisemaker Arrow
- Listens to priests in Cathedral
- Stays in shadows, listens to priests
- Aims noisemaker arrow at priest
- Receives New Note
- Fires noisemaker across room
- Reads bible in cathedral
- Leaves bible, guards closing in
- Fires another noisemaker across room
- Enters side alley quickly
- Guard and priest attack the player
- Switches to moss arrow
- Mosses both attackers, and makes way to Hammer Factory
- Cycles through weapons
- Switches to blackjack
- Reads book in Hammer Factory

- Cycles through weapons
- Selects blackjack
- Listens to guard conversation before proceeding to fire machine
- Triggers Bellows, kills guard
- Runs into guard, blackjacks head on
- Runs from guard, switches to Broadhead arrow
- Shoots guard 1 time
- Runs arrow bellows
- Shoots guard 1 time
- Runs around bellows
- Shoot guard last time
- Opens door to cage room
- Priest throws fireball at player
- Player dies (42:18)

Life 7:

- Player restarts from beginning (42:44)
- Sneaks up on guard with blackjack
- Blackjacks guard
- 2 loot
- Picks up corpse
- Drops corpse in bush
- 1 Key
- 1 Moss arrow
- Opens front door (Objective complete)
- Enters lower cathedral right
- Selects noisemaker
- Receives note after 2 minutes
- Fires noisemaker across room
- Selects broadhead arrow
- Reads cathedral bible
- 1 Loot
- Exits cathedral left
- Enters side alley
- Fires moss arrow at priest and guard
- Only hits priest, guard runs forward to attack
- Fires one more moss arrow at guard
- Guard and priest both stop
- Has alerted multiple enemies (5)
- Enemies chase him throughout backalley
- Continues firing arrows at enemies while running back and forth in alley
- Fires many broadhead, water, and moss arrows
- Does not kill many, enters hammer factory
- 1 Gas bomb

- Enters bellows
- Triggers bellow machine
- Kills one guard at bellows
- Enters hammer plate room
- Receives a New Note
- Goes up stairs to Suspension cage
- Notices suspension cage
- Opens door, notices priest
- Backs off and waits for priests arrival
- Side steps to peer around corner
- Enters room, priests back facing the player
- Accidentally touches priest, blackjack fails
- Switches to knife
- Kills priest
- Picks up priest's body
- Throws off balcony
- Picks up priest's scepter
- Throws scepter at another priest
- Shoots water arrow at priest
- Sneak up on alerted priest from behind
- Attempts to blackjack
- Blackjack fails
- Dies (50:04)

Life 8:

- Restarts from beginning (50:43)
- Sneaks up on guard
- Blackjack fails because the player touches guard
- Switches to knife and melees with guard
- Guard is aggravated
- Kills guard and continues to knife corpse
- 1 Key
- 1 Moss arrow
- 2 Loot
- Notices alerted guard above
- Switches to broadhead arrows
- Shoots guard through balcony rails (3 times)
- Kills guard
- Opens front door (Objective Complete)
- Enters well alley
- 1 Water Arrow @ Well
- Sneaks up on well guard with Blackjack
- Blackjacks guard
- Runs back to moss arrow Player previously saw

- Does not pick up corpse
- Goes up well stairs
- 1 Loot
- Enters Priest's room
- Receives Holy Symbol (Objective Complete)
- Attempts to pick lock on chest (53:36)
- Opens chest (54:00)
- Receives Cat O' Nine Tails (Objective Complete)
- Reads book in chest
- Picks up multiple items, throws them around room
- Switches to dagger
- Enters Painting hallway
- Leaves painting hallway (The player notices has died there twice)
- Enters Lower Cathedral Right
- Listens to priests conversation
- Does NOT receive New Note
- Fires noisemaker arrow across room
- Exits Cathedral left
- Enters side alley
- Throws noisemaker arrow at side alley guards
- Runs to hammer factory (56:34)
- 1 Gas bomb
- Enters bellows
- Activate bellows
- Switches weapon to blackjack
- Kills guard via bellows
- Enters hammer press
- Puts hammer in press
- Runs in guard
- Fires multiple arrows at guard
- Kills guard
- Continues through factory
- Noticed by guard, runs back to cathedral (58:14)
- Spawns directly in front of enemies that were chasing the player before
- Receives new note by reading cathedral wall
- Multiple enemies begin to chase player to front entrance
- Player can not open door and is cornered
- Player dies (59:00)

C.6 Player 6: Tutorial Subject

Thief Survey Answers

- 1.) 4 for game difficulty. (1-5, 5 = very difficult)
- 2.) What aspects he/she found difficult: “Stealth and knowing what to do / where to go”
- 3.) What could make the game less difficult: “Make it a bit more clear”
- 4.) 4 for game enjoyment (1-5. 5 = very enjoyable)

Gaming Background Answer

- 1.) Skill level = Skilled
- 2.) 4 for video game experience (1-5, 1 = little)
- 3.) How his gaming background prepared him for this game: “I had relatively no problem with the controls once I got accustomed to them”
- 4.) What types of games does he/she usually play: FPS, RPG, Fighting, Sim, Strategy, Puzzle

Tutorial:

Reads and listens to briefing 1 – 2 minutes
Reads objectives
Reads gear listing
Sound error occurred, player became paranoid
Alerted guard on second part of tutorial
Read instructions thoroughly
1:15 Lock picking time
Blackjacks innkeeper first try
Presses up against wrong wall
Noisemaker arrow used correctly
Checks objectives
Gets loot – 4x
Quick saves
Gets bag of loot easily
Uses flash bang correctly
Finishes level – 8 minutes

Level 3

Life 1:

- The player opens to objective and goal screens for an extended period of time.
- The player scans the gear descriptions thoroughly
- He sets 3rd person view after reading the key commands
- He avoids the first guard and begins picking the first lock
- While trying to pick the lock, alerts the guard behind the player
- Fights and kills the guard using his dagger. Then moves the guard’s corpse into the shadows.
- Does not pick up the key that the guard dropped on the ground
- Re-attempts to pick the front door lock. Finishes in 43 seconds.

- The player takes a left after the front door, and enters a stairway.
 - At the top of the stairs, picks up a candlestick loot from a bench.
 - Reads a book located on the ground
 - Accesses the map and objective screens once again
 - Continues up the stairs and blackjacks a guard on the balcony
 - Brings the corpse back down to the bench room.
 - Back on the balcony, the player picks up the loot the guard dropped.
 - Turns right from the staircase and enters the upper floor of the cathedral.
 - Enters the Statue Room and receives a Special Loot item. Objective Complete.
 - While exiting the 2nd floor cathedral, he overhears the enemies talking below him.
 - The player receives a special note from eavesdropping.
 - Continues through the second floor of the church, and finds an enemy on the other balcony.
 - Attempts to use his blackjack on this guard, but fails.
 - The player changes weapons to the dagger after realizing the blackjack does little damage
 - Kills the guard, but has only 1 hp left
 - Uses a health potion, bringing the player's health up.
 - Enters a small chapel and picks up some more loot.
 - On exiting, picks up the guards corpse and puts it in the corner of a room.
 - Continuing on second floor, sees a rope.
 - The player watches the rope, quick saves before making a decision.
-
- Activating the rope, the bell tower is alarmed.
 - The player runs out of the bell tower room, and enters the first floor of the cathedral.
 - Hides between pews, and is unseen by guards.
 - Loads the objectives screen again
 - Continues moving toward the center of the cathedral, and does not attempt to stay in the shadows.
 - Being in bright light, all three enemies located in the cathedral are alerted by his presence.
 - Is quickly killed by all enemies.

Life 2:

- Loads quick save
- Uses a health potion, and does not ring the bell this time
- Continues down the same path as before, but enters the cathedral only to exit at the side alley.
- Sees two enemies, and turns around back into the cathedral.
- Sneaks up to the center of the cathedral and reads a book on a pedestal
- After reading, notices a priest exiting the cathedral. Follows the priest and enters the Well Alley
- The player follows the priest all the way to a staircase in the Well Alley.
- The staircase leads to the Priest's room.

- The player quick saves before entering the priest room.
-
- Waits outside of the priest room, but is seen by a guard who is also traveling up the stairs.
 - Rather than fighting the guard, who has now alerted the priest, loads previous quick save

Life 3:

- Fires a broad head arrow at the guard, killing him in 3 shots. Then opens the Priest's door, alerting the priest.
 - Kills the priest with knife and has 50% of health left.
 - Picks up the loot in the priest's rooms
 - Opens the priest's chest in 20 seconds
 - Gets the Special Item, "Cat O' Nine Tails".
 - Reads a scroll on the priests bed
 - Checks the map, looks on the priests table, but does not see the 'Holy Relic' because it is not highlighted by the game.
 - Picks up a health potion and quick saves before leaving the Priest's room.
-
- Goes down the Well alley stairs, and blackjacks a guard near the well.
 - Carries the guard's corpse to the priest room and quick saves again.
-
- The player uses a health potion before entering the barracks below the Well Alley staircase.
 - Gets 2 cups of loot in the bunk room.
 - Enters the crawl space and finds an armory which contains 2 Gas Bombs and a jar of loot.
 - The player completes the Loot Objective by stealing 40% of the loot in the castle.
 - The player falls down the elevator right next to 2 guards.
 - Throws a flash bang to run away from them, and uses a health potion to recover falling damage.
 - Runs back to the Well Alley, up the stairs, into the Priests room.
 - Again, looks at objectives and the map, but is unable to find the 'Holy Relic' on the priest room's table.
 - Continues on to the library hallway, and finds some loot in there.
 - Alerts a guard in the well alley, and is forced to fight him with the dagger.
 - The player has 30% of his health left.
 - Picks up the Water Arrow resting on top of the well, and goes back through to cathedral into the side alley.
 - Waits for the enemies to separate, and fires a broad head arrow into one guard, killing him instantly.
 - Avoids the priest that was previously talking with the guard, and retrieves the guard's loot.
 - The player enters a new location called the 'Hammer Factory'
 - Gets 2 Gas Bombs and 4 Broad head Arrows
 - Enters the furnace bellow, and is met by a guard. Fights the guard but dies.

C.7 Player 7: Non-Tutorial Subject

Thief Survey Answers

- 1.) 1 for game difficulty. (1-5, 5 = very difficult)
- 2.) What aspects he/she found difficult: "Patience, quick saves are nice for that though. Also sneaking from behind"
- 3.) What could make the game less difficult: "Patience is a good thing, sneaking seems to be balanced that way."
- 4.) 4 for game enjoyment (1-5. 5 = very enjoyable)

Gaming Background Answer

- 1.) Skill level = Somewhat Skilled
- 2.) 2 for video game experience (1-5, 1 = little)
- 3.) How his gaming background prepared him for this game: "Patience in puzzle solving, learning to mess around to develop after technique"
- 4.) What types of games does he/she usually play: Platformers, RPG, Action, Fighting, Strategy, Puzzle

Level 3

Life 1:

- The player opened gear menu before starting the game.
- Read the descriptions of every weapon, and reviews the objectives and map.
- Then looked at the key map paper supplied to the player for several minutes.
- When the level began, the player selected the 3rd person view.
- Started the level moving very slowly, moving to the shadows away from the door and guard. Retrieved 2 pieces of loot near some bushes.
- The player also found a moss arrow in the bushes
- Apparently thought the 1 key was the attack key, which was in fact Left Mouse Click.
- The player tries to fight the guard with his blackjack, but dies

Life 2:

- The player selected his dagger this time, and retrieved the loots and arrow again.
- Waited outside in a shadowy corner until the guard's back was facing the player.
- The player stabbed the guard's neck with his dagger, killing the player.
- The player noticed the guard's key which was dropped onto the ground.
- Then crouches and walks to the front door, which takes a long time.
- Enters the cathedral instantly by using the guard's key.
- Once inside, runs into the cathedral and alerts a guard.
- The guard attacks the player. The player can not hit him much with the dagger and has much difficulty in controlling the mouse and keyboard.
- The player dies.

Life 3:

- The player starts again, quickly alerting the first guard. The guard is suspicious and begins to search for the player.
- The player hides in a corner. After waiting for a long period of time, the guard announces his apathy and returns to his normal patrol route.
- The player waits for the guard to stop again and daggers him in the back. Then picks up the front door key.
- After using the key to enter the cathedral, the player checks the map.
- Walks into the cathedral and sits in a corner. The player removes hands from the keyboard and mouse.
- After a while, the player regains control of the keyboard and mouse, and selects broadhead arrows.
- The player targets the mage with arrow, releases string, and kills him in 1 hit.
- The 2 remaining guards are now alerted to the player's presence and come for the player.
- The player begins fighting, and is able to kill one guard in 3 hits. The last guard comes for the player, but the player is unable to hit him with the knife.
- The player dies.

Life 4:

- The player gets the loot outside. Then fights the guard head on and kills him, but has only 50% of health remaining.
- The player picks up the guard's key and enters the cathedral.
- Tries to fire arrows at the enemies in the cathedral but misses 2 times.
- The 3rd shot hits a guard in the head, but the player accidentally hits the Windows Key and the game crashes.

Life 5:

- The player goes for the loot and arrows again.
- The first guard is alerted to the player and attacks the player. The player does not try to fight back, and waits for death.

Life 6:

- The player gets the loot and arrows outside again.
 - Quick saves outside.
-
- Just as before, the guard is alerted. The player does not try to fight back.

Life 7:

- The player loads from quick save.
- The player moves to a different hiding spot this time.
- Equips is bow and arrow, waits until the guard completes his patrol path, then shoots the guard in the head for a 1 hit kill.
- Moves the corpse and gets the key it dropped.
- Enters the church and takes a left up a staircase, entering a room with a bench and bookshelf.
- The player takes a candle stick of loot from the bench.

- The player continues through the church, using the added field of view from third person mode to see around corners.
- The player enters the bell tower and rings the bell once, and flees
- Hides in the shadows of the bell tower stair case.
- Turns back and enters the second floor of the cathedral.
- Tries to shoot a guard, but instead decides not to. The player is stuck with bow charged to fire an arrow and does not know how to cancel the action.
- While doing so, a guard is alerted to the player. The guard attacks the player, the player dies and does not fight back.

Life 8:

- The player loads quick save
- Walks into the first guard and tries to black jack him. Fails, and dies

Life 9:

- The player loads quick save
- Tries to stab the guard with dagger from behind, but fails. Does not fight back and dies.

Life 10:

- The player loads a quick save.
- Blackjacks the first guard, and takes his key.
- Enters the church and quick saves.

- Goes up the staircase and takes the loot on the bench
- Continues through the second floor of the church and enters the bell tower room. Rings the bell and flees.
- The player quick saves.

- Blackjacks a guard near the bell tower. Moves the corpse to the bell tower stairs.
- Wanders around the 2nd floor for a while, and finds the statue room.
- Reads a book in the statue room for a long time.
- Finds 1 loot in that room, and gets 1 loot in the 2nd floor cathedral.
- The player quick saves

- Tries to blackjack a guard on the 2nd floor balcony but fails. Does not fight and dies.

Life 11:

- The player loads from a quick save and wonders around upstairs for a while.
- Goes to the well alley and blackjacks a guard.
- The player quick saves.

- Gets a water arrow from the well, and retrieves a moss arrow on the ground.
- The player quick saves again

- Gets a cup of loot from the priests room
- Waits outside for a while
- Guards come out

- Waits some more
 - Guards go back in
 - Quick saves
-
- Looks inside again and waits
 - Runs away, enters the barracks
 - Tries to pick the barracks lock
 - Takes 1:15 to open the lock
 - Reads a letter in the barracks, obtains a new objective
 - Quick saves
-
- Alerts both guards in barracks, runs away to well alley
 - Runs laps around well area, with enemies chasing the player
 - Tries drive by blackjacks
 - Continues lapping around the well
 - One of the guards loses interest after 5 minutes of jogging
 - Wonders around
 - Gets a gas bomb in the barracks, reads the letter thoroughly
 - Gets another gas bomb and some loot.
 - Gets loot on the second floor.

C.8 Player 8: Non-Tutorial Subject

Thief Survey Answers

- 1.) 4 for game difficulty. (1-5, 5 = very difficult)
- 2.) What aspects he/she found difficult: “Weapon accuracy, finding my way around, completing objectives, knowing where enemies are”
- 3.) What could make the game less difficult: “Have a map on the bottom corner of the screen for navigation, + a radar to show enemy location, better sight on bow for aiming”
- 4.) 5 for game enjoyment (1-5. 5 = very enjoyable)

Gaming Background Answer

- 1.) Skill level = Somewhat skilled (from unskilled to expert)
- 2.) 2 for video game experience (1-5, 1 = little)
- 3.) How his gaming background prepared him for this game: “Not very well, I don’t usually play computer games because I like a controller for gaming, not very good with a mouse + keyboard for gaming.”
- 4.) What types of games does he/she usually play: FPS, Sports, Fighting, Strategy

Level 3

Life 1:

- Listens to the objectives and scrolls through the entire screen
- Starts the game 2 minutes 44 seconds into recording
- Notices a guard outside
- Selects the moss arrow weapon
- Shoots a moss arrow at the guard
- Guard begins to choke from the moss
- Player shoots 2 more arrows at guard
- Player switches to broadhead arrows
- Walks into lit area
- Alerts guard
- Player kills enemy with 3 broadhead arrows
- Dies while fighting

Life 2:

- Player restarts level at 5:24
- Immediately runs to guard and backstabs him (11 seconds into life)
- Goes to front door, but can not open it (no key)
- Wanders outside front yard
- Looks at various objects on the ground, but does not know how to pick them up
- Jumps onto a box in the yard, fails 2 times, succeeds on 3rd try
- Jumps onto a pipe on the side of the church, and then onto the balcony
- Enters bench room
- Goes down stairs to the first floor lobby
- Enters the cathedral

- Selects broadhead arrows
- Aims at enemies, does not shoot for a while
- Shoots a guard twice
- Runs up to injured guard with dagger
- Kills one guard with dagger
- Gets killed by a priest at 9:16

Life 3:

- Starts from beginning at 9:46
- Immediately kills the guard in the front yard again
- Alerts a guard on the balcony above while doing so
- Scales the wall again (using box, pipe, and balcony ledge)
- Alerts a guard on the balcony
- Kills guard on balcony with dagger
- Player has 50% health remaining
- Uses a health potion accidentally while trying to pick up loot
- Enters 2nd floor balcony
- Enters bell room
- Goes back to bench room
- Picks up 1 loot from the guard he killed before
- Picks up 1 candle of loot
- Goes downstairs to lobby
- Starts lock picking the front door from inside, succeeds after 1 minute
- Turns around, enters cathedral
- Listens to the enemies' conversations
- Selects the broadhead arrows
- Shoots a guard twice with the arrows
- Uses a knife to kill the guard
- Another guard attacks and kills the player

Life 4:

- Restarts level at 16:13
- Immediately runs up to guard and backstabs him
- Picks up 1 moss arrow
- Picks up 2 loot
- Scales outside wall
- Attacks guard on second floor in bench room
- Kills guard, uses health vial, steals bag of loot
- Picks up 1 candle of loot
- Enters lobby room
- Cycles through weapons, selects blackjack
- Blackjacks guard in well alley
- Enters cathedral through right door
- Black jacks a guard in cathedral

- Other guards attack player
- Player dies at 19:48

Life 5:

- Players restarts at 20:20
- Immediately blackjacks the first guard
- Picks up guards key from ground
- Picks up 2 loot
- Picks up 1 moss arrow
- Selects dagger
- Enters front door
- Enters well alley
- Picks up 1 water arrow
- Runs by well alley guard
- Kills guard with one blackjack hit while moving
- Cycles through items
- Reads well alley sign – new note obtained
- Looks at objectives
- Goes up well alley stairs
- Enters priest room
- Reads scroll
- Leaves to library hall
- Fails blackjack attempt, fights guard with blackjack
- Dies at 26:14

Life 6:

- Starts at 26:50
- Alerts first guard, fails a blackjack attempt
- Switches to knife while fighting
- Dies 27:15

Life 7:

- Starts 27:45
- Immediately backstabs guard
- Picks up 1 key
- Picks up 2 loot
- Picks up 1 moss arrow
- Scales outside wall
- Alerts guard on staircase
- Kills guard with dagger
- Picks up 1 bag of loot
- Picks up 1 candle loot from bench room
- Go upstairs to second floor balcony
- Enters statue room

- Knives statue
- Enters the 2nd floor cathedral
- Alerts guard on balcony
- Fights guard, but dies at 30:26

Life 8:

- Restarts life at 31:22
- Attacks guard, fails backstab attempt
- Fights guard with dagger, kills him
- Uses 1 health vial
- Picks up 1 moss arrow
- Picks up 2 loot
- Picks up guards key
- Enters front door
- Goes up left staircase to bench room
- Strafes around corner to peak at enemy
- Picks up 1 candle of loot
- Sees enemy on balcony
- Alerts guard, fights with dagger
- Kills guard
- Moves dead body to retrieve the body's loot
- Picks up 1 candle loot from 2nd floor balcony
- Enters chapel, reads scroll
- Sees enemy on balcony
- Shoots him with broad head arrow twice
- Gets a note
- Switches to the blackjacked
- Switches to knife
- Kills guard
- Enters bell room, rings bell
- Goes down bell room stair case
- Enters lobby to cathedral
- Throws two flashes at 3 guards
- Tries to attack the guards, but fails
- Dies at 37:50

Life 9:

- Restarts level at 38:24
- Immediately backstabs the guard
- Picks up 1 moss arrow
- Picks up 2 loot
- Scales wall halfway, and waits for the guard to pass
- Continues up the wall
- Fights guard, kills him on staircase

- Goes to bell room, rings bell
- Runs to statue room
- Goes to 2nd floor cathedral
- Alerts guard
- Kills guard with dagger
- Picks up 1 candle loot at 2nd floor cathedral
- Jumps onto railing
- Fires 7 arrows to first floor, and hits very few targets
- All guards flee the first floor of the cathedral
- Falls from 2nd floor to 1st floor cathedral
- Dies 43:50

Life 10:

- Restarts from beginning at 44:25
- Immediately blackjacks guard
- Picks up 1 moss arrow
- Picks up 2 loot
- Scales wall, waits for patrol guard again
- Doesn't see the guard, and continues up the wall
- Enemy spots him on balcony
- Player fights enemy, kills him, collects loot
- Enters 2nd floor of cathedral
- Jumps onto railing
- Selects moss arrow
- Shoots 5 moss arrows at the guards
- Selects water arrow
- Shoots 2 water arrows at guards
- Selects broadhead arrows
- Shoots 5 broadhead arrows, hits 2 targets in the feet
- Shoots water arrows
- Selects noisemaker
- Does not aim at a particular target
- Fires noisemaker at the altar
- Waits for enemies to come to altar
- Fires more noisemakers at the enemies
- Goes back to 2nd floor balcony, wanders around upstairs
- Picks up 1 candle of loot
- Enters chapel
- Fights balcony guard, kills him
- Throws corpse off balcony
- Picks up 1 loot in bench room
- Goes down stairs to lobby
- Enters 1st floor cathedral
- Attacks guard with a knife

- Dies at 53:18

Total time (real time) on level 3 was 43:18 minutes.

General notes on this session:

Couldn't open doors at first

- Found out about health potion while trying to open doors
- Found 2nd floor entrance

Found out about 1 hit kills from behind

- Found out blackjack doesn't work otherwise

Did not know what types of arrows did

Learned to use dagger well

Did not quicksave at all

C.9 Player 9: Tutorial Subject

Thief Survey Answers

- 1.) 4 for game difficulty. (1-5, 5 = very difficult)
- 2.) What aspects he/she found difficult: “Movement is very non-fluid”
- 3.) What could make the game less difficult: “Decrease collision size of terrain objects.”
- 4.) 1 for game enjoyment (1-5. 5 = not enjoyable)

Gaming Background Answer

- 1.) Skill level = Expert (from unskilled to expert) (he writes after “at starcraft at least”)
- 2.) 3 for video game experience (1-5, 1 = little, 5 = veteran)
- 3.) How his gaming background prepared him for this game: “Not much, the only FPS games I’ve played are half-life mods.”
- 4.) What types of games does he/she usually play: First Person Shooters and Strategy games.

He played Starcraft primarily, customized the controls, and brought his own mouse.

Tutorial Level

- Failed the walking part of the tutorial because the tutorial told the player to use the wrong key (since the player customized keys).
- Seems to be scanning instructions quickly.
- Quick saved before the first lock pick attempt.
- Learned lock picking very quickly.
- Picked up candle loot twice.
- Did not see the footprints after looting the bag by the fire, so was lost for a little while.

Final stats:

8 minutes

50% loot

1 times caught

1 blackjack

0 kills

0 stealth kills

0 civilian kills

1 lock picked

0 pick pockets

0 bodies found

0 damage taken

0 healing done

Level 3

Life 1:

- Checks the weapons and objectives available to the player.
- Starts lock picking right away but stops to hide from the guard outside.
- Blackjacked the guard outside.
- Picks up the key and walks around the cathedral for about 5 minutes.
- Blackjacked back alley guard, both of them.
- Got a bag of loot from one of the guards.
- Enters the hammer factory.
- Picks up arrows in bin and a gas bomb.
- Blackjacks a guard by the flame room.
- Activates the flame machine.
- Killed a guard with a dagger, but alerted another guard.
- Hides under the stairs.
- Runs back to the cathedral.
- Gets a piece of candle loot on the stairs.
- Fails a blackjack attempt in the statue room and dies.

Life 2:

- Blackjacks the guard outside and takes the key.
- Get the two pieces of loot from outside.
- Gets the water arrow at the well in well alley.
- Gets the moss arrow in well alley.
- Blackjacks a guard in well alley.
- Lock picks the barracks door in 33 seconds.
- Reads the book there to get the new objective.
- Gets 1 health potion, 1 gas bomb.
- Gets two more pieces of loot upstairs.
- Takes falling damage at the elevator which alerts the guard.
- Gets away from that guard.
- Gets another piece of loot.
- Returns to the cathedral and gets a New Note.
- Gets another piece of loot.
- Blackjacked a guard at back alley.
- Tries to broad head arrow the second guard (priest) at back alley, but misses and gives that up.
- Jumps to alert to the priest.
- Tries to fight with blackjack, then pulls out the dagger, but dies.

Life 3:

- Blackjacks the guard outside.
- Get the two pieces of loot outside.
- Gets the candle loot on the stairs.
- Rings the bell and hides.
- Once guard starts to leave, jumps to alert the guard.
- Broadhead arrows the guard once, and misses the second shot.
- Pulls out the dagger and kills the guard.
- Picks up the guard and throws him down the bell tower stairs.
- Gets 1 pieces of loot.
- Gets the water and moss arrows at the well alley.
- Blackjacks the guard at the well.
- Gets a new note by reading the note on the wall.
- Fails a blackjack attempt in the statue room, and alerts a guard.
- Gets the special loot in the statue room.
- Kills the guard that the player alerted in the statue room with a broad head arrow to the head.
- Gets two more pieces of loot.
- Gets the hammer in the priest room.
- Gets the new objective from reading a book there.
- Gets two more pieces of loot in the priest room.
- Alerts a guard and gets killed.

General notes on his session:

- Used no items, few arrows, and gave up on using the dagger.
- Good at blackjacking.
- Used jumping to alert guards.
- Used shadows/light well and stealthy tactics pretty well.
- Learned to use the key looted from the guards.

C.10 Player 10: Non-Tutorial Subject

Thief Survey Answers

- 1.) 3 for game difficulty. (1-5, 5 = very difficult)
- 2.) What aspects he/she found difficult: "Figuring out what to do (Objectives not clear)"
- 3.) What could make the game less difficult: "Be able to toggle on-screen help text"
- 4.) 3 for game enjoyment (1-5. 5 = not enjoyable)

Gaming Background Answer

- 1.) Skill level = Skilled (from unskilled to expert)
- 2.) 3 for video game experience (1-5, 1 = little, 5 = veteran)
- 3.) How his gaming background prepared him for this game: "Prince of Persia – Complex Navigation (ledges, etc) And other games from general response time stuff. Most games make unaware enemies easier to kill, so I assumed it would be the same here"
- 4.) What types of games does he/she usually play: FPS, Action, Strategy

Immediately selects begin mission

Level 3

Life 1:

- 2:13 starts
- Quicksaves immediately
- Runs to lit door
- Runs back to entrance of level
- Sees guard
- Enters shaded corner to hide from guard
- Selects moss arrows
- Waits for guard to pass by
- Moves to scaffold outside
- Picks up moss arrow
- Tries jumping on parts of building
- Scales side of building using box, pipe
- Guard comes near, player waits behind box for guard
- Player fails two blackjacks attempts, but does not alert guard
- Incapacitates guard on third try
- Walks to front door
- Enters lock pick: 4:19
- Uses WASD keys to pick lock after about 30 seconds
- Continues to use this
- Completed: 5:45
- Enters lobby - objective complete
- Enters lower cathedral
- Accidentally hits windows key, crashes from game 5:56

Life 2:

- Loads from quicksave: starts 8:04
- Runs up to guard, blackjacks him from behind
- Accidentally attacks door, rather than interacts
- Begins lock picking: 8:22
- Uses WASD keys but switches back to mouse
- Completed: 9:11
- Enters lobby room - objective complete
- Enters lower cathedral
- Stays along right side of cathedral wall
- Moves slowly, appears to be listening to conversation in cathedral
- Enters well all side entrance
- Closes door, goes back to cathedral
- Fumbles with door a bit, eventually goes to well alley
- Follows guard at full speed
- Backstabs guard in well alley
- New note (probably from cathedral)
- Climbs objects in alley, unable to get anywhere
- Follows guard up well alley stairs
- Stops to view objectives screen
- Keeps distance from guard while following, hides in shadows
- Priest and guard block each other from entering priest room, player views this and leaves
- 1 cup loot (well alley stairs)
- Enters lobby from well alley
- Enters cathedral again
- Follows right path again
- 2 cups loot (cathedral center)
- View objectives quickly, closes screen
- 1 plate loot (back of cathedral)
- Reads cathedral book
- Opens door to side alley
- Sees two enemies, does not enter side alley immediately
- Avoids both enemies, using shadows and distance
- Quick saves
- Tries to climb scaffolding in side alley
- Successfully scales wall using castle side and ledges
- Enters factory, starting 15:34
- Picks up barrel
- Throws barrel down stairs
- Noise alerts guard
- Selects moss arrows
- Aims arrow down stairs, unprimes arrow

- Waits for enemy to walk up stairs, fires moss arrow at him
- Moss arrow has no effect, player switches to dagger, attacks enemy
- Enemy runs away, player follows
- Enemy alerts other guards to his presence
- Player kills one guard in fight
- Another guard kills player (17:00)

Life 3:

- Starts 17:22 (from quickload)
- Does not scale side alley wall immediately
- Attempts to after seeing and alerting 2 guards
- Player can not scale wall as easily
- Succeeds after a few tries
- Enters factory, starting 18:53
- Quicksaves
- Waits at top of stairs for enemy to move
- Picks up barrels to throw to first floor
- Alerts enemies
- Leaves factory, enters cathedral 20:25
- Enters hammer factory 20:51
- Alerts guards, backs off as guards walk up stairs
- Selects mose arrow
- Guard chokes
- Selects noisemaker arrow
- Shoots arrows at guard, has no effect
- Fires another moss arrow
- Fires water arrow
- Fires multiple water arrows at enemies
- No effect
- Selects broadhead arrows
- Fires broadheads at guards
- Fights close range with bow and arrow
- Kills one guard
- Selects arrows again
- Aims at one guard, waits till he subsides
- Attacks another guard, gets into close combat
- Player knocks enemy's weapons out of his hand
- Chases enemy, takes a different turn in iron forge room
- Player selects dagger
- Tries to climb some objects in forge room, fails
- Knives weaponless guard in corner
- Picks up broadhead arrows and gas bombs
- Chases guard to bellows, bellow fire kills guard
- Enters reliquary

- Selects blackjack
- Selects nothing while climbing stairs
- Follows priest upstairs
- Fires moss arrow at priest
- No effect
- Enters close combat with priest, dies (25:35)

Life 4:

- Starts (26:00) in hammer factory upstairs
- Waits for enemy to move
- Alerts enemy, enemy runs
- Picks up gas bomb
- More guards come for player
- Player runs up stairs
- Turns around to black jack guard chasing him
- Fights with blackjacks
- Dies (27:28)

Life 5:

- Starts (27:50) in hammer factory
- Climbs over railing, falls behind machinery
- Climbs up machinery, walks around on top to avoid enemy
- Quicksaves on top machinery
- Waits for enemy to turn his back
- Player drops from machinery
- Sneaks by enemy
- Alerts two guards
- Picks up gas bombs
- Guards do not know where the player is, but are searching
- Player waits near entrance to cathedral grounds
- Guards find player, who flees to bellows
- Activates bellows
- Enters reliquary
- Runs up stairs reliquary
- Sees priest, is trapped between enemies
- Dies (31:00)

Life 6:

- Starts 31:22 on top of machine
- Drops from machine, walks away from enemy, is not noticed
- quicksaves at cathedral grounds portal
- Picks up gas bomb
- Alerts enemy, loads quickload

Life 7:

- Starts 32:15 at cathedral grounds portal
- Picks up gas bomb
- Activates bellows
- Kills guard in bellows
- Alerts guard, but guard can not find the player
- Enters reliquary, waits for enemy behind bottom of spiral stairs
- Leaves position, quick saves
- Reads note about suspension cage
- Picks up two oil flasks from chest
- Follows priest
- Hops ledge from second floor to iron forge room
- Tries to use the forging machines, but is unable to (does not have appropriate items)
- Activates cell with zombie
- Player fights zombie with dagger
- Priest kills zombie
- Does not notice player
- Quicksaves
- Selects dagger
- Quick saves after leaving zombie room
- Activates switch, does not check what effect it has
- Enters storage area
- Begins picks storage area chest @ 36:56
- Succeeds at 37:15
- Receives many arrows, flasks, and 2 loot
- Quicksaves
- Receives unstamped metal
- Goes upstairs, sees priest, flees (priest not alerted)
- Activates light in storage room, then deactivates
- Crouches and walks around hammer factory
- 1 candle loot (at furnace)
- Reads scroll, new objective
- Quicksaves
- Sneaks behind priest, backstabs
- Player reads a sign and receives a new note
- Player activates many switches
- Tries to sneak behind priest at top of reliquary stairs
- Priest notices, enters close range combat
- Player has 1 hp left
- Player views objectives
- Walks down reliquary stairs
- Quicksaves
- Activates switch that turns off machinery

- Places unstamped metal into press machine
- Quicksaves
- Does not retrieve newly stamped metal
- Runs freely between metal factory rooms, as most guards are now dead
- Quicksaves at furnace
- Ends game at 43:27

Appendix D: Bibliography

Chen, Jessie Y.C., *Utility of Game Instructions*, Consortium of Universities of the Washington Metropolitan Area, April 2003. Available at <http://www.hqda.army.mil/ari/pdf/tr-1135.pdf>

Gee, James. What Video Games Have to Teach Us About Learning and Literacy. New York: Palgrave MacMillan, 2003.

Pelletier, C. (June, 2005). *The things we learned on Liberty Island: designing games to help people become competent game players*. Paper presented at DIGRA 2005, Simon Fraser University, Burnaby, BC, Canada. Available at <http://www.gamesconference.org/digra2005/viewabstract.php?id=95>