Learning to Have Fun – the User Perspective on Tutorials in Video Games in the Paradox Interactive Case

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Abstract
As the video game industry grows and as games are played by more and more people, ensuring
customer satisfaction becomes more and more important. A fundamental tenet of enjoying a product
is first to understand it, how it works and how one as a user can interact with it. To teach users how
to play a new video game, tutorials integrated in to the game are often employed as introductory
learning material. This master’s thesis looks at the tutorials previously developed by Paradox
Interactive, as requested by the company, in their popular grand strategy game series. The goal was
to provide Paradox Interactive with recommendations for tutorials for future products.

This study has been performed by surveying the advanced existing users on their views, to generate
an understanding of the group’s wants and needs, and an observational study covering novice users
to identify basic problems with the current tutorial implementation. Methods used have been
interviews, survey, observational think-aloud interviews, and questionnaire survey.

The results are compared to learning theory from psychology and educational system, and learning
theory already existent in the game development industry, to generate suggestions and general
guidelines for Paradox Interactive.

The conclusion of the study is that Paradox Interactive needs to introduce a layered teaching style
featuring primarily more interactivity for their future game’s tutorials and investigate how to
integrate the current methods by which the advanced user community learns: developer diaries
documenting the game creation process, user-written reports of game play experiences, and user-
edited wikis.
Att lära sig att ha kul
Användarperspektivet på spelhjälpavsnitt i Paradox Interactive-fallet

Sammanfattning
Allt eftersom datorspelsindustrin växer och spel spelas av fler och fler person växer behovet av att öka kundens nöje. En grundläggande aspekt av att underhållas av en produkt är att först förstå den, hur den fungerar och hur man som användare kan interagera med den. För att lära spelare hur de ska spela ett nytt datorspel fungerar idag “tutorials”, hjälpavsnitt, som en inkörsport. Detta examensarbete undersöker hjälpavsnitten utvecklade av Paradox Interactive, på företagets förfrågan, i deras populära strategispel. Målet var ett erbjuda Paradox Interactive rekommendationer för hjälpavsnitt för framtida produkter.

Denna studie har genomförts genom att tillfråga den avancerade gruppen existerande användare om deras åsikter, för att skapa förståelse för gruppen behov och önskemål, och en observationsstudie med nybörjare för att identifiera grundläggande problem med den nuvarande implementationen av hjälpavsnitt. Metoder som användes var intervjuer, enkät, observationsstudie med tänka-högtintervjuer samt blankett.

Resultaten jämförs med inlärningsteori från psykologin och undervisningssystem, samt inlärningsteori redan etablerad inom spelindsturin, för att skapa förslag och generella riktlinjer för Paradox Interactive.

Slutsatsen av studien är att Paradox Interactive behöver introducera en utlärningsteknik med flera nivåer, med huvudsakligt fokus på mer interaktivitet för företags framtida spelhjälpavsnitt, samt undersöka hur man kan integrera de nuvarande metoder som de avancerade användarna använt för att lära sig spela spelen: utvecklardagböcker som dokumenterar spelens skapandeprocess, användarskrivna rapport med spelupplevelser, såväl som användarredigerade wikis.
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1. Introduction

1.1 Background

Computer and video games have evolved a lot since their inception, and it’s plain for all to see. They have gone from two-dimensional affairs, with monochromatic graphics and rudimentary gameplay, to extravagant adventures that take hours upon hours to complete. That evolution has also lead to greater mechanical and theoretical complexity for players. That is not to say that there only exists complex video games today nor that there has not existed complex games in the past – some would argue that in “the good old days”, games required more from players – but overall it is fair to say that video games at least have the opportunity for immensely complex scenarios, as a consequence of increased processing power in gaming platforms and large economic support and incentives for creators.

Figure 1. An example of the evolution of games, with Atari’s Pong from 1972 on the left and Paradox Interactive’s Victoria 2 on from 2010 the right. While they are not in the same genre, they exemplify the increased potential complexity and scope that games have achieved.

Video games are a young medium – having existed for just over thirty years – especially compared to other forms of art and media such as photography, film, and writing, which have had decades and even centuries to be refined. The refinement includes both form and content, and further extends to the surrounding discourse. Still, video games have established themselves in both entertainment and academia as an area of unique potential, boasting the trumping feature that is interactivity. Numerous articles in the academic circles surrounding gaming have examined learning, but mostly in the context of the serious games that function as tools for training and education. (Aleven, Ogan, Popescu, Cristen & Koedinger, 2004; Ohigashi, Omori, Morikawa & Oka, 2003; Yasarcan, 2008; Rapeepisarn, Wai Wong, Che Fung & Swe Khine, 2008; Sheng, Magnien, Kumaraguru, Acquisti, Faith Cranor, Hong & Nunge, 2007; Linek, Schwarz, Bopp & Albert, 2010; Garzotto, 2007; Egenfeldt-Nielsen, 2010)

While serious games are used for tasks such as training employees in safety or educating students on cultural practices and issues from around the world such as the Global Conflict series (Serious Games Interactive, 2010), entertainment titles serve the same purpose as traditional games long
have: being a satisfying distraction. Video games aren’t limited to only doing that though, just as films and books can do more than simply entertain, but the primary goal lies in recreation.

Thus we have games that aim to entertain while also defining themselves as a medium (simply as a consequence of the times and the relative lack of history), and an industry gaining momentum through increasing budgets and profits, with the opportunity for complex designs at every turn. Now, where does the player fit in to all of this? The people who are to pay money and keep the gaming industry alive need to actually enjoy the product they are buying. As there exists no formal rule set to create video games with, each title can vary as much or as little from one to the next dependent on the designers. The tutorial has become a common tool for introducing players to what the features of a game are, at least enough to get started. The tutorial is commonly the introductory chapter of a video game, in which information about whatever the designers have chosen is presented in any way it has been seen fit. Testing of the players’ capabilities can be included, but a tutorial has no real requirement to be interactive. Just as a video game can be many different things, so can a tutorial.

1.1.1 The basis of learning
“Learning is a process by which experience produces a relatively enduring and adaptive change in an organism’s capacity for behavior.” (p. 281, Passer, Smith, Holt, Brenner, Sutherland & Vliek, 2008) This is a useful definition primarily because it establishes that what we do is not always something we have learned, i.e. behavior is not the same thing as capacity for behavior. This is an important distinction to make, for psychologists as well as game designers. The player will always do something, but will it be something that has been taught, or simply a reaction governed by instinct or guesswork? For example, the player sees a silhouette on the horizon and decides to shoot at it (a change in behavior) – this could be because the game has sufficiently established that enemies often appear in such ways (learning), or it could be an initial reaction to an unknown entity (not learning). In this example, we can at least note the fact that the player knew how to fire a weapon in the game is something that has been learnt, but there was more to the scenario than knowing which button to press.

It quickly becomes clear that the concept of learning, even when just applied to a fraction of a game, is a complex one, but it is something that can be manageable when broken down into chunks. One must not lose sight of the broader picture however, as the overarching context of any learning situation is also important. Learning and the importance of context is detailed in chapter 2.3 Learning theory.

1.1.2 Paradox Interactive
This master’s thesis project was conducted for Paradox Interactive and KTH. Paradox Interactive is a Swedish game development company and publisher with offices in New York, USA and Stockholm, Sweden. Established in 1999, with prior history in roleplaying board games stretching back to the mid-1980’s, Paradox Interactive has developed games in the Europa Universalis, Hearts of Iron, and Victoria series among others (Paradox Interactive, 2010). Paradox Interactive focuses its development efforts on grand strategy titles, meaning sandbox-style strategy games with broad scope and historical accuracy. While grand strategy is not a widely used term in gaming, it aptly describes Paradox Interactive’s products and serves as a differentiator to most other strategy games.

Paradox Interactive employs 12 people on its development team, which is relatively few compared to other Swedish game development companies such as DICE or Avalanche Studios which are
staffed by hundreds, but then again Paradox Interactive produces games of a different flavor than those studios. Having a dozen developers, compared to hundreds, does however mean that there are limited possibilities for performing big, observed testing trials that for instance take place at DICE, where regular user testing includes techniques such as eye-tracking matched with recording game footage. Whereas DICE employs a user experience designer, who works to detect user wants and needs and report them to the game designer, Paradox Interactive’s whole development team simply works closer to the end user as a result of its limited size. This is not a comparative study of the differences between those two companies, but these examples should serve as an indicator of Paradox Interactive’s position. A reasonable, if partial, summary could be “small but effective”.

Paradox Interactive is however larger than its development team, with the total employee count reaching around 30 people when including those who work at GamersGate. GamersGate is a former division of Paradox Interactive, now broken off in to a sister company which maintains an international web-based game store. There, Paradox Interactive games are sold alongside titles from other publishers and developers. This goes hand in hand with the publishing department of Paradox Interactive, which handles not only internally developed games but also titles developed by other companies under contract or license. Housing publishing, development, and sales under one roof is unique in Sweden, and a rarity in the world as a whole.

1.2 Purpose
When a player sits down to play a video game for the first time, she has to perform work within an unfamiliar rule-set. Most often, the player will initially be faced with a tutorial to introduce the most significant features of the game, as chosen by the game’s creators. How those features are selected and adapted for the tutorial is an area in which I have found no previous academic work, though it could certainly exist. Works expounding on how select general features for a game as a whole do however exist, for example “Fundamentals of game design” (2009) by renowned game design writer Ernest Adams, but that book and similar titles focus on the basic game design process and not the specifics of the tutorial. That is to say, existing game design literature and articles – in my limited experience and opinion – generally focus on creating the base product that is the video game.

The purpose of this project has been to perform a study on previous tutorials in Paradox Interactive games to come with suggestions for tutorials in future game titles. These suggestions were meant to be based on the end users needs regarding learnability of Paradox Interactive games. Paradox Interactive game titles are different from many other games in that they feature heavy simulation of historical scenarios, and include many different parameters that the player needs to understand and manipulate. Some of these features lack clear real-life counterparts, and can be difficult for the player to understand.

Part of the process of this project has been to study previous work within traditional learning theory and learning in games, and to summarize the theories for tutorial recommendations.

To get to the point where a suggestion for developing a tutorial that accommodates user needs and wants for a Paradox Interactive game could be made, learning theory was paired with game design theory and real world observations. The suggestions have been made in a systematic way, in an attempt to form the grounds of a framework that can be adapted and applied by Paradox Interactive in the development of future titles.
When beginning the project, the aim was to combine the areas of learning theory, game design, and user-centered design, finding the common ground of the areas and converting that knowledge in to recommendations. An illustration of this view of the theoretical areas can be seen in figure 2.

1.2.1 Delimitation

This master’s thesis project is limited in many ways, as is the nature of studies in any area. To begin with, it only deals with digital entertainment in the form of computer and video games. Traditional games – board games like Monopoly, or table top strategy games like Warhammer – are not within the scope of the project, though they do have interesting learning aspects to them as well. From here on out, “games” will simply refer to video games.

The study is based on observations of play of one Paradox Interactive game, coupled with experiences of other Paradox Interactive games, and tutorials in general. This is tied in with multiple areas of theory to deliver recommendations for tutorials in future Paradox Interactive games. The goal has not been to provide answers for all users of all games, and the result is a generalizable theoretical foundation upon which specific recommendations suited to players of Paradox Interactive games are presented.

This report does not aim to answer all questions about tutorials, for any genre of games. Features in games can vary vastly from title to title, even if a game is a pure sequel or follow-up. This doesn’t mean that there are no solutions that can be applied across genres, but it is by no means a given. Conclusions in this report have this in mind, and are noted as carefully as possible. The genre that the study has been focused primarily upon is the grand strategy niche in the strategy genre.

The main focus of the study has been real-time strategy games (though observations have been made from games of other genres, such as first-person shooters, and role-playing games. All games are noted in the ludology in Appendix A). Not all Paradox Interactive games have been included nor studied for this project, though they share several features and design philosophies to some degree.
In this project, novice users only tested one game, *Europa Universalis III*, while expert users gave their opinion on multiple Paradox Interactive titles.

When discussing learning, no stance in the case of nature versus nurture is taken. How a player retains knowledge through a game is also outside the bounds of this report.

Some leaps of logic are made when discussing learning, as much of the writing in learning theory that has been studied for this project is directed primarily at children’s learning. Care has been taken not to apply theories too carelessly to adults, but at times more evidence for the applicability of certain theories could be useful. That is not to say that the assumptions made are likely incorrect, but formal evidence is at times in short supply.

### 1.2.2 Problem definition
The main questions that this master’s thesis project aims to answer are:

- What are the primary concerns when designing tutorials for grand strategy games in order to create player understanding of the game’s features?
- What are the main learning issues surrounding the implementations of tutorials in previous Paradox Interactive games, when compared to learning theory?
- Is there a need for tutorials to be included in Paradox Interactive games?

### 1.3 Target audience of Paradox Interactive games and this study
Consider the following scenario: if only the same group of people ever bought games, and only games of similar genres and functions were created, it would be easy to design new features and convey the logic that each game was built upon, as the customer would over time be able to fully understand the thought process behind the games’ mechanics simply due to experience and analytical thinking. This is of course a far cry from reality, as many genres of games exist and new games continually aim to one-up previous and upcoming titles by inventing new features to pique the buyer’s interest.

Aiming for a broader audience means that new features, or indeed any feature, may require explanation or even require to be designed in a specific way as to be able to communicate an adequate amount of information to the player about itself.

For this master’s thesis project, the target audience examined was the players of Paradox Interactive games. The target audience was studied separately in groups of advanced (or expert) users and novice users, as users of different experience have varying requirements for a tutorial.

While both groups of users had experience with games, the distinction between an advanced user and a novice user was that an advanced user was a person who had had previous experience with a Paradox Interactive title and a novice user had not. Both groups are considered equally relevant, as old customers need to be retained and new customers need to be brought into the fray. For more detail on how these two groups of users were defined, refer to chapter 3.1.1 Identifying the user base and chapter 4.1 Survey results.
2. Theory

This chapter establishes the theoretical basis upon which the study rests. It examines theories of learning in both education and psychology, and establishes the basics of game design theory. While these are diverse areas, they all need to come together when examining and discussing tutorials.

In this chapter, the major theories of learning are introduced and will be useful to have in mind when reading the discussion chapter later on. The same goes for the tenets of game design, that are also briefly examined.

2.1 Earlier works

While games are a new field in academia, many articles are written yearly around the world. However, there appears to be a gap when it comes to the creation of tutorials, both from the perspective of the game developer and the player. Many of the articles surrounding tutorials today concern serious games, mainly for teaching school children. (Linek et al, 2010; Garzotto, 2007)

As tutorials are a feature in mainstream, entertainment titles as well, this area is lacking in earlier works. Much of the writing surrounding games does however touch upon the concepts of understanding the goals of a game, but most of the time not much thought is given to how the initial learning process looks. However “Learning to Play”, a master’s thesis by Bradley Stephen Paras, does broach the topics of this report, but with differing goals. That report focuses on exploring how adding a learning system to a gameplay scenario affects the player’s ability to play and learn the game, which does prove successful and potentially applicable to other game genres than the tested; sport. (Paras, 2003)

2.1.1 User centered design

User centered design is the practice of developing products and product features that takes in to account the wants and needs of the users as to enable better user performance and more user enjoyment. It is a process that is present in every stage of the design process and requires iteration and user feedback to verify the assumptions made by the designer in trying to accommodate user needs. User centered design is a proven concept in human computer interaction as a field, and applying it to video games should not be problematic. However, it must be noted that while the graphical user interface of an application in an office environment should have high usability, games are often intended to feature some challenges and obstacles that seem difficult to overcome, often requiring some initial user failure.

This does not mean that games have low usability when failure is part of the design, but rather feature failure as a part of the user experience to increase the feeling of challenge and the subsequent good feeling of overcoming that challenge. A key to good design is considering who will use a product, and what activities they will perform in the context of their interaction. (Passer et al, 2007) When designing games, good design can indeed include failure as a design option, as long as the player does not get stuck.

2.2 Game design theory

In this sub-chapter some fundamentals of game design, and definitions of key concepts, are presented. Since there are many different ways in which to create a game of any kind, theory is
mostly kept at a high level of abstraction, and certainly does not cover all possible avenues of game
design.

2.2.1 What is a game, and why tutorials?

To be able to talk about tutorials, we must first establish what we mean by a video game. The
definition of a game is the subject of much discussion, with several functional definitions available.

We can start off with what the core of a game is, namely gameplay. (Adams & Rollings, 2009)
Gameplay in turn also has several definitions. Game designer Sid Meier defines gameplay as “a
series of interesting choices” (Rolling & Morris, 2003) but that is a somewhat open-ended
definition that could be applied to many areas that are not connected to games at all. A slightly
narrower definition is offered by Ernest Adams, stating that gameplay consists of (Adams, 2009):

- The challenges that a player must face to arrive at the object of the game.
- The actions that the player is permitted to take to address those challenges.

The simplest way to think of gameplay, when defined in Adams’ terms, is presenting the player with
a challenge and having the player prove her ability, resulting in an enjoyable experience. Simply
executing the actions that are available in a game can be enjoyable, even if the actions aren’t tied to
the game’s overall goals or outcome. However, not everyone enjoys the same things, neither in
terms of executing actions nor clearing challenges. Pleasing everyone is impossible, and an ideal
game that does everything for everyone does not exist. (Adams, 2009)

Within the scope of all games, a video game is one mediated by a computer. That mediation, and the
fact that written rules are not required, is what separates video games from other games. A video
game has rules, implemented and enforced by the computer, but the player does not need to see the
rules to interact with the game, they can be hidden or at least not fully explained. (Adams, 2009)
However, just as in conventional games, the player does need to be told how to play. Since the rules
are enforced by the computer, the player can try any action that the game allows and measure the
outcome, thus the rules, from that. This requires the game to give feedback to the player, as the
biggest drawback of the player not knowing the rules is a lack of optimized choices from the player.

When rules are mediated through the computer, they can form game mechanics. Game mechanics
are defined by Raph Koster in “A Theory of Fun” as the rule based systems that facilitate the users
exploration of the game through feedback mechanisms. (Cook, 2006)

Rules governed by the computer also leads to goals governed by the computer, as it determines
victory and defeat. According to Adams, this means that the player no longer has to think about the
game as a game, and can instead try any action that is being considered and review the results,
further leading to immersion. When talking about victory and defeat as results of gameplay, it is
important to note that not all games have to feature conflict and can instead focus on creativity or
cooperation. (Adams, 2009)

Attempting to condense all of this to a single definition, Adams reaches the following summary:

”A game is an activity where one tries to achieve a goal according to a set of established
rules in the context of a pretended reality.” (p. 36, Adams, 2009)
There are other available, but for the purpose of this report, this is a sufficient definition.

2.2.2 Some basic game design theory concerning challenges in games
When considering how to design a game, there are many variables to take into account, and after the design decisions await the task of actually implementing the suggested features. While there are no strict rules for good game design, though some have certainly tried to create them (Barwood & Falstein, 2006; Desurvire, Caplan & Toth, 2004), following the advice from people who have actually made games that are generally regarded as good and those who have thought in-depth about what make games enjoyable is a good start.

Ernest Adams writes that good games are fun, but that fun is a reaction that isn’t actually contained completely within the game but is rather found in the users reflection of her experience. (Adams, 2009) Though this is certainly true – a game that itself contains the fun and does not rely on the player would also require little or no interaction and thus removes itself from the game category wholly or at least partially – certain elements or design patterns in games do lead to more fun, as we can again argue simply by looking to successful previous work.

Bruce Shelley writes that to get someone interested in playing a game, an interesting first 15 minutes are needed. This applies to tutorials as well, if they are indeed the first thing that the player will see, and this needs to be kept in mind. (Shelley, 2001) Though not an exact measurement by any means, it is valuable to keep in mind that the player expects entertainment in some form when sitting down to play.

Regarding challenge in entertainment games, Adams writes:

“In all but the smallest games, the player faces several challenges at a time, organized in a hierarchy of challenges”. (p. 253, Adams, 2009)

The highest level of abstraction to view challenges at is the game as a whole, which is ultimately the challenge that the player aims to beat or at least strive towards. To complete the game, often it is required to complete mission challenges, sometimes in turn composed of sub-missions. Adams writes that “at the lowest level, [the player] wants to deal with the challenge that immediately faces her [...] These lowest-level challenges are called atomic challenges (atomic in the sense of indivisible). Atomic challenges make up sub-missions; sub-missions make up missions; and missions make up the ultimate goal: completing the game.” (p. 254, Adams, 2009)

Regardless of how one breaks down the hierarchy of challenges (the above being the view that this report adopts), a game also has some sort of victory condition. Even if the game itself can not be won in the sense that it ends as a consequence, almost all games have victory conditions that reward points or some sort of ranking or confirmation of the player’s adherence to the games rules. In Paradox Interactive games, there are victory conditions that are tracked, but the games do not have a formal endings that is triggered when certain victory conditions are met. Adams notes: “you should always tell the player about the victory condition or she won’t know what she’s trying to accomplish. You don’t have to tell the complete truth, however.” (p. 255, Adams, 2009)

Closely related to challenge is of course the concept of difficulty. Difficulty can be viewed as a sum of two major components, intrinsic skill and stressfulness. Intrinsic skill is the skill required of the player to complete a challenge given unlimited time, for example as is the case with the puzzles and
crosswords that can be found in daily newspapers, while stressfulness is as one might expect the element of time imposing a limit to how quickly the challenge must be completed. Together they form absolute difficulty, which is what the term difficulty refers to in almost every case.

There are multiple types of basic challenges, primarily split in to two categories: (Adams, 2009)

Common challenges:
- Speed and reaction time
- Accuracy and precision
- Intuitive understanding of physics
- Timing and rhythm
- Combination moves

Logic and mathematical challenges:
- Races and time pressure
- Factual knowledge challenges
- Memory challenges
- Pattern recognition challenges
- Exploration challenges

Of particular interest to this report is strategy. When it comes to entertainment games, and the genre of strategy games, strategy means “planning, including taking advantage of your situation and resources, anticipating your opponent’s moves, and knowing and minimizing your weaknesses” (p. 271, Adams, 2009). Strategy games focus primarily on logic and mathematical challenges, though the sub-genre of real-time strategy games include common challenges related to speed and reaction time to some degree.

2.3 Learning theory
To approach the human ability of learning, we begin in psychology, where it is established that there exists many forms of learning processes, ways in which we learn. Psychologists Michael Passer, Ronald Smith, Nigel Holt, Andy Bremner, and Ed Sutherland define five basic processes, that are all of interest to this report. At the lowest level we have reaction to repeated exposure to a stimulus, habituation and sensitization. Learning associations between events is called classical conditioning, if the association created triggers reactions to a stimuli that was previously triggered by something else, and operant conditioning, in which certain behavior is connected to specific consequences. The last of the basic processes is observational learning, which is the imitation of a model of behavior observed. (Passer et al, 2008)

All of these processes can be important depending on the situation we are studying. Context is highly important to all the processes, and should always be taken in to account when examining which process might be governing the learning experience.

Habituation is a decrease in response strength, when faced with a repeated stimulus. For example, a person is sitting on a bench by an empty street. Suddenly, a car swoops past and quickly disappears around the corner, screeching its tires in the process. The person on the bench is startled. After that, more and more cars emerged and perform the same loud turn, and over time the person on the bench starts ignoring the sound little by little. The person has become habituated to the noise.
Sensitization is more or less the opposite of habituation. It is the increase in response strength to a repeated stimulus. An example of this would be sitting in a quiet room and hearing a faucet drip water in to a sink. Initially, just having entered the room, one would not be very distracted by this, but prolonged exposure would begin to aggravate most people. (Passer et al, 2008)

These two basic processes are useful to always have in mind, even when designing a game, as any prolonged exposure to stimuli will have a chance of resulting in habituation or sensitization. For example, habituation could occur in a game if a loud warning message is displayed every time there is a chance to come under attack from an enemy. If conflict is the main objective of the game, such warnings would over time become ignored, as the player learns to just expect constant attacks and the point of having a warning sound is lost.

2.3.1 Pavlov, Skinner, and behaviorism

Classical conditioning is most famously exemplified by Ivan Pavlov, starting in the 1860’s, and his experiments in uncovering that particular learning process. By pairing a neutral stimulus (in Pavlov’s case a tone from a whistle) with an unconditioned stimulus (food), a conditioned response was achieved where the previously unconditioned stimulus became conditioned – connected with the previously neutral stimulus. By repeatedly pairing the two stimuli, the conditioned response was made stronger. (Passer et al, 2008)

For the case of games, classical, or Pavlovian, conditioning can certainly play a part. However, if the desired effect for the player is understanding of how a game works or what behavior should be adopted, there are other processes for learning that are better suited.

Following Pavlov’s work, and also building upon that of Edward L. Thorndike, B.F. Skinner introduced the concept of operant conditioning – learning through observing which behavior leads to which consequence. In his work, Skinner identified several types of consequences that would impact the learner. Reinforcement and punishment is the basic pair of consequences identified, with a reinforcer causing a strengthened reaction to the outcome that follows it, and punishment being defined as a weakened response by the outcomes that follow an action. By building on Darwin’s idea of natural selection, Skinner viewed his operant conditioning as a kind of natural selection in immediate environment. (Passer et al, 2008) In the general view of education, Skinner’s findings became significant, spawning behaviorism which gained speed through the early half of the twentieth century, up to the 1960’s.

The main problem with behaviorism, when applied to education, is that it attempts to build learning upon a system that objectively observes and quantifies behavior, which is to be contrasted with attempting to study the subjective mental states of the learner and the (difficult to follow) thought processes. Following critique from writer Noam Chomsky in 1959, behaviorism lost footing in western educational systems, but is still influential within psychology today. (Säljö, 2000) (Passer et al, 2008) Within psychology, approaching learning from biological and cognitive perspectives is of course also important and behaviorism is by no means the only focus when learning processes are examined.

The main reason for behaviorisms decrease in popularity in education is simply due to a lack of complexity and difficulty accounting for insight. When a child is learning a subject, such as the English language, it is very difficult to account for the learning of language and surrounding language behavior through imitation, without deeper components. (Säljö, 2000) The complexity of
language is difficult to map to the learning in a video game, but this does not mean that behaviorism is a fine match as a learning process for video game tutorials either.

2.3.2 Vygotsky’s perspective

The basis for Lev Vygotsky’s view on learning as a process can be found in two terms, mediation and internalization. Through communication with those around us, in the surrounding society as a whole, we learn the fundamentals of our culture; speech patterns, how to write, and even ways of thinking – that knowledge is culturally mediated. Making use of that knowledge, making it our own, is internalization. (Säljö, 2000) While internalization is often discussed concerning children’s learning, it still applicable to adults. As time passes, more and more knowledge has simply been internalized, but the capacity to internalize mediated knowledge is still present – that is, one still learns from mediation but has much more internalized knowledge already present.

2.3.3 Piaget’s perspective

Initially, Jean Piaget did not think of himself as one to study children’s learning, and was more interested in knowing how knowledge was retained. However, his theories and studies eventually led him to become one of the foremost thinkers behind constructivism, and a noted children’s epistemologist (the study of what distinguishes justified knowledge from opinion).

The shift in educational use of language and metaphors that was launched from the 1960’s to the 1990’s in many European countries, as well as other places around the world, concerned how children needed to be allowed to be active and discover things on their own. By working with experiments, under the guidance of their own curiosity, children could learn and not just repeat what had been told to them. This was built upon the theories of Piaget, and testing and interpreting were the fundamentals. (Säljö, 2000)

Säljö presents the following statement:

“To develop cognitively is to take experiences from the world, to correct beliefs and thereby develop the intellect. A tenet in Piaget’s view of education is the collaboration with the surrounding world is always being impacted by two simultaneous processes; accommodation and assimilation.” (p. 60, Säljö, 2000)

Assimilation means we study and take in information about how the world around us works and is organized, creating a world view. To assimilate knowledge means that we confirm our prior theories and keep building up a view of how things work. Accommodation is introduced when surprises happen, for example when a child sees a balloon filled with a light gas lifts instead of falling. It is the challenges to our pre-existing notions, the creation of an unbalance in the world. As Säljö puts it, “to rebalance the world, our cognitive structures need to be altered”, thus creating knowledge and understanding through accommodation. (p. 60, Säljö, 2000) This view of schemas and thought patterns, that balance and can be adjusted, echoes Piaget’s work.

In a comparison, Vygotsky has a distinct social focus, which is important as creating a tutorial is basically the mediation of knowledge, but Piaget’s also emphasized the importance of context when learning. Vygotsky’s inclination to allow guidance from the outside, to create the cultural mediation of knowledge in the first place, is a good fit when compared to how some video game tutorials present information today (through the use of digital advisors and similar techniques). This study takes both in to account.
In many video games, multiple solutions are allowed, and allowing the player to understand by testing on her own is fundamental to the gameplay-experience. However, Piaget’s work is more suitable as a theoretical ground when discussing video game tutorials, because of his emphasis on testing and interpreting, as we will see is the basis for game design, as well as the focus on knowledge-goals. (Säljö, 2000)

2.3.4 The sociocultural background to learning

As with all things, there is a context surrounding video games and their creation that must not be forgotten. A popular theoretical approach in learning to viewing this context is viewing learning in sociocultural context. As we can describe learning and its process on many different levels, with different abstraction and focuses, we should begin with human – the learner.

As humans, we have a set of mental and biological limitations on what amounts and what kinds of information we can process. While humans for example aren’t very good at keeping things in the short term memory, we are good at creating and surrounding ourselves with tools and systems that help us. We have created our surroundings, and they influence us at every moment. (Säljö, 2000) This is the background to accepting a sociocultural view, that we have created the context for our existence and the people and things around us make up part of every moment and every learning opportunity. If this is true in education, then it holds true for video games as well, as they are but one more artifact and one more facet of the overall context.

One example of the social context influencing game design can be found in the three year study presented in “Alien Games: Do girls prefer games designed by girls?” by Carrie Heeter, Rhonda Egidio, Punya Mishra, Brian Winn, and Jillian Winn, where it is concluded that boys anticipate that they will enjoy games designed by boys more than those by girls, and girls anticipate that they will enjoy games designed by girls more. When giving the opportunity, girls designed games that they thought would appeal to both boys and girls, whereas boys designed only for boys. This was a study with children between the fifth and eight grade, but it shows that the sociocultural influences persist in game design, just as it does in education. (Heeter, Egidio, Mishra, Winn & Winn, 2009)

Piaget’s constructivism tells us that the individual creates her own understanding of the world, and doesn’t passively receive information. (Säljö, 2000) Combining this with the sociocultural perspective is somewhat troublesome, as one of the cornerstones of that very perspective is the concept of mediation. The problematic aspects mostly concern the use of language and pre-existing culture when defining the context of the learner, that is to say when a person is to learn something, the lesson has already in part been defined by the surrounding world. (Säljö, 2000) If we accept this problem with constructivism, which is inevitable with a sociocultural perspective, but keep the other main focuses of constructivism, we have a useful model for discussing learning in video games.

A further issue, not unique to constructivism, is the fact thinking is an invisible process that takes place inside of a person. When studying learning, and thus thinking, we talk to people to hear what they are thinking about, but the responses we get are not the thoughts, merely communications of the same subject. Thinking cannot be directly observed, and so neither can learning truly be observed. What we are examining is the communicated aspects of learning, which can not be avoided. (Säljö, 2000) However, the act of thinking and the act of speaking about those thoughts are
closely connected, so while we may not directly observe the actual thought process, the reflection of it we can see in a person's behavior and speech suffices.

2.3.5 Progressivism
Beyond the sociocultural perspective, it is useful to also know about progressivism. Progressivism is not at odds with Piaget, and can in some way be seen as a good complement to his theories. According to George Kneller, progressivism has the following distinguishing properties (when speaking about the educational system): (Stensmo, 1994)

- Education shall be active and related to the learner’s needs and interests.
- Learning through problem solving needs to replace the ingraining of knowledge, as significant knowledge is gained through insight and actively seeking solutions.
- Education is to be life, not a preparation for life.

These are all fully applicable to learning in games as well. Letting the player learn by trying, and making the learning experience part of the game accomplishes what Kneller tells us is distinguishing for progressivism. William Kilpatrick introduced the project method in 1925 in “The Foundation of Method”, as a tool of progressivism. He identified four basic project types that could be used for learning: (Stensmo, 1994)

- Construction projects, where an idea is made concrete by working from a theoretical plan.
- Entertainment projects, which involves esthetic experiences.
- Problem projects, which focus on issues through intellectual work to find solutions.
- Specific teaching projects, where one subject matter receives deep analysis.

These project types are also fully applicable when considering learning in games, when viewed as missions or challenges instead of projects. A problem challenge could for example be a puzzle that the player needed to examine and find the solution to through internalized logic, while a construction challenge could be executing a parachute jump after being instructed by the game to do so. Kilpatrick notes that teachers in the project method should provide help with analysis before starting, and feedback after the project is completed. This is the primary lesson that needs to be drawn from the project approach when applied to games, that analysis of the concepts and mechanics of a game before the player begins will help them learn and also that feedback after the completion of a mission or challenge is crucial to highlight the valuable lessons for the learner.

2.4 Different approaches to learning in games
This sub-chapter deals with some of the existing approaches to learning in games. Learning in games takes many forms, depending on what type of game one is playing, and what genre the game is in.

2.4.1 Edutainment and serious games, learning styles of a game
One form of game is the edutainment game, separate from a pure entertainment game. An edutainment game can for example be a game that teaches young children how to count, while providing fun graphics and interactivity such as in the case of the classic game Number Munchers from 1990 (see figure 3). Edutainment games are considered a subset of serious games. It doesn’t hurt if a serious game is enjoyable to play, but the real focus with a serious game is to teach the player something. Examples of serious games are the games that are used to train firemen, oil-platform workers, military personnel, among many other subjects.
Figure 3. Number Munchers, an example of an edutainment game from the 1990’s, a period where cognitivism started to be applied to games.

The difference between an entertainment title and a serious game is defined by Mike Zyda as the following: (Zyda, 2005)

- video game: “a mental contest, played with a computer according to certain rules for amusement, recreation, or winning a stake.”
- serious game: “a mental contest, played with a computer in accordance with specific rules that uses entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives.”

Serious games are mentioned here not as an example of a style of learning, but rather as the purpose behind a game. The purpose does however in turn motivate the learning style in the game, and in the case of edutainment games has lead to a focus on basic “drill-and-practice” learning principles which emphasize training over understanding in many edutainment titles, simply because of edutainment games foundation in behaviorism. (Egenfeldt-Nielsen, 2007)

In edutainment games, a style of learning that has been highlighted as desirable and effective for transferring knowledge is the layered approach presented in figure 4, from Egenfeldt-Nielsen’s “Making sweet music: The Educational Use of Computer Games”. By using aspects from all areas, specifically focusing on not decoupling the educational content and the gameplay, learning is more likely to occur. (Egenfeldt-Nielsen, 2007) This theory from the area of serious games has been applied to entertainment games in this project.

What Egenfeldt-Nielsen emphasizes in figure 4 is the importance of thinking of the learning experience in layers, presented as coupled with “generations” of edutainment games. Egenfeldt-Nielsen states that each generation carries forth the next and is subsequently de-emphasized but still present. Basic behavioral learning is for instance still a factor when focus is moved to the learner.
2.4.2 Learning styles of the player

A style of learning is the way in which the player herself approaches information and learns. The processes of learning displayed in figure 4 shows learning styles as parts of a game’s design.

In relation to entertainment games, we can draw upon the work of Peter Honey and Alan Mumford who identify four different learning styles (Honey & Mumford, 1992) and prove that when a learner of a specific learning style can approach material in a suitable manner, they learn more. The learning styles were first developed by Honey and Mumford in the 1970’s for use in business by managers. The learning styles (and their characteristics) identified are:

Activists:
- Immerse in new experience.
- Enjoy here and now.
- Open minded, enthusiastic, flexible.
- Seek to centre activity around themselves.

Reflector:
- Stand back and observe.
- Cautious, take a back seat.
- Collect and analyze data about experience and events, slow to react to conclusions.
- Use information from experience to maintain a big picture perspective.

Theorists:
- Think in a logical manner, rationally and objectively.
- Assimilate facts into coherent theories.

Figure 4. Egenfeldt-Nielsen’s explanation of layered learning methods in edutainment games. (Egenfeldt-Nielsen, 2007)
• Fit things into rational order.
• Keen in basic assumptions, principles, theories, models and thinking system.

Pragmatists:
• Keen to put ideas, theories and techniques into practice.
• Search new ideas and experimental.
• Act quickly and confidently on ideas, get straight to the point.
• Are impatient with endless discussion.

A pilot study by Kowit Rapeepisarn, Kok Wai Wong, Chun Che Fung, and Myint Swe Khine found that when playing a strategy game, Activists discarded the instructions given before the start of the game, Reflectors observed and followed the instructions given to them earlier, Theorists reacted similarly to reflectors, and Pragmatists copied the strategy given during the briefing. (Rapeepisarn et al, 2008)

2.4.3 When learning in games works
Presented here are some examples of previous studies about learning in games and the use of tutorials, which in turn guide the recommendations to Paradox Interactive that this report offers.

Stephanie B. Linek, Daniel Schwarz, Matthias Bopp, and Dietrich Albert propose a theoretical framework for creating educational games, in which is contained a model that seems reasonably applicable to creating a tutorial as well, with some reservations. (Linek et al, 2010) What we can draw from their method is that the learning experience should ideally be adapted to the learner, as best possible, and that it is important to evaluate the learners experience to be able to improve both the learning design and the content being taught. This method is more focused on the people behind the lesson, than it is the people actually learning.

In an empirical study, Franca Garzotto confirms that at least in young children, interacting with others when playing a learning game leads to better learning results than playing alone. (Garzotto, 2007)

An empirical study by Vincent Aleven, Amy Ogan, Octav Popescu, Cristen Torrey, and Kenneth Koedinger concluded that tutorials used for regular tutoring (as in, tutorials for a non-game context) worked better if the students were required to display broader implications of what they had learned, compared to cases where students had do display more specific knowledge from the tutorial. This implies that using tutorial-based learning can be better suited to teach less detail-oriented information. (Aleven et al, 2004)

Continuing on from the empirical tutorial study by Aleven et al, we can note a study by Brian Y. Lim and Anind K. Dey from Carnegie Mellon University, and Daniel Avrahami from Intel Research. Their 200 person study concludes that explaining why a system works in a way leads to better understanding of the system than telling the user the ways in which the system doesn’t work (which lead to lower understanding of the system). The user’s performance was still adequate with the lower-understanding explanations however. (Lim, Dey & Avrahami, 2009) Four methods of questioning from the system were compared (Why, Why Not, What If, & How) and Why was the most successful method for understanding the system. This is also applicable to games, for example by having a strategy game in some manner explain to the player why the use of bribes to government officials works better in rough economic times compared to prosperous times, rather
than showing that the bribes aren’t working when the economy is doing good and everyone has plenty of money. In conclusion, a straight-on approach of positively reinforcing the actions of the user works better to inform the user of how a system works than alternate explanations.
3. Method

This chapter describes the methods used during this master’s thesis project. The project was divided into four parts, the first of which was gathering and interpreting the theoretical background to the project – a regular literature study where the goal was to explore the basics of learning theory as to build a foundation for examining tutorials. The second phase of the project was spent at Paradox Interactive, casually observing the work process and performing interviews with game industry professionals to understand the position of a tutorial from their perspective, as well as personally playing games with an analytical mindset. The third phase was gathering information from the end users, the players, about their feelings for tutorials and practical problems in previous Paradox Interactive games. The final phase was taking the work and analysis conducted throughout the process and creating a whole from the different pieces that had emerged, resulting in this report.

3.1 Surveying an advanced user base

The target group of many entertainment titles, not just games but anything from films to novels, is large as to increase the potential financial reward. This is not to say that entertainment or art can’t be created simply to entertain or raise thought. A larger target audience means that more kinds of people will view and interact with the product and since each single person has a different background, in terms of what they have experienced and thought about before, it is easy to see that it will be difficult to create anything that is perfectly tailored to any specific individual. This is as true in games as it is in any other form of popular entertainment.

3.1.1 Identifying the user base

To establish the audience that this master’s thesis project would target, for example for the purpose of examining responses to previous tutorials in Paradox Interactive games, a multi-stage approach was taken. Initially, three key employees of Paradox Interactive were asked to specify what they believed to be the target audience of earlier Paradox Interactive games. This proved inconclusive, as each person had a slightly different definition, that also lacked specific characteristics. It was established that no formal definition of who played Paradox Interactive games existed. The lack of a pre-existing answer can be attributed in part to a broad question, “who plays your games?”, and the fact the question was raised in an informal context. However, it is not certain that a more formal line of questioning would have yielded different results.

The results yielded from the descriptions gathered in the first step did however reveal that it was possible to divide the target audience in to two main groups, experienced users and novice users. Experienced users were those who had played Paradox Interactive games previously, while novice users had gaming experience but none with Paradox Interactive titles. The second step, following the identification of the two groups, was finding out more about the group of experienced users. This was done by polling the Paradox Interactive forums, asking users 22 questions about their gaming habits and thoughts on earlier Paradox Interactive games. The incentive for forum users to participate in the survey was partially the opportunity to help improve the games they enjoy playing, but also the chance to win one of 50 games that were given away at random to those who filled out the whole survey. This second factor was, judging by responses to the forum thread accompanying the survey, a large reason for many to respond but not by far the only thing motivating users.

The survey was tested on 15 people before being made available to the advanced users, taking on average 7 minutes to complete when not leaving comments in the optional open-ended questions.
The survey itself consisted of a mix of segment questions, grid questions, multiple choice questions, scale questions, and open questions. All open questions were marked as fully optional, while all other questions required the user to submit an answer before proceeding. The nature of the questions are noted accordingly in chapter 4.1 Survey results.

3.2 Observing gameplay to learn
This sub-chapter explains the methodology used when playing games, and observing others play. It also attempts to explain some difficulties inherit in observing gameplay to gather information for this project.

3.2.1 The difficulty in examining game design and learning
A major difficulty when examining games to draw lessons about game design is that game design is an iterative process, and many of the lessons a game’s creators have learned are not visible to the player. The dead-ends of the game have (hopefully, for the player’s sake) been removed, and only the most polished aspects remain. There is also the issue of subtlety. Beating the player over the head with explanations and hints is rarely a tactic employed by a game designer, at least in games that receive good review scores and fan praise, and the player is often given clues to what is allowed in the game world, and what isn’t, for example through the behavior of enemies and events in the game world. For example, in the game Braid – which focuses upon time manipulation to solve puzzles – some solutions to puzzles are effectively offered to the player through color-coded objects in the world, but the color-coding is at times barely visible unless directly focused upon, meaning that it is easy to initially miss for both a player and a secondary observer. In Braid, many minor effects (such as color coding, or controller rumbling) add up to say something to the player, but noticing everything and actually seeing the connection between all the little things that go on the solution to a given puzzle can be difficult.

When discussing games, level of abstraction is a commonly used term that partly describes the issues of subtlety mentioned above. Jesper Juul describes level of abstraction in games as three separate things, firstly being a core element of a video game, secondly as something the player decodes and interprets while the game is being played, and thirdly as an optimization by the player as the game progresses. The part of abstraction that makes out the core of a game occurs when a representational game (that is, a game taking place in a virtual and simplified world) also removes actions from the players vocabulary by disallowing them, for example not letting the player in a football game have their avatar tie its shoelaces, even though both shoes and shoelaces exist in the already abstracted game world. Juul describes the event of the player discovering that the action she perhaps would like to attempt is not available as exploring the game through abstraction. It is this exploration through abstraction that partly makes observing a game difficult, as the abstraction is taking place both inside the game and inside the player’s mental model of the game. (Juul, 2007)

However, none of these admittedly fuzzy issues make observing gameplay impossible, but have been taken in to consideration.

3.2.2 Examining games
As someone who has enjoyed playing video games for as long as I remember, simply sitting down and beginning play was a natural method of studying games and how their tutorials connected to the game as a whole. As mentioned concerning internalized abstraction, some of what happens to a
person as a game is played is an exploration and creation of a mental model of the game in question.

Playing games was a method for understanding how to conduct this study, in addition to understanding the games at hand, as well a method for getting a feel for the shape and content of tutorials in today’s games and how they can be designed. More precisely, playing games allows seeing the interplay between different game mechanics, which is hard to study on paper and is critical to an interactive medium. Experiencing the gameplay process through the eyes of the player, not just by sitting next to someone and taking notes while asking questions but actually involving oneself by becoming the player, allows seeing the process involved in learning the game. That one can assume the role of the player by just playing does come with a few prerequisites, mainly the condition that the game is not fully understood beforehand, as it would be if the person playing was also the game's creator.

Games were played by myself in two separate ways: recreational play, where the best way to capture the exploration from my own play sessions was by taking brief notes after finishing a gaming session, and analytical play where more extensive notes were taken. The difference between the two play-styles was partly in the way notes were taken, but analytical play also lead to slower play and more experimenting with different gameplay options. An example of experimenting with different gameplay options is attempting to try the crafting system for items in Team Fortress 2, something that I would personally not do in recreational play as it is not central to the game’s mechanics.

Choosing which games to play for this master’s thesis report was not a precise process, done mostly on feel and prior knowledge of which games could potentially be interesting. Almost all games today feature some form of tutorial, or at least introductory level that can be classified as a tutorial, and are thus interesting to examine when studying tutorials. A mix of story-based and rule-based games were played. See Appendix A for full ludology (the listing of the games studied).

3.2.3 Observing the novice user in action
The novice users of Paradox Interactive titles, those who have several years of experience gaming but have not yet played a Paradox Interactive game, were tested on their ability to understand and control Europa Universalis III (Paradox Interactive, 2007), a grand strategy game released in January 2007 (the tests occurring throughout June and July of 2010). Two groups of testers were used, the first group consisting of 5 people testing the game without having played it’s built-in tutorials, and the second group of 5 different people first playing through the included tutorials in the game and then playing the game afterwards. The 10 test subjects were selected from my circle of acquaintances.

The goal of the players in the test was always to take the role of France and form an army with which to conquer a region of the player’s choice. Players were encouraged to first pick the region which they desired to conquer before beginning to maneuver their troops, so to have a clear goal that they could relate their thoughts and choices to.

These observational tests were intended to identify problem areas in Paradox Interactive titles in general, as there are many similarities between all Paradox franchise series, and also to attempt to verify the effect of including a basic tutorial. As the tests were goal-based, the users were asked to
speak about what they were attempting to do in the game and how it related to their goal (conquering a province).

Prior to the tests taking place, an employee at Paradox Interactive verified that the tasks were indicative of normal gameplay and that they seemed to be useful for testing purposes. A reasonable time to complete the goal was approximated to 30 minutes ahead of testing, excluding time with the tutorial.

The tests were recorded on video using a laptop webcam, along with screen-captured footage of the gameplay, for observing user behavior after testing ended. The gathered footage was automatically synchronized to avoid delay when comparing user reactions to game events. Users performed the tests on a laptop computer with an external mouse (replacing the touchpad), and were given the choice of using either the built-in keyboard or an external one. This choice was given to accommodate pre-existing preference, to create a reasonably realistic setting for each user.

The purpose of recording video of the users playing was to create reference material, for when notes and memory were lacking, as to what players’ reactions were. Video was as such not a method, but rather a tool.

Originally all testing was intended to occur in a conference room. Instead, a stance of allowing users to play in a casual environment was adopted. Varying the location of the tests was deemed a non-issue, perhaps indeed a benefit, as testing users in an environment they would usually play games in would only cause reactions and behavior that were in-line with normal game play. This is to be compared with playing an unfamiliar game in an unfamiliar setting, which it was speculated would cause behavior that differed, if only slightly, from what most users would normally exhibit. This is an assumption that was made on the grounds that allowing alternating “casual” locations would at worst cause behavior as unnatural as that of testing in a conference room or similar, semi-sterile environment.

A similar problem when examining the testers is that there is a chance that merely observing a test subject would cause them to exhibit behavior they normally wouldn’t outside of testing, regardless of location. The only way around this would be to perform testing in secrecy, which was not done in this case.

The following criteria were used for the choice of locations:

- The location was allowed to vary for each test, but each test subject performed the whole of their test in one single location.
- The location chosen needed to be accepted by the test subject as “casual”, i.e. a place that the test subject would normally play a game in, such as the users home office or living room.
- The location needed to be quiet, in the sense that the test subject needed to identify the location as such and also choose to play the game at the location. Interruptions were allowed when they arose, as they were deemed a natural part of day-to-day play.

After finishing their play sessions, all testers were asked to fill out a quick form to grade the game. The same form was given to both those that had played the tutorial, and those who hadn’t. The form was adapted from Brooke’s System Usability Scale. (Brooke, 1996) The modified form is attached to this report as Appendix B. By filling out the form, the user gave the game a numerical score that
could be compared to that of other users. The score is by no means an definitive judgement, but rather a helpful indicator when needing to compare different tests. The modifications made to the Brooke’s original form was simply replacing the word “system” with “game”, and “using” with “playing”. The System Usability Scale was chosen as it has existed since 1986 and has been widely used since then, meaning it is a reliable tool for performing quick measurements of subjective opinions of usability. The reason it was chosen instead of other evaluation methods, such as the PLAY heuristics scale for games, was because focus was placed on observations and discussion and a more advanced system would occupy time needlessly while providing information not in demand.

3.3 Practical observations at Paradox Interactive
DURING THIS MASTER’S THESIS PROJECT, TIME WAS SPENT AT THE OFFICES OF PARADOX INTERACTIVE, IN CLOSE PROXIMITY TO THE DEVELOPMENT TEAM BEHIND THE COMPANY’S TITLES. THIS RESULTED IN INFORMAL OBSERVATIONS BEING CONDUCTED, SOMETIMES NOTED AND WRITTEN DOWN AT ONCE, AND SOMETIMES WRITTEN DOWN SEVERAL DAYS AFTER THE OBSERVATION WAS MADE. THESE OBSERVATIONS INFLUENCE THE RECOMMENDATIONS FOR PARADOX INTERACTIVE, AS AN UNDERSTANDING FOR THE REALITIES OF THE PRODUCTION SYSTEM HAS BEEN REACHED.

Not every part of the game creation process was observed, merely some parts of the design process and responses to bugs and similar issues were noted. The initial design phase, where the major features of the game are decided upon was never observed. Instead, the design decisions where the lead designer needed to clarify things for the programmers or decide on how to tackle specific issue on the spot could be observed. This was simply because of the fact that most major design was already complete. Observing this clarification process and the minor changes taking place suited the purpose of this report well, as the tutorial design took place later than the core game design. The observations were made during the development of Victoria II, due for release in the third quarter of 2010. The observations were a mix of overheard discussion and actively partaking in a design meeting.
4. Results

This chapter presents the main results from using the methods applied to this project. The main discussion and analysis of these results do not take place in this chapter, but can be found in chapter 5 Analysis and discussion.

4.1 Survey results

The results of the survey posted to the Paradox Interactive forums revealed information concerning the advanced portion of the users of Paradox Interactive games: the groups general make-up and the group’s preferences concerning the tutorials currently in Paradox Interactive games and wishes for future tutorials.

In total, 1540 responses were received during the two week period the survey was available online, each from unique respondents. These 1540 respondents were considered to all be part of the expert user segment of the target audience of Paradox Interactive games due to their activity on the Paradox Interactive forums. Of the 1540 responses, 1532 answered the full survey. The remaining 8 are counted in the initial answers, but are missing from later questions.

See Appendix C for the complete survey, as viewed by respondents.

4.1.1 Age, gaming experience, and gender

The first questions of the survey pertained to the age and gaming experience of the advanced users. It showed that the median user belonged to the age group 18-25 age group, but due to users only choosing a segment and not specifying an actual number it is difficult to say much about the average Paradox Interactive gamer’s age. The graph in figure 5 shows the distribution of the responses.

79.9% of advanced Paradox Interactive users answered that they had been playing games since the age of 13 or under (see figure 6), indicating long gaming experience on average considering 89.8% of respondents confirmed that they were 18 years old or older.

Gender among the respondents of the survey showed that there is a large disparity between the number of men play Paradox Interactive games and the number of women that do. It should be pointed out that the survey results were kept private from the forum population, so there was no discouraging elements preventing more females from responding – as being singled out as an example of an extreme minority within the community surely could do if the results were to have been public.

Of the 1540 respondents, 1531 were male and 9 were female, suggesting that just over half a percent of expert users of Paradox Interactive games are women. It should be noted that there has been no direct correlation drawn between the user population of the Paradox Interactive forums and the full audience that buys Paradox Interactive games, but with a community of over 200,000 registered accounts (with at least 65,000 people currently active on the forums) it is fair to assume that the audience that plays and enjoys Paradox Interactive games are also sufficiently represented on the official forums and that conclusions concerning the expert user group can be drawn from the forum population.
Location of respondents was not collected, thought it can be noted that from the 50 respondents that
were randomly selected to receive a prize for taking the survey, there were people from the USA,
Canada, Germany, France, Italy, Sweden, Norway, and England.

When asked what game genres advanced users preferred playing, not surprisingly, 1534 specified
strategy as a favored genre. While there were 1540 respondents, this reveals that almost all were
attempting to answer questions earnestly. Somewhat unlikely would be if the remaining 6
respondents play strategy games but don’t enjoy the genre at all, yet still take time to visit developer
forums and then answer surveys. The second most selected genre, in the multiple choice question
that allowed multiple answers, was role playing games with 70.5% of the users specifying that
genre. Overall it is fair to say that advanced users of Paradox Interactive games also enjoy other
genres, the average user selecting 3.85 genres in total. See figure 7. This would mean that those
players are also familiar with the mechanics of games other than strategy titles, on at least some
level.
4.1.2 Tutorial preferences

Of the 22 total questions, 11 directly concerned preferences regarding tutorials and where players take information to learn how to play Paradox Interactive games.

To begin with, advanced users were asked – concerning games in general – to rate how likely they were to skip the tutorials at the start of a game, if possible. The results are shown in figure 8. Respondents were then asked to rate how important a tutorial that is skippable is to them. See figure 9.

16% of the 1540 respondents answered that they were highly unlikely to skip the tutorial of any given game, a rating of 1 from 1 to 5. 26% of respondents responded with a 2 on a scale from 1 to 5. With 23% of respondents answering with a 3, that means that most of advanced users of a Paradox Interactive game won’t skip the included tutorial of any given game. However, 42% of the 1540 respondents said that they think it is highly important, a 5 on a scale from 1 to 5, that the tutorial be skippable (as in, optional to start the main game experience).
4.1.3 Information and learning habits before and during playing games

When advanced users were asked what their initial approach to learning a game was, 764 people (49.6%) responded that they play through all or some of the tutorial content available before beginning to play the main game experience (see table 1). The question was regarding games in general. This is to be compared to the initial approaching taken by advanced users when beginning to play a Paradox Interactive game (see table 2). There, 566 (36.8%) respondents answered that they played through all of or part of the included tutorial content before beginning to play the main game experience.

Both the questions contained comments that asked the respondents to specify their initial approach, as in what is the absolute first thing they would do before beginning to play.

<table>
<thead>
<tr>
<th>Table 1. Advanced user responses to what their first course of action is when attempting to learn a new game.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
</tr>
<tr>
<td>Start the campaign up and see what happens.</td>
</tr>
<tr>
<td>Play through some of the included tutorials, but not all.</td>
</tr>
<tr>
<td>Play through all of the included tutorials.</td>
</tr>
</tbody>
</table>

Figure 8. User ratings as to how likely they were to skip tutorials in any given game.

Figure 9. User ratings as to how important it is that a tutorial in any given game is skippable.
The most significant difference between the answers to the two questions was the drop in people playing some of the tutorials before beginning play, 393 preferring it regards to general games compared to 249 in regards to Paradox Interactive games, a decrease of 9.4% of the total number of respondents. However, this is to be compared to the lesser drop in number of people playing through all included tutorials, decreasing 3.5% of the total number of respondents. Also significant is the increase in number of advanced users diving head-first in to the campaign to try to learn by trial-and-error, 435 for games in general and 554 for Paradox Interactive games, this could be reflective of the greater experience the respondents have with Paradox Interactive titles.

Table 2. Advanced user responses to what their first course of action is when attempting to learn a new Paradox Interactive game.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Count</th>
<th>(%  )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visit the official forums or wiki</td>
<td>79</td>
<td>(5%)</td>
</tr>
<tr>
<td>Reading the manual.</td>
<td>208</td>
<td>(14%)</td>
</tr>
<tr>
<td>Other</td>
<td>54</td>
<td>(4%)</td>
</tr>
</tbody>
</table>

Respondents were also asked to rate how likely they were to skip the tutorial when starting a Paradox Interactive game, meaning how likely they were not only to skip them initially but altogether. See figure 10.

Figure 10. Advanced users’ responses when asked to rate how likely they were to skip tutorials in a Paradox Interactive game.
Advanced users were also asked to respond to what external references they used when playing Paradox Interactive games, meaning learning material not available inside the game itself but related to it. See figure 11 along with table 3.

Figure 11. Advanced user responses to which extent they used certain external references when playing games. The top line for each question is “manual”, the bottom being “community wikis”, the same order the legend above is presented in.

Table 3. User responses corresponding to the graph in figure 11.

<table>
<thead>
<tr>
<th>External help</th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual</td>
<td>146</td>
<td>344</td>
<td>372</td>
<td>333</td>
<td>337</td>
</tr>
<tr>
<td>Official forums</td>
<td>12</td>
<td>23</td>
<td>96</td>
<td>428</td>
<td>973</td>
</tr>
<tr>
<td>Unofficial forums</td>
<td>635</td>
<td>438</td>
<td>265</td>
<td>118</td>
<td>76</td>
</tr>
<tr>
<td>Real life discussions</td>
<td>734</td>
<td>447</td>
<td>200</td>
<td>100</td>
<td>51</td>
</tr>
<tr>
<td>Community wikis</td>
<td>76</td>
<td>226</td>
<td>413</td>
<td>499</td>
<td>318</td>
</tr>
</tbody>
</table>

Finally, respondents were asked whether they felt it was important to them personally for Paradox Interactive to include in-game tutorials of any sort in future titles. 534 people answered that they felt it was somewhat important, and 484 people answered that it was highly important, compared to 134 who thought it was highly unimportant. See figure 12.
Figure 12. User responses as to how important it would be to them that future Paradox Interactive games include a tutorial.

4.1.3 Quotes from advanced users regarding tutorial preferences

The final question of the survey given to advanced users asked for comments regarding tutorials in Paradox Interactive games, past and future. Of the 1540 respondents, 780 answered the optional, open question. The answers received were a mix of suggestions and critiques, as was intended.

It must be noted that while 65% of users say they play Paradox Interactive games more than 6 hours per week, and 31% say they play more than 12 hours, it cannot be verified that the respondents recently had played a Paradox Interactive game nor touched the included tutorials in said games. The implication of this is that while the responses certainly can be fully valid and informed, they come from people possibly trying to remember something that isn’t at the front of their mind. For example, 8% of respondents stated that they had played the included tutorial in *Victoria*, but the game did in fact not contain such a feature (though fans seem to have developed introductory materials for new players on their own, which was referenced in the comments left by respondents and could explain the 8% figure). The comments presented here are aimed to be representative of common opinions in the survey responses. When “you” and “your” are used, it should be noted that the comment is aimed squarely at Paradox Interactive and their internally developed products.

[Paradox Interactive] tutorials seem to be very text-based, which is [a reason] why I rarely look at them. I would rather they be a mode in which it unlocks aspects of the game after learning a previous aspect.

[...] On the contrary, a tough to use user interface (it shows me how much my relations are, but I can't find the screen to change relations! How come they don't just have a button beside the relations to allow me to change it?!) frustrates the user and makes them avoid features, doesn't give them that self-esteem boost, and makes them think the game concepts are difficult to understand. It makes them want to put the game away. [...]
not only its certain features. Simply put - for the grand-strategy game, [tutorials] should be able to show the player the whole puzzle more clearly, not only its pieces.

Interactive tutorials are much better than automated macros that show functions. It is important to balance this, though. Tutorials should not degenerate to the point where the player has to repeat simple actions. They should rather him the player more complex objectives to achieve.

Tutorials should be interactive. It may be hard to do in a typical Paradox game, but that is the best way to learn.

Tutorials are the weak point of PI games. A proper tutorial, like the wonderful one provided in Napoleon:Total War, would increase the accessibility of PI games immensely.

A lot of problems and headaches would be resolved if tutorials would be more inclusive, perhaps helping the player as he goes along in the campaign.

They are great games, but it seems the [...] requirement for knowing how to play them is having played [earlier titles] already. Bit of a catch 22 really.

The tutorials for Hearts of Iron III were very poor. Although the tutorials explained all the various screens, they did not explain the main part of the game: how to fight a war. When I started my first campaign I knew how to build and deploy armies, but had no idea what a good army makeup was and didn't understand why my men kept running out of supplies, or how to make effective use of my air and naval units.

[...] I might suggest a more granular table of contents that you can easily skip items in an informed manner.

Teaching what to do isn't enough. The player has to understand why.

Playing paradox games is a continual learning, so you cannot expect a tutorial to give all the answers, just a basic path

[...] When I was first learning how to play EU2 the steep learning curve was kicking me in the butt. I started playing it when I was 15-16 and it took me about 30 days before I could survive, not win, the grand campaign on easy. I read the manual several times and played to the tutorials.

Please when you make a tutorial, don't think veterans. Think new players, think people who have never played a Paradox game. Make every tutorial like if it was your first game ever.
More specific details on effects could be very useful in advanced tutorials. It does no good to know how to say, blockade a port, if I don't know what the strategic effects of blockading that port is. I'm left wondering: does blockading a single port matter? Does blockading the only port on an island cut that island off militarily or economically? Does it matter how many ships I blockade with or where I blockade? These unanswered questions make the learning curve much longer whereas if I knew the effects, I could enjoy the game more quickly.

I have tried to get friends to play and they have to take it on faith that it's rewarding to spend 2 hours building troops and not even fighting. A tutorial that takes them straight from planning to action in 10 minutes would be a god send.

I sometimes get the feeling that the tutorial is somewhat too rigid, telling the player to do this and that while not explaining much why. They are perhaps also a bit dull, they consist mostly text messages and not much more, which doesn't catch my interest that much. Most of the time the tutorials are very functional and informational though.

The 760 comments left are categorized in table 4. Note that a single comment could, and in many cases did, contain multiple suggestions and/or critiques. All-in-all, the comments could be categorized in to 19 categories, some broader than others. The total count of categorized comments was 1103, though 16 comments stated that no tutorials at all were needed and 39 comments were non-serious in nature (the related responses are still included in the total tally of the survey however).

<table>
<thead>
<tr>
<th>Opinion/concept</th>
<th>Number of related comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>No tutorials needed at all</td>
<td>16</td>
</tr>
<tr>
<td>Non-serious comment</td>
<td>39</td>
</tr>
<tr>
<td>More interaction</td>
<td>132</td>
</tr>
<tr>
<td>Voice acting in tutorials</td>
<td>20</td>
</tr>
<tr>
<td>Higher level of integration in to the main game</td>
<td>30</td>
</tr>
<tr>
<td>Teach tactics, advanced concepts</td>
<td>126</td>
</tr>
<tr>
<td>Update for patches and expansions</td>
<td>57</td>
</tr>
<tr>
<td>In-game help and/or advisor</td>
<td>58</td>
</tr>
<tr>
<td>Cover all game concepts</td>
<td>80</td>
</tr>
<tr>
<td>General complaints</td>
<td>124</td>
</tr>
<tr>
<td>No personal need, but sees value</td>
<td>112</td>
</tr>
<tr>
<td>Non-mandatory and/or skippable tutorials</td>
<td>36</td>
</tr>
<tr>
<td>Information overload an issue in tutorials</td>
<td>31</td>
</tr>
<tr>
<td>Video tutorials should/could be included</td>
<td>16</td>
</tr>
<tr>
<td>Opinion/concept</td>
<td>Number of related comments</td>
</tr>
<tr>
<td>----------------------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Short tutorials and/or high granularity</td>
<td>41</td>
</tr>
<tr>
<td>Mini-campaign and/or playable scenario</td>
<td>46</td>
</tr>
<tr>
<td>General praise</td>
<td>78</td>
</tr>
<tr>
<td>In-game encyclopedia</td>
<td>34</td>
</tr>
<tr>
<td>Use of forums, wikis, AAR’s, and/or DD’s</td>
<td>57</td>
</tr>
</tbody>
</table>

No tutorials needed at all – Comments of this nature stated that Paradox Interactive should stop creating tutorials.

Non-serious comment – Comments in this category were merely jokes or did not remotely relate to the concept of tutorials or gameplay, often instead focusing on Paradox Interactive as a company.

More interaction – The most common response, with 132 related comments. Responses of this nature were of complaining about previous Paradox Interactive tutorials with low levels of interactivity, where the player merely had to watch what buttons were being highlighted by the game and asked to remember feature after feature.

Voice acting in tutorials – 20 people mentioned that they thought that text-heavy tutorials could be improved with the use of voice acting.

Higher level of integration in to the main game – This category of comments overlapped mainly with requests for interactivity and requests for more advanced concepts to be covered by tutorials in Paradox Interactive games. The reason these comments were not counted in those other categories is that they displayed a want of long-term gameplay to be covered by tutorials, but did not explicitly state that any actual tactics needed to be explained – only core mechanics, for example what the effect of change to a POP could be (a POP being the basic population unit in Victoria, measuring the numbers of different social and worker groups).

Teach tactics, advanced concepts – 126 respondents mentioned their need for tutorials to cover tactics and more advanced concepts that are not explicitly explained by existing Paradox Interactive tutorials, for example the concept of supply in Hearts of Iron III was a common example given. The general criticism regarding this topic was that Paradox Interactive tutorials cover many low-level concepts such as interface or unit construction, but fail to mention what good unit combinations may be or how to gauge certain aspects of combat performance.

Update for patches and expansions – A very basic, fundamental request from advanced users was for Paradox Interactive to keep their tutorials relevant and up to date – even functional – as patches change or add features and expansions build upon the core game. It must be stated that tutorials lose all meaning or have adverse effects if they give untrue lessons to players or have broken mechanics.

In-game help and/or advisor – A solution to lengthy tutorials, or tutorials lacking in depth, offered by 58 respondents was for Paradox Interactive to develop some sort of in-game help, for example
an advisor figure that would assist the player when certain scenarios arose in the main game campaign.

*Cover all game concepts* – 80 respondents stated that they thought that all concepts and mechanics in a Paradox Interactive game needed to have a full tutorial, showing how-to’s and consequences.

*General complaints* – This category, covering 124 responses, was made to include such statements as “tutorials up until now haven’t been all that they could be” and similar.

*No personal need, but sees value* – Answers included in this category stated that the respondent did not consider tutorials in Paradox Interactive games, in their current form, to be of much value to the respondent personally, but that new players definitely had use for them. While 112 responses may seem like a lot, it should be noted that many respondents stated that they simply had no use for tutorials themselves due to the fact that many tutorials in Paradox Interactive games have only covered relatively basic concepts such as unit creation and troop movement. This also reflects the fact that the respondents came from the advanced user group.

*Non-mandatory and/or skippable tutorials* – 36 respondents went out of their way to point out that tutorials included must be skippable, and completely optional for the main campaign.

*Information overload an issue in tutorials* – A total of 31 comments stated that tutorials in Paradox Interactive games generally present too much information at once.

*Video tutorials should/could be included* – Thought 16 comments stated video tutorials as an improvement to text-heavy tutorials, 12 of them merely suggested it as a short-term fix for lack of interaction.

*Short tutorials and/or high granularity* – Comments in this category stated that tutorials should be short to complete and/or that games should feature many tutorials with a high level of granularity, meaning many tutorials covering different concepts. In the 41 comments given, no time estimates for tutorial length were given.

*Mini-campaign and/or playable scenario* – These responses stated that the user would prefer to see tutorials created in the form of playable scenarios or if possible a short campaign (reflective of the main game campaign) that would allow for more free exploration of game concepts and mechanics.

*General praise* – Comments categorized as general praise simply included, or consisted solely of, compliments of tutorials in previous Paradox Interactive games and the games themselves.

*In-game encyclopedia* – All 34 responses categorized as a want of an in-game encyclopedia of game concepts and units referenced previous work in the Civilization series or the work done on the wikis of Paradox Interactive games.

*Use of forums, wikis, AAR’s, and/or DD’s* – By forums, the official Paradox Interactive forums are meant. Wikis reference the official or semi-official wikis created by the community surrounding game such as *Victoria*, while AAR’s mean the After Action Reports posted on forums that document play-through sessions of individual users and explain intended effects of certain actions. DD’s are the Developer Diaries posted by Paradox Interactive staff, showing off new or upcoming features, and were seen as a good resource to learn of the working mechanics of Paradox Interactive games.
Many comments urged Paradox Interactive to include references to some or all of these external resources in upcoming tutorials.

4.2 Tutorial concepts from interviews and personal observations

The literature study and the interviews conducted with employees at DICE and Paradox Interactive, combined with personal observations from playing games yielded numerous tutorial concepts that are presented below.

4.2.1 Personal observations when playing Paradox Interactive games

The Paradox Interactive games that were played were *Europa Universalis III* and to a lesser degree *Hearts of Iron III*. Titles *Victoria*, *Europa Universalis II*, *Europa Universalis: Rome*, *Hearts of Iron II*, and *Crusader Kings* were examined but only briefly played.

The primary observations made were:

• Tutorials were in the case of *Hearts of Iron III* completely un-interactive, in that they only required the player to press the “next”-button, and consisted of explanatory text covering some parts of the user interface and a few game mechanics. A low level of interactivity was consistent in all titles, with the game only requiring minimal user interaction even in the “trial” mode in *Europa Universalis III*, meaning that for all intents and purposes, the user might just as well have been watching a movie displaying the same actions as she was performing.

• No advanced tactics were covered, only rudimentary actions such as moving troops, but not evaluating the results of troop movements or what could be considered as “good” troop movement.

• The long-term consequences of any action remained unexplained and seemingly needed to be experienced first-hand to understand. However, due to the complex nature of Paradox Interactive games, linking an action to a later reaction was difficult.

4.2.2 Tutorial concepts

When attempting to observe the broad categories that different tutorials might conform to, from games already on the market but not only developed by Paradox Interactive, the following list emerged:

*Diegetic* – Does the tutorial take place within the story of the game, that is is it something that the inhabitants of the game are aware of? Diegesis will for example occur in films when music is playing from a radio that the characters in the film can hear, as opposed to the score of the film that only the audience can hear – the music existing inside the film being diegetic. For tutorials, this means whether the information presented is presented as self-contained inside the game’s world. In the case of Paradox Interactive games, the tutorial in *Hearts of Iron III* was diegetic in that it contained a character talking to the player “character”, though no other tutorials from Paradox Interactive have been. A diegetic tutorial mainly has implications of how information is presented, as the fourth wall between the game universe and player at least has to become blurred.

*Interactive* – Is the tutorial interactive or not. A tutorial that is interactive has the player inputting commands and at least partially controlling the events displayed on-screen. Interactivity has many different levels, but it should be stated that simply pressing “next” without any other options should not be classified in this category, meaning that for example the tutorials in *Hearts of Iron III* would...
not be classified as interactive, while the trial scenarios included in Paradox Interactive’s *Europa Universalis III* would be considered as such.

**Testing** – A tutorial that is testing is built upon interactivity in some way, and requires the player to perform a task as stated by the game to pass or continue in the game or tutorial mission. Testing-tutorials are good to ensure that the player has at least performed certain tasks in ways that the designers intended once, if not more.

**Configuring** – A tutorial that is used to configure the game in some way can be found in for example the first person shooter *Halo 3*, where the player is asked to control her view of the game’s world, essentially turning the main characters head. In that case, depending on what action the user takes, the game sets the option for inverted or non-inverted view controls (this can later be changed manually by the player, something that is explicitly explained). By allowing the player to express certain, perhaps basic, actions that she would like to perform, the tutorial can be used to configure the game experience. For example, a tutorial could give the player advice on which difficulty to select depending on certain outcomes.

**Knowledge-measuring** – While this category is similar to the testing category, it is different in a significant way. A knowledge-testing tutorial gauges the skill level or knowledge of the player in some way, and does not necessarily feature a pass-or-fail conclusion but can instead simply say “the player is this good at doing something”.

A game’s tutorial may be included in none or all the above categories, or any number in-between.

### 4.3 Observational study results

The results from the observational study is presented here as reactions and quotes separated between the 5 users that did not play the tutorial that *Europa Universalis III* shipped with, followed by the noted reactions from the 5 users that got a chance to play the tutorial before beginning to play the game.

The ratings of the game submitted through the adapted System Usability Scale by all the users is presented before the reactions and quotes, along with noted differences and similarities between the 10 users. See appendix B for the form used. As all testing was conducted with Swedish subjects, though with an English-language game, the original quotes and reactions occurred in Swedish and are presented in translated form.

The average score, from 0 to 100 on the System Usability Scale, was a rating of 42 for the test subjects who played tutorials before beginning the campaign, compared to a rating of 32.5 for subject who did not play tutorials. This means that the novice users tested rated *Europa Universalis III* with primarily negative scores (end results below 50), regardless of using the tutorial included in the game or not. This speaks primarily to the low impact of the particular tutorial used in *Europa Universalis III*. These scores however are merely a side note, as only 10 people were tested and comparing statistics from such a small sample is not relevant. What is more interesting is the actual reactions those users had and the comments they gave during gameplay.
The average age of the participants in the observational study was 25.7 years, the median age being 26 years (the two middle values being 26 and 26, a mean of 26), corresponding reasonably well with the age-span of advanced Paradox Interactive users. All participants had previous gaming experience in-line with what was deemed to constitute a novice user of Paradox Interactive games: they had no previous experience with Paradox Interactive games, and had experience playing other strategy games such as Civilization, games from the Total War-series, and many other titles in the strategy genre as well as different types of games.

4.3.1 Non-tutorial users
Participants who did not play tutorials before beginning to play the campaign all initially struggled to find out which button did what, though they were all familiar with the basic concepts of a strategy game with combat aspects (creating and selecting troops, different troop types have different combat characteristics, etc) so they seemingly knew what they were at least looking for. As participants were asked to think aloud and explain their process, this was confirmed. Simply clicking “randomly” and making guesswork sooner or later lead all non-tutorial users to what they were looking for. This indicated that the users did not have any fundamental problems understanding the basic game mechanics, but were hampered by the interface in some way.

Of the 5 non-tutorial users, 3 decided upon settling for peace with another nation in the game, resulting in all cases in “white peace”, a term they were unfamiliar with but could not find explanation for (a white peace being the return to the status quo before the initiation of a war, returning all conquered provinces etc).

All 5 non-tutorial users had trouble grasping the amount of information at once available to them, complaining of “information overload” and “interaction overload”.

A few select quotes, explained when it was deemed necessary, follows:
“Ah, I need a diplomat to declare war. It says so there in the tooltip, nice and clear.”

“In a first person shooter, if you can’t jump it becomes a problem right away, but [in Europa Universalis III] it seems to take a long, long time for even issues [in understanding] to become apparent.”

“Things are going too fast, I think I’d like some help with controlling the game speed for me.”

4.3.2 Tutorial users
Just as with non-tutorial users, the novice users who did play tutorials had trouble finding the buttons that would allow them to perform their desired strategy. This was caused by the fact that when the basic interface was explained in the tutorials, the users never actually saw where to activate menus but were instead simply presented with the appropriate menus that were being explained. For example, when looking for the menu to recruit a general, the player knew that the choice existed and had seen the appropriate menu before, but did not know how to navigate to it.

Regarding the tutorials themselves, all 5 users stated that they felt they lacked interaction in that they did not personally get to explore or understand what the game was trying to tell them, and that there was too much text on-screen at once. All 5 users complained of lack of context of the information being presented to them.

A few select quotes, explained when it was deemed necessary, follows:

“I wish I could just view these tutorials whenever I needed them, they’re not telling me much now.”

“Oh, is that what they’re trying to show me? I couldn’t see it at all.” – Referring to the highlighting of certain feature areas in the general interface tutorial, which had lines and arrows pointing out what the text was describing. However, the lines and arrows were too small and did not get noticed by the user.

“How are all these screens appearing?” – Referring to the different control screens and menus shown in the tutorial, without explanation of how to actually activate them.

“There should be a test scenario.”

“I have no idea how a siege works here. What will break it? I wish I could look that up.”

4.3.3 Differences and similarities between the groups
Users had many complaints regarding the interface: how notification windows behaved (popping up behind certain menus, irregular typeface sizing), what graphical features were buttons and which weren’t. One user did not understand that grayed-out buttons weren’t usable, because different types and styles of buttons were used throughout the interface. Learning what a usable button was was difficult, see figure 14. Another problem was large tooltips positioning themselves over the information the user was looking at, when constructing units.
All 10 users had trouble remembering to un-pause the game, or pause it when things became hectic for them.

The time of completion, capturing a province, differed from person to person with no apparent relation to whether the person had played tutorial or not, instead mainly being affected by whether the participant chose an “easy” target, such as the region of Calais which had a 65,000 man army posted next to it at the start of play.

8 of the 10 users initially had trouble understanding or remembering that they could use the scroll-wheel on the mouse to zoom in on the world map in the game. Similarly, users had trouble with getting their units to attack, as they did not know to right-click a target area (as opposed to left-clicking) and there were no interface options to attack that corresponded to the mouse action.

A total of 4 out of 10 participants expressed interest in playing the game more even after the observation was completed.

4.4 Summary
Players of Paradox Interactive games, both novice and expert users, have a want and need of tutorials. Both groups also wish for tutorials that are interactive, and go beyond basic information such as what certain aspects of the interface does. Both groups expressed interest in being able to refer to help with tactics and strategy during play of the main campaign, outside of a tutorial. Advanced users today accomplish this by spending time with external references such as official forums.

Novice users need more initial help than they are currently getting from tutorials. Even with much previous gaming experience, the noted reactions from the observational study were quite negative, though novice users certainly understood that there was an interesting game “in there” that could appeal to some.
Advanced users are a diverse group, and certainly consider themselves experts without anybody telling them so. Even advanced users admit to having great issues with understanding “hidden” mechanics in Paradox Interactive games, but find that the community is a great resource for gaining understanding.

Novice users seem to need explanations of more than just simply the basic user interface, and don’t seem to enjoy lots of text even though they clearly understood why large blocks of explanatory text were present.

Developers should consider which of the tutorial concepts they want to put to use, and for which type of learner they are currently designing their experience (see chapter 2.4.2). Knowing the tools you want to employ and what your audience is is key.
5. Analysis and discussion
This chapter aims to bring together the results from chapter four with the theory of chapter two. A personal critique of the methods used in this project is also offered.

5.1 The Band-Aid solution
In my view, a fundamental issue with some tutorials is their disconnect from the central gameplay they are trying to teach. To have a player understand what they will be required to do and why they should do it, the game needs to inform of the theory driving the game mechanics, as well as the way to put that theory in to practical use. There are basically two ways to view tutorials: either as an integrated part of the game’s experience or as an additive, introduced after the creation of the central game – both almost certainly reflecting the developer’s approach to when and how the tutorial was created. With the background of user-centered design, it is clear that the integrated tutorial, created alongside the game itself, is the preferable option.

Tutorials certainly should have a connection to their game, but a well designed game is something that to a degree should also explain itself and teach the player about gameplay through gameplay. The more self-describing gameplay can be, the less work the tutorial has to do, basically just having to push the player in to the learning loop that is the game. Thus, there is a gradient between a tutorial that tries to say everything about a game, and a tutorial that says enough to allow the game itself to say the rest. Where on that slope one positions a game and its tutorial is decided by the design work done on the central game.

The tutorials in Paradox Interactive games fall squarely in the realm of being added after the core of the game is complete. In my opinion, this leads to tutorial design process that has to look at a game that is nearing completion and then try to distill all the available information down to a short format that the player can at least have a chance of getting an overview of. The consequence of this is that many small, and not so small, pieces of what makes up a complete Paradox Interactive game are lost and subsequently missing from the tutorial. This can be noted in many responses from advanced users, knowledgable in previous grand strategy games but still unsure of how certain game mechanics work.

Assuming one cannot get around the constraints that lead to the situation described above, there are still solutions that don’t involve altering the central game design to something more simple to make it understandable and learnable. Certainly, knowing that core mechanics of a game are being misunderstood or not understood at all (initially) should be a wake-up call to both include help that explains complex features and also design those features in ways that will allow the player to actually get an overview of cause and effect.

Now, the difficulty of explaining complex features in a short amount of time and space is what brought about the problem of inadequate tutorials (according to both advanced and novice users) in the first place. So what can be done? What was most reported by advanced users as a problem regarding the lack of explanations of complex features was the fact that it was difficult to discern what implications an action would have, for example would blockading a port in one place really have an effect on the overall naval capabilities of the blockaded country, or would it just be wasted effort by the player? Giving the player the complete answer is not the right way to go, it would remove any satisfaction gained from besting the system – the “aha” experience of insight would vanish.
Instead, tutorials should approach complex features and potentially complex features (identifying these are a matter of play testing) from the ground up, providing basic information about as many features or mechanics as possible, to allow the player to piece together a complete image of her own. It seems to me that what causes the most grief in both novice and advanced users is the lack of a base understanding of what is connected to what, and what the intended purposes of very specific features are. Explaining everything at once is an impossibility, but players at least need to be given the chance to understand what they are playing with and manipulating.

5.2 Combining learning theory and game design

Basic psychology is very useful for understanding why people do what they do (as well as adding to the confusion at times), and it is something we can never truly escape. Thus, considering behaviorism when creating tutorials for games is a good starting block. That means, we can begin with assuming that we can directly influence basic player behavior through giving simple examples and showing the direct outcomes of those actions, without attempting to account for the inner behavior of players that might lead to such things as insight. Showing off the interface and which buttons causes what effect would fall in this category, effectively using conditioning. This is direct learning, if we give the player enough information about the interface we will be able to assume that it is fully understood later.

To create higher levels of learning, we need to start focusing on the learner: what type of person is playing and how will she be able to understand the most (see chapter 2.4.2). In the case of Paradox Interactive games, this is needed as the games are open-ended in that there is no story to follow and the dynamics of the game world are simulated and can depend on the situation created by the player. Attempting to use a behavioralist view on gameplay that requires player insight and experimentation would not be optimal. Experience in edutainment games, described by Egenfeldt-Nielsen, states that cognitivism and constructivism are the next steps in a multi-layered learning structure for games (see figure 15).

As both concern themselves with measuring, there should be no problem with transforming the cognitivism view to a more progressivist view from learning theory, meaning that we begin replacing the basic ingraining of knowledge offered by conditioning and move to experimentation to solve problems. As constructivism states that we generate knowledge from experiencing and evaluating situations, we will take this to mean that a tutorial in a game that aims to produce knowledge that can lead to insight should:

- Allow the player to experiment within a selected area to learn first-hand.
- Work in small projects/challenge areas and receive feedback on what worked and what didn’t.
- Prior to beginning, the game should offer the player analysis of the concepts and mechanics of the situation. This analysis should not offer the solution, merely background.

In the Paradox Interactive case, this means that players should be informed for example in the Hearts of Iron-series be informed of what a ground infantry unit can do versus a battalion of tanks, with hints such as “rifles won’t work against armor”, but then given a small combat scenario in which a decision about infantry deployment to meet an enemy offense must be made. After such a scenario, the tutorial should offer explanations as to what was right about the player’s choices and what could be improved.
Figure 15. A suggested model to design tutorials to in the Paradox Interactive case. First, basic skills need to be taught with means, allow the user to progress to a more experimental state where higher level game concepts should be taught. Following that phase, a social learning experience is recommended. The colored background area represents the “focal point” formed by gathering all users with simple methods before moving on to more free methods of learning. (Adapted from Egenfeldt-Nielsen, 2007)

Following the focus on the learner, where we will posit that basic tactics are taught and that the player learns to play the basic game, we will turn our attention to the meta-layer of what how the community interacts around Paradox Interactive games. This is the most maturely developed of the aspects regarding how learning occurs in the Paradox Interactive case, with a community effort creating learning materials and reflecting over the information being mediated. However, this knowledge is not known to novice users. Integrating the knowledge created by the community would allow for learning (in novices) in a communal context.

What is most underdeveloped in Paradox Interactive games at the moment is the middle-ground, where players from both the advanced and the novice groups are not given the information or opportunity to experiment with the game in a measured way that allows feedback, also lacking in coverage in that some central mechanics are left out, such as “supply” in Hearts of Iron III, a central concept that players could not learn about from the tutorials and left the game very hard to play.

5.3 Observed issues and possible solutions

5.3.1 Interface

While this isn’t a study of the graphical user interface of Paradox Interactive games, it has to be noted that the games cannot be played without the user having control of her actions. It is the basis of interaction, and holds great importance for player learning. In an interactive medium, the interaction truly matters.

The most common complaint received when observing novice users play Paradox Interactive games is that the amount of information initially presented is too high and there exists too many options that it is both hard to find the buttons for the desired interaction as well as actually finding out what
is a button at all. While the interface is something that currently receives attention in tutorials in Paradox Interactive games, both the explanations given and the interface itself can be improved.

To begin with, when displaying menus in a tutorial, it is essential that the player actually see how to access the menu in question, not just that the menu exists and what it does. While clicking around to see what works and what doesn’t is an option, and something that will occur in the long run as the player finds need for more and more control of the game, simply showing the interaction that leads to various interface states will help. An option is to not have lengthy interface tutorials, and simply pop up introductory help windows in the main game campaign when the user explores the interface in the context of an active game. This still means that the player must have an introduction to how to explore the interface, but contextually presenting information instead will remove some of the information overload that novice users found bothersome.

5.3.2 Game logic, and understanding activity and content
What advanced users revealed in their comments showed that many have learned how to operate Paradox Interactive games by reading the developer diaries that detail some of the creative process behind the game, showing the designers intent and what forms it takes. The way information is presented in the developer diaries could surely be harnessed, at least partially, and incorporated in to tutorials. It is at least a starting point as to what works when explaining how to think about Paradox Interactive games.

A clear issue for some novice users was their lack of knowledge of some historical concepts, for example “white peace” as was also used as an example in chapter 4.3.1. An oft-requested feature from advanced users, the integrated encyclopedia, would be a solution that allowed the game to use such terms and concepts. As such, there is an overlap between the wants and needs of the user groups, even though it is not for the exact same purposes (the advanced users wanting much more in-depth information in an encyclopedia than novice users would want or need).

In his article “Improving Understanding, Learning, and Performances of Novices in Dynamic Managerial Simulation Games” Hakan Yasarcan shows that with a simulation game with a dynamic difficulty – that is a game that behaves differently each time it is played and can change the difficulty of the content presented to the player – can get a novice to learn better (that is more knowledge in this case), having gradually increased difficulty to improve results, rather than having the game adapt which resulted in a learning plateau. To clarify, a game that starts at a lower level of difficulty and with fewer concepts to track for the player, and gradually increases its difficulty, will teach the player better than having the game attempt to match the player’s skill and then increase difficulty. (Yasarcan, 2008)

What we can draw from this should be that one approach is to start “low” and make sure to catch as many users as possible, when moving up in difficulty. For Paradox Interactive, this would mean introducing a learning curve to their game, meaning that the player would start off with a limit number of options and concepts to learn before graduating to the full game. However, this is something advanced users explicitly asked against. A solution, though certainly one that comes with a monetary cost, is to develop a separate beginner’s mode that has fewer features and gradually introduces players.

Players of both advanced and novice nature felt that there was too much text in the current Paradox Interactive tutorials, and some advanced users suggested video tutorials. However, that would mean
the same loss of interactivity that is present in the tutorials today. Maintaining and using
interactivity leads to better opportunities for learning (Charsky, 2010), and should always be
attempted. That does not mean that there can’t be a learning aspect to a video. For example, for the
strategy game World in Conflict, developer Massive Entertainment published promotional videos
that on one hand showed off the game in an exciting manner, but also contained instructional
material introducing new players to how to play the game. The videos were featured in promotional
materials and also linked on the game’s webpage under the heading “how to play World in
Conflict.” This would cover the same ground as the current developer diaries from Paradox
Interactive, but actually be in a moving format that shows off the interactivity to some degree.

5.3.3 Social factors through forums and wikis
While the community surrounding Paradox Interactive games has teaching and learning potential
attached to it (see chapter 5.2), there is a threshold to enter the community. Firstly becoming aware
of its existence, and secondly navigating the many threads on the interconnected forums hosted by
Paradox Interactive and mining all the resources contained therein. Games have already partially
solved the issue of separation of community and actual game, for example the role-playing game
Demon’s Souls features an integrated system where players can leave persistent messages and hints
in the game world that propagates to every player’s game world, messages that can later be rated by
players to remain in the game, or be culled automatically. This is similar to a wiki, and has its own
set of problems, but is an approach that can be considered. Getting players involved in the
community through this kind of activity has been shown to increase the learning of the participants.
(Aleahmad, Aleven & Kraut, 2008)

5.3.4 Original problem statement
Returning to the problems stated at the beginning of the report, we can see that the problems posed
also have corresponding solutions or explanations in the chapter 4 Results and chapter 5 Analysis
and discussion. The original problems are again:

• What are the primary concerns when designing tutorials for grand strategy games in order to
  create player understanding of the game’s features?

Knowing what current advanced players, and the potential novice players, have issues with is a
good starting point in creating a design that will make Paradox Interactive games more learnable
and understandable. The primary concerns at the moment are that key features are not sufficiently
explained in Paradox Interactive’s grand strategy games, and that players have a need for
interactivity to be able to learn well that is not currently met.

• What are the main learning issues surrounding the implementations of tutorials in previous
  Paradox Interactive games, when compared to learning theory?

This problem is handled in length in chapter 5.2 Combining learning theory and game design.

• Is there a need for tutorials to be included in Paradox Interactive games?

Yes, both advanced users and novice users expressed and demonstrated a need for tutorials in future
Paradox Interactive games.

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5.4 Method critique

There are many, many approaches one can take when deciding to study any subject, and this of course includes games. As follows are the primary remarks I have regarding mistakes made during this master’s thesis project:

- Only one game was played by novice users. Playing multiple Paradox Interactive games would have been able to reveal issues across titles and give suggestions as to what novice users responded more favorably to.
- There was a limited number of observations made, 10 in total. Increasing this number would mean better opportunity to get a broader view of what users want and need. Categorizing users into learning types prior to performing observational studies, or rather making sure that different groups are represented would also be welcome.
- Testing personal reflections on tutorials with users to verify ideas was not done outside of posing hypothetical questions or questions related to the current activity of the user. Testing working prototypes could provide more hard data.
- No direct observations of advanced users, which would be preferable to compare their reactions with those of the novice users and determine further differences and note similarities between the groups.
- The separation of novice and advanced users quite broad, a more finely nuanced picture could prove helpful when not dealing in extreme use-cases (hardcore fans vs. complete beginners).
6. Recommendations
As the goal of this project was to provide recommendation for future tutorials to Paradox Interactive, a short list is offered here in addition to the comments made in chapter five and user results from chapter four. A few recommendations for future studies is also offered.

6.1 Recommendations to Paradox Interactive
6.1.1 Short term goals
• Designing user interfaces that explain themselves to a larger degree, what is a button etc, which would allow tutorials to focus less on learning to tackle the user interface and more on the game mechanics.
• Loading screen tips can serve as reminders and informers, and are cheap to implement. This is good for reminding player about interface features, and covers idle time.
• Begin to cover more tactical approaches on how to play the games in the tutorials.
• The more interactivity that can be added to tutorials the better.
• Adding measurable test situations that can provide the user with feedback would be preferable.
• Allow players to access shorter tutorials in-game, or find other way to provide player with reference material when player actively wants to use it.

6.1.2 Long term goals
• Not requiring knowledge of information not easily found within the game, in essence creating the encyclopedia requested by advanced users, or some variation thereof.
• Creating tutorials that are part of the game, not just a preface to the gameplay, or adding an in-game help system or advisor that is featured in the Civilization and Total War series of games. While this is no replacement of a tutorial, it is a helpful tool for reminding the player from time to time, and can be disabled by advanced users.
• Offer complete coverage of all major game features either as tutorials or as a built-in “learning mode” in the main campaign.
• Leveraging community knowledge and experience to mediate learning.

6.2 Recommendations for further studies
• Longer observational studies to gain a better understanding of when learning actually occurs. Coupled with eye-tracking, this could yield interesting results as to what causes issues and what informs the player the most.
References


Paras, B. S., 2003. Learning to Play: The Design of In-Game Training to Enhance Videogame Experience. BSc Simon Fraser University.


Appendices

Appendix A – Ludology
These are the games that were actively played during the master’s thesis project, taking note of tutorial implementations and observing the design approaches to informing the player of game mechanics and concepts.

• Braid, Microsoft Games Studios, Number None (2008)
• Demon’s Souls, Atlus, FromSoftware (2009)
• Europa Universalis III, Paradox Interactive, Paradox Interactive (2007)
• Half-Life 2, Sierra Entertainment, Valve Corporation (2004)
• Hearts of Iron III, Paradox Interactive, Paradox Interactive (2008)
• Muramasa: The Demon Blade, Ignition Entertainment, Vanillaware (2009)
• Portal, Valve Corporation, Valve Corporation (2007)
• Red Dead Redemption, Rockstar Games, Rockstar San Diego (2010)
• Rogue Trooper, Eidos, Rebellion Developments (2006)
• StarCraft II: Wings of Liberty, Blizzard Entertainment, Blizzard Entertainment (2010)
• Team Fortress 2, Valve Corporation, Valve Corporation (2007)
• Torchlight, Runic Games, Runic Games (2009)
• Victoria, Pan Vision, Paradox Entertainment (2003)
• World of Warcraft, Blizzard Entertainment, Blizzard Entertainment (2004)
## System Usability Scale

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I think that I would like to play this game frequently</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>2. I found the game unnecessarily complex</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3. I thought the game was easy to use</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>4. I think that I would need the support of a technical person to be able to play this game</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>5. I found the various functions in this game were well integrated</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>6. I thought there was too much inconsistency in this game</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>7. I would imagine that most people would learn to play this game very quickly</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>8. I found the game very cumbersome to use</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>9. I felt very confident playing the game</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>10. I needed to learn a lot of things before I could get going with this game</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix C – Survey form

This is a survey conducted for a master thesis at the Royal Institute of Technology in Stockholm (KTH) concerning tutorials, being conducted at Paradox Interactive. The data you submit will be treated completely anonymously. As the data gathered will be used in a scientific setting, please answer truthfully and to the best of your abilities. Any and all participation is greatly appreciated.

This survey is for data gathering only, and does not indicate any future plans or intentions from Paradox Interactive's side concerning development of new titles or features.

The survey consists of 22 questions and should take around 5 to 10 minutes to complete. For your troubles, and should you chose to become eligible to participate in a follow-up survey, you have a chance to win one of 50 prizes consisting of any Paradox Interactive title of your choice, released before 2010. Participation qualifying you for one of the prizes will be closed on Monday, May 17.

Questions marked with a red asterisk are required to submit the survey, as such:

* Required

1. What is your age? *
   Please select the age span that you belong to.
   - 17 or under
   - 18-25
   - 26-33
   - 34-41
   - 42-49
   - 50-57
   - 58 or older
2. What is your gender? *

Male

3. At what age did you start playing computer and/or video games? *
Please select the age span that you feel best answers the question.

- 13 or under
- 14-17
- 18-25
- 26-33
- 34-41
- 42-49
- 50-57
- 58 or older

4. How much time do you spend on computer games each week? *
Please select the most appropriate time span, based on what you would say is your average weekly computer gaming activity. Also note that this includes all computer and video games, not just Paradox titles.

- 0-5 hour(s) per week
- 6-11 hours per week
- 12-17 hours per week
- 18-23 hours per week
- 24 hours or more per week

5. How much time do you spend on computer games developed by Paradox Interactive each week? *
Please select the most appropriate time span, based on what you would say is your average weekly computer gaming activity.

- 0-5 hour(s) per week
- 6-11 hours per week
- 12-17 hours per week
- 18-23 hours per week
- 24 hours or more per week

Continue »
Habits relating to computer and video games
The following questions concern your relation to computer and video games in general, i.e. of any genre and on any platform.

6. Which of the following systems do you currently own or have owned and used for gaming? *
You can select multiple systems. Legacy systems are not included in this question.

☐ PC with Windows
☐ PC with Linux
☐ Mac
☐ Playstation 3
☐ Playstation Portable
☐ Xbox 360
☐ Nintendo Wii
☐ Nintendo DS
☐ Other: ____________________________

7. Which computer and video game genres do you enjoy playing? *
Please limit choices to genres you would actually considering purchasing games in. You can select multiple genres. As the list consists of archetypes for game genres, hybrids are not accounted for and will require you to select multiple options.

☐ Strategy
☐ First Person Shooters
☐ Role Playing Games
☐ Sports
☐ Racing
☐ Third Person Shooters
☐ Adventure
☐ Simulation
☐ Puzzle
☐ Fighting
☐ Horror

8. How likely are you to skip the tutorial in any computer or video game, assuming it is possible? *
For this question, selecting a rating of "1" would indicate that you would almost never skip a tutorial, while a "5" would indicate that you would almost always chose to do so.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Highly unlikely   ○   ○   ○   ○   ○   Highly likely
9. Do you find it important that tutorials are skippable? *
For this question, selecting a rating of "1" would indicate that you do not care whether you can skip tutorials, while a rating of "5" would indicate that it is a critical issue for you.

1 2 3 4 5

Completely unimportant O O O O Very important

10. When playing a computer or video game, what is generally your initial approach to learning the game? *
O Start the campaign up and see what happens.
O Play through some of the included tutorials, but not all.
O Play through all of the included tutorials.
O Visit the official forums or wiki.
O Reading the manual.
O Other: ________________________

11. Have you ever played any game made by Paradox Interactive? *
This includes titles in the Hearts of Iron series, the Europa Universalis series, the Victoria series, Crusader Kings, and older titles. If you are not sure which titles have been developed by Paradox Interactive and whether or not you have played any of them, select "Unsure".
O Yes
O Unsure
O No

12. Which Paradox Interactive titles have you played in the past? *
This includes any expansion or additional content released after the main title itself.
O Hearts of Iron
O Hearts of Iron 2
O Hearts of Iron 3
O Europa Universalis
O Europa Universalis II
O Europa Universalis III
O Victoria
O Crusader Kings
13. **How many hours would you say you have spent in total on the following Paradox Interactive titles?** *
This time includes expansions and other extra content beyond the initial release of the title. Please select the span of time that you feel best answers the question for each title listed.

<table>
<thead>
<tr>
<th>Title</th>
<th>Have not played</th>
<th>1-15 hour(s)</th>
<th>15-20 hours</th>
<th>30-44 hours</th>
<th>45 hours or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearts of Iron</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Hearts of Iron 2</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Hearts of Iron 3</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Europa Universalis</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Europa Universalis II</td>
<td>○</td>
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<td>○</td>
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<td>○</td>
</tr>
<tr>
<td>Europa Universalis III</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Victoria</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>Crusader Kings</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

14. **Which of the following Paradox Interactive titles would you consider to be your favorite?** *
This includes any expansion or additional content released after the main title itself.

- ○ Hearts of Iron
- ○ Hearts of Iron 2
- ○ Hearts of Iron 3
- ○ Europa Universalis
- ○ Europa Universalis II
- ○ Europa Universalis III
- ○ Victoria
- ○ Crusader Kings

[« Back] [Continue »]
15. When playing a Paradox Interactive title, what is generally your initial approach to learning the game? *
   - Start the campaign up and see what happens.
   - Play through some of the included tutorials, but not all.
   - Play through all of the included tutorials.
   - Visit forums or wiki.
   - Reading the manual.
   - Other: 

16. How likely are you to skip the tutorials when starting a Paradox Interactive game? *

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly unlikely</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16 a. What is the usually your primary reason for choosing to skip the tutorials in a Paradox Interactive game?


16 b. What is the usually your primary reason for choosing to play through the tutorials in a Paradox Interactive game?

17. Do you read the included manual before playing a Paradox Interactive game? *
   ○ Never
   ○ Seldom
   ○ Sometimes
   ○ Often
   ○ Always

18. External references when playing Paradox titles *
   Please select how often you use external references to learn about a Paradox game.

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Included reference manual</td>
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<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Official game forums</td>
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<td>○</td>
<td>○</td>
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<tr>
<td>Unofficial game forums</td>
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<td>Real life discussions</td>
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</table>
19. What was your initial approach when first learning the following titles? *

<table>
<thead>
<tr>
<th></th>
<th>Have not played</th>
<th>Started the campaign</th>
<th>Played included tutorials</th>
<th>Visited forums or wiki</th>
<th>Read the manual</th>
</tr>
</thead>
<tbody>
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<tr>
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<tr>
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<tr>
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</tr>
</tbody>
</table>

20. Do you ever refer to the included manual as you are playing a Paradox Interactive game? *

This question indicates your usage of the included manual as a tool during gameplay, not before starting play.

○ Never
○ Seldom
○ Sometimes
○ Often
○ Always

20 a. In which cases do you refer to the manual when playing a Paradox Interactive game?

Answer this question if you selected "Sometimes" or "Always" to question 20, above. Try to be specific in your comments. Answering this is not required to submit the survey.
21. Do you feel it is important to you that future Paradox Interactive titles include an in-game tutorial? *

- Highly unimportant
- Somewhat unimportant
- No opinion
- Somewhat important
- Highly important

22. Other comments regarding tutorials in Paradox Interactive titles
If you have any comments or suggestions regarding in-game tutorials in Paradox Interactive titles, let us know by filling out the text box below. Try to be specific in your comments. Answering this is not required to submit the survey.