

# Choosing a Website To Play Poker - A Comparison Between Utilitarian and Hedonic Users

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## **Abstract**

The objective of this thesis is to identify the relative importance of criteria in online poker website selection among utilitarian and hedonic poker players. This study aims to reveal whether the relative importance of the criteria varies according to a player's motives for playing. Although user acceptance of both utilitarian and hedonic technologies has been relatively widely studied, similar research on systems that can be used for both purposes appears to be lacking.

To address this issue, extensive research methods are utilized to form thorough understanding of the issue at hand. First, an extensive literature review is conducted to discover potential criteria that are likely to determine whether users will accept or reject a certain poker website, based on previous research on technology acceptance. The recognized criteria are validated through four interviews with utilitarian and hedonic poker players.

To discover the relative importance of criteria for different users, an online survey is conducted, including a Discrete Choice Experiment. Responses are gathered from over 300 respondents, including both utilitarian and hedonic users. The data is thoroughly analyzed to identify the relative importance of the criteria, and to reveal how the motivation for playing affects the order of the criteria.

The findings suggest that the most important criterion for all users is reputation. Network size is also found to be a significant criterion for many poker players, as well as the loyalty program provided by a poker website. The findings also propose that the relative importance of criteria does vary according to a user's motives for playing.

**Keywords:** Online Poker, Software Selection, User Acceptance, Technology Acceptance Model

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# 1 Introduction

Poker in general, specifically online poker, has been subject to an increasing amount of publicity and interest during the past ten years. Even though poker in its various forms is a fairly old and well-known card game, it was in the previous decade when poker really became a household game that wasn't just something played by drunken cowboys in a murky saloon. A major contributor for these developments appears to have been the introduction of online poker, which has provided an easy and convenient way to access poker tables at any time anywhere.

However, there is a countless amount of other products and services that have drastically developed with the introduction of the Internet, and thus this thesis is not going to concentrate on that phenomenon. Instead, this thesis aims to investigate online poker clients from a technology acceptance point of view. In essence, the current research aims to discover the most important features of online poker sites for the players. Hence, this thesis aims to investigate the characteristics and attributes of online poker sites that influence the choice behavior of poker players, and to discover the relative importance of those attributes. In addition, this thesis aims to study whether different types of poker players exist, by differentiating between utilitarian professional players and hedonistic recreational players, as well as by conducting a cluster analysis, in order to discover whether players with different motives or backgrounds have different preferences.

In more general terms, this thesis tries to investigate consumer preferences for software that can be used for both utilitarian and hedonistic purposes. Research on such information systems appears to be nonexistent, despite the fact that systems that can be used by different user groups with differing needs, are all over us. Online poker sites provide an excellent example of this kind of software, since same poker sites can be used by people playing just for fun, as well as by people

that earn their living using them. Thus by shedding light on the features that online poker players prioritize in their decision making, and discovering the differences in preferences of these distinct user groups, this thesis aims to provide new knowledge that can possibly be applied in other contexts as well.

Technology acceptance research as such has been around for a while, and a lot of research has been conducted (e.g. Davis, 1989; Davis, 1992, Venkatesh and Speier, 1999; Ajzen, 1991; Taylor and Todd, 1995; Rogers, 1995). However, majority of the research has been focused on information systems used only for professional purposes. Therefore this study aims to expand the knowledge in the technology acceptance field.

An exhaustive literature review is conducted to form a solid understanding about the underlying factors that influence on technology acceptance. Interviews are also conducted, in an attempt to confirm and validate the findings of the literature review and to make sure that they can be applied also in the online poker context. Finally, based on the literature review as well as the interviews, a discrete choice experiment is conducted to reveal the actual relative importance of the discovered attributes. A latent class clustering is also conducted to identify and group players with similar characteristics. Finally, the relative importance of poker sites' attributes for professional and recreational players, as well as for different clusters, are analyzed to discover whether the needs and desires vary among differing players.

## 1.1 Research objective and methods

The aim of this thesis is to study technology acceptance of software that can be used for both utilitarian and hedonistic purposes, in the context of online poker. The question to which this thesis aims to answer is: *What is the relative importance of online poker site attributes, and how the relative importance differs between different types of poker players?*

To answer the question, three measures are used. First the essential information related to poker and online poker is reviewed. The history of poker and its evolution into its current form is reviewed, as well as the inherent features related to the poker that is played online. In addition different types of poker players are discussed along with the revision of online poker site market.

Second an extensive literature review is conducted to identify the relevant factors that influence on technology acceptance in various contexts. Then the most essential criteria are identified based on the inherent aspects of online poker. However, as the criteria are not applicable to the online poker context as such, the criteria is confirmed and validated through interviews with online poker players.

Finally a web survey is conducted, in which the relative importance of the criteria is revealed using a discrete choice analysis, a method developed by Louviere and Woodworth (1983). The results will be analyzed to conclude the importance of different attributes that have an impact on the decision making of online poker player's, and the influence of intrinsic and extrinsic motivation in the choice behavior is covered. In addition the impact of player characteristics on the preferences is analyzed, by utilizing a latent class clustering (Hagenaars and McCutcheon, 2002).

## **1.2 Structure of the thesis**

This thesis is divided into six chapters. The first introductory chapter discusses the topic of this thesis in general, explains the objectives and methods of the study and describes the structure. The second chapter covers the history of poker, and the online version of poker, and explains those inherent aspects of the game that are essential for the research. Third chapter reviews the literature related to technology acceptance and creates a list of criteria that is expected to impact on the choice behavior of users in the online poker context. In the fourth chapter the criteria identified through the literature review is validated via four interviews with online poker players. Chapter five covers the actual empirical research conducted for this thesis, and chapter six discusses the findings of the conjoint analysis in more detail. Finally chapter seven concludes the findings of this thesis, covers the implications, potential limitations to the study, and suggests potential areas for study in the future.

## **1.3 Definitions**

In this thesis a poker site and poker room are used synonymously, meaning essentially the software that is used to play online poker. A skin is a poker room, which is connected to a poker network along with other poker rooms. All poker rooms in one network essentially use one software, but each skin or poker room has made minor graphical modifications to their skin, and usually has a different color scheme. Poker network is the platform that connects players to one another. One poker network can have either one poker site (e.g. PokerStars) or multiple poker sites (e.g. Ogame).



## **2 Poker**

This section covers various aspects related to poker, from its definition and history to the current situation in online poker site market. Recent occurrences that may presumably have implications to the results of the study are also covered. In addition this section also discusses the differences between poker as a hobby and as a profession.

### **2.1 Traditional poker**

This section defines poker, reviews the history of poker, and provides additional information related to the game.

According to the definition poker is: “A card game related to brag (a gambling card game, simplified form of poker), played by two or more people who bet on the value of the hands dealt to them, one of whom wins the pool either by having the highest scoring combination of cards at the showdown, or by forcing all opponents to concede without a showing of the hand, sometimes by means of a bluff” (The Oxford English dictionary).

The origin of poker appears to somewhat unclear, but the common perception is that the first versions of poker were played in the beginning of 19<sup>th</sup> century, with the first reference in a book by Jonathan H. Green in 1834 (Pokerpages.com, 2012). Poker became more widely spread by mid 19<sup>th</sup> century mainly in the United States. Many additions to the rules were made throughout the end of 19<sup>th</sup> and beginning of 20<sup>th</sup> centuries, until poker games in general reached their current form. Poker became more widely popular in the 1970s, with the introduction of World Series of Poker tournaments, which today are probably more popular than ever, with more than 75 000 entrants from over a hundred different countries (Dalla, 2012).

Poker is a family of card games, and various kinds of poker games exist today, which differ in many ways: the number of cards dealt for each player, number of communal cards, the number of cards that are hidden, the betting procedure, and the way in which the pot could be split. The most commonly known variants of poker are the classic five-card draw, Texas hold'em, and Omaha. In all poker games, won or lost money transfers from the loser to the winner (Pokernews.com, 2012). In case the game takes place at a casino, the party responsible for facilitating the game (i.e. a casino or a poker room) takes a small percentage out of every pot, called 'rake', or charges an hour-based fee for playing (Wikipedia.org 2012).

Stake levels also vary significantly, from low to practically infinity, based on the wealth of the players. Generally poker stake levels are divided into four groups: micro stakes, small stakes, medium stakes, and high stakes (see table 2.1 for more details). Micro stakes are not generally available at traditional casinos, due to the fact that they are too small, and do not generate sufficient income for the casino. Small stakes games are usually the smallest games available at brick and mortar casinos, and practically casinos have no upper limit for the stake levels.

**Blind levels**

<b>Micro stakes</b>	No-limit games: \$0.10/0.25 and smaller. Limit games: \$0.25/0.50 and smaller.
<b>Small or low stakes</b>	No-limit games: \$0.25/0.5 to \$0.50/1. Limit games: \$0.50/1 to \$4/8.
<b>Medium stakes</b>	No-limit games: \$1/2 to \$3/6. Limit games: \$5/10 to \$10/20.
<b>High stakes</b>	No-limit games: \$5/10 and higher. Limit games: \$20/40 and higher.

**Table 2.1 Poker stake levels**

These days poker in general is at the height of its popularity. Major contributor for the rise of poker has been introduction of new technologies and the exposure of poker in TV and other medias. Internet has given a worldwide and easy access to

poker games everywhere, while specialized cameras that show the hidden cards of players, have enabled audiences to spectate poker tournaments from TV (Cabot and Hannum, 2009).

However despite the rising popularity of poker, it appears that poker still remains a game of men. For instance, in the past few years, only 2-4 percent of the participants of the biggest poker tournament in the world, World Series of Poker (WSOP), have been women (Cardplayer.com 2012). Thus at the moment appears that most poker players are men, but the popularity among women is on the rise too.

Poker is most commonly played at casinos, special poker rooms, and at peoples' own homes. The problem with casinos and poker rooms is that for many people they might be hard to reach, as casinos are generally in geographically distinct locations (Wood et al., 2007). For instance, in Finland, there is only one casino that is allowed to offer the full range of casino games, which located in downtown Helsinki, the capital of the country. Some people may also feel that extra effort is required to get into a casino, as some places may require customers to dress according to certain guidelines, registering as a customer, paying for membership, et cetera. Especially the first visit to a casino may seem intimidating for many people, and for this reason many potential players will never get a good chance to try poker in a relaxed setting. In addition the stake levels available at casinos may also feel a bit high for a first timer, who is only learning how to play poker.

Also, on the other hand, the casinos do not perceive poker tables or poker rooms very profitable, if compared to many other casino games (Wikipedia.org 2012). Poker tables tend to take up quite a bit of floor space, and require manual labor in the form of a dealer, but the income for the casino is far smaller than that of for instance roulette, black jack, or a slot machine. In other words the opportunity costs of placing a poker table are so high that many casinos prefer other games, and therefore the amount of poker tables remains fairly limited. It appears that only recently casinos have begun adding poker tables to their selection, not

because of their profitability, but to attract certain kind of customers (Anderson, 2011).

For these reasons, it also appears that there has not been a big incentive for casinos to encourage people to visit their facilities to play poker. Also it seems that numerous small obstacles exist, which may have kept the potential players from coming to a casino to try poker. Thus it appears fairly logical that poker in its traditional form has not become as popular as it could have become due to these impeding factors. This has been the case until the introduction of online poker and TV visibility of poker tournaments. The inherent features of online poker and its influence on the poker culture as a whole will be discussed in more detail in the next section.

## **2.2 Online Poker**

This section describes online poker, reviews the history of online poker, how the market around it has evolved into its current form. This part also discusses the advantages of online poker in comparison to traditional poker.

Online poker is generally defined as a game of poker that is played over the Internet. Essentially online poker rooms function in the same way as traditional land-based poker rooms or casinos, everything just occurs online. To be able to play, one has to create an account, for which an email address is needed. Depositing money is not usually a requirement, as practically all online poker rooms provide an opportunity to start playing with play money. Thus investing money in the beginning is not necessary, which probably has been a significant factor lowering the entry barriers into the world of poker. As people can access and practice poker from the safety of their own home, with out the fear of even losing money, it is easy to see why an increasing amount of people have been eager to try it, have gotten excited and have then ended up depositing real money on to their account.

Furthermore, unlike in traditional brick and mortar casinos, micro stakes poker games are available in online poker rooms. Thus it is also easy to start playing with real money, as one can start with really small stakes, and proceed to bigger games as skills and willingness to take risks increase. It has also been discovered that a pleasant game-like training, can result in higher user acceptance of systems, which appears to provide also theoretical support the above-mentioned assumptions (Venkatesh, 1999).

From the viewpoint of casinos, the problem of having low profitability does not exist in the context of online poker. As games played in online do not require manual labor, the overhead costs are significantly lower in the online environment when compared to traditional casinos. In addition, floor space is not an issue online, and thus the opportunity costs of placing an additional poker table is practically zero. As was already explained the opposite is true in the physical world, as the opportunity cost is very high, due to the fact that other tables or slot machines taking up the same floor space generate significantly more profit than poker tables. Thus the theories established for digital products, regarding marginal costs, also apply in the online poker context: the marginal cost of opening a new online poker table is essentially zero (e.g. Shapiro and Varian, 1998). Hence online poker rooms are also able to offer play money, and micro stakes poker tables, which makes it easy for beginners to come and try poker.

Hence, online poker has undoubtedly introduced many improvements to the world of poker. Essentially the introduction of online poker has made the game unambiguously available, easier to approach, and also made it a profitable business for the companies operating online poker rooms.

Consequently it is a widely accepted fact that online poker has been a major contributor for the dramatic rise in the popularity of poker in the past decade, as Internet has given a worldwide and easy access to poker games everywhere, anytime (Cabot and Hannum, 2009). According to Pokerisivut.com (2012), a leading Finnish poker website and community, there are already over 200 000

online poker players in Finland alone, and it has quickly become a very popular hobby among different people. The next section will cover the history of online poker from its birth to the current state.

### **2.3 History of online poker**

In this section the fairly short history of online poker will be reviewed, to give an idea about the events that have lead to the current situation in the online poker market. The section covers the early stages of online poker, the breakthrough, and recent legal and other issues related to online poker in the U.S and throughout the world.

The first form of online poker emerged in the early 1990s, when online poker was played as a text only version over Internet Relay Chat (IRC). As the game lacked a graphic user interface and real money, it was mainly played by computer enthusiasts. In early 1998, Planet Poker was launched, which was the first real online poker room that intended to provide the land-based poker experience online. However the selection of poker games at Planet Poker was fairly narrow in the beginning, as was the range of different stake-levels. Planet Poker managed to dominate the market until late 1999, when Paradise Poker was introduced. The company provided a sleeker user interface, and significantly faster software. These improvements made Paradise Poker an instant hit, and it moved to become the dominant operator in the online poker field (Courtsidepoker.com, 2010).

During the late 1990s online poker was played by only very few people, and it wasn't an attractive market for major companies in the online casino business. However, some new operators still emerged that brought new features to the field, but no real breakthroughs were made until 2001. That was when PartyPoker.com launched its poker room and the guaranteed one million dollar tournament. In 2002, the real surge in the popularity of poker begun, when Travel Channel started showing World Poker Tour (WPT) events on TV. TV-visibility of the tournaments

created a new kind of interest towards poker among a wider audience, and provided a platform for online poker rooms to advertise their services. In 2002, the poker boom also hit Europe, and companies in the casino business started to promote online poker heavily, with the focus on the UK and Scandinavian markets (Flopturnriver.com, 2012).

By 2004, PartyPoker had only gotten bigger and bigger, and it was generating a profit of one million dollars a day. This was the time when one of the later most known operators was only kicking off its operations, namely Full Tilt Poker. With a poker pro-led strategy and emphasis on high quality software, the company was able to grow very rapidly into being one of the two major operators in the US in 2006, when the Unlawful Internet Gambling Enforcement Act was passed on October 13th. The day at that time was referred as the poker's Black Friday. By this time, already a number of online poker companies had decided to cash out on their success, by listing in the London Stock Exchange. As the act appeared to put online poker businesses at great risk in the US, all publicly listed companies decided to prioritize their shareholders interest. Therefore all public companies were essentially forced to pull out from the US market, and cut off all American players. As a result, only PokerStars and Full Tilt were left serving American online poker players, as they were both privately held (Pokerplayer.co.uk, 2008). In addition, also Absolute Poker was able to remain in the US market. Thus these three companies dominated the American market, and this was pretty much the form online poker market had until the second Black Friday, which took place on April 15, 2011 (Rovell, 2011).

According to the CNBC article (Rovell, 2011), on the second Black Friday of poker, all three major operators were essentially swiped out the market, as they were all charged by the FBI with money laundering and using defrauded banks, in order to bypass the above-mentioned gambling act (Sieroty, 2011). However, lately PokerStars and Absolute Poker have been able to return to the market. FullTilt Poker on the other hand faced more severe lawsuits, and the speculation around the company and its future has been going on for the past year. Currently the

company is not running online poker or any other operations for that matter, and has left several players without the possibility of withdrawing their money.

Meanwhile in Europe several smaller poker rooms have gone out of business, have been acquired by larger companies, replaced poker network, or engaged in other unanticipated actions. To put it shortly, it appears that the whole online poker market has been going through a lot of significant changes over the past few years. Some of these outcomes have been positive from the players' perspective, while others have caused loss of deposited money, and other concerns.

To give a couple of recent examples, in April 28<sup>th</sup> 2012, an online poker room called Purple Lounge, abruptly closed down, without giving any information regarding the deposits made by its customers (Wood, 2012). Another similar incident occurred at the end of July 2012, when a Swedish poker site suddenly went offline, without a warning, leaving its customers incapable of withdrawing their funds (Gentile, 2012). Comparable events have taken place every once in a while over the brief history of online poker. Therefore it appears not to be uncommon for a poker site to disappear as fast as it appeared, taking every penny of its players' with it. Such occurrences have likely been apt to increase uncertainty towards poker sites. It is also highly likely that these incidents are to be reflected in the decision making of online poker players.

To conclude, online poker has taken poker on the fast track to popularity due to the fact that it enables learning how to play free of charge, enables playing with significantly lower stakes, and provides a universal 24-hour access to the games. These can also be considered to be clear advantages that online poker has in comparison to traditional live poker (Wood et al., 2007). However, as a relatively young industry, a lot has happened on the online poker market in a short period of time. Both positive and negative occurrences have been apt to modify the perception of the customers in the market, which is important to take into account in the current research. The following chapter aims to cover the current state of online poker market in a more detailed manner.



## 2.4 Online poker market

In this section the current market situation regarding available poker sites is discussed, to form a coherent picture of the availability of alternative poker rooms and networks.

The exact number of different poker networks or sites available is hard to define unambiguously, as networks and poker sites tend to merge, disappear or appear rather quickly. Lately many changes have occurred in the online poker industry, companies have gone bankrupt, have been closed down by authorities et cetera. However, according to an experienced professional poker player, Sami Kelopuro, the best available listing at the moment of the study, can be found at [pokerscout.com](http://pokerscout.com) (personal communication March 29, 2012). The website ranks known poker sites or networks according to their traffic. The listing at [pokerscout.com](http://pokerscout.com) claims that there are 52 existing poker sites (situation in June 11, 2012). However, some of these poker sites appear to have no traffic at all, so they can be considered as nonexistent. It should be also noted that some of the networks on the list are allowed for players from a specific country only (e.g. [PokerStars.fr](http://PokerStars.fr), France; [Ongame.it](http://Ongame.it), Italy; [Ray.fi](http://Ray.fi), Finland).

Thus, the actual amount of poker networks that are truly global and appear to have traffic is around ten networks. If counting global and local only networks altogether, the amount of active networks is around forty. The biggest network according to [pokerscout.com](http://pokerscout.com) is [PokerStars](http://PokerStars.com) (situation June 11, 2012). The average amount of players online at [PokerStars](http://PokerStars.com) in the past seven days, is 20 200 players. [PokerStars](http://PokerStars.com) clearly is a dominant player as the second network in the list, [iPoker](http://iPoker.com), is reported to have a seven-day average of 3300 players online (see table 2.2).

Rank	Network / Site	Name	24h Peak in online players	7 Day average of online players
1	Site	PokerStars	31053	20200
2	Network	iPoker	5207	3300
3	Site	PartyPoker	4631	2950
4	Site	888Poker	2839	2050
5	Network	Ongame	3340	1720
6	Network	Revolution Gaming	1796	1160
7	Network	Microgaming	1925	1160
8	Network	Merge	1715	1100
9	Site	Bodog	2151	840
10	Network	IGT Poker	1367	750

**Table 2.2: Top 10 globally available poker sites and networks. Adapted from pokerscout.com. Retrieved on June 11<sup>th</sup>, 2012.**

As can be seen from the table, the biggest operators are described in two ways: they are either sites or networks. The distinction is based on whether the network has only one poker room that you can use (e.g. PokerStars), or multiple poker rooms on one network (e.g. Ongame). The former are called sites, and the latter are called networks. In other words, one poker network may have either one or multiple poker rooms (also known as skins, or poker sites) that all use the same software.

In table 2.2, networks that only have one poker room, are referred as sites and networks that have multiple poker rooms, are called networks. Essentially what differentiates poker rooms in the same network from one another is their color schemes and other graphical variations. The software running behind all poker rooms in one network is practically the same. If we consider technical features in the software, the difference between a site and a network is nonexistent, as only single software is used in both solutions. However, in networks, players may be

able to choose between better promotions offered by different poker rooms in the same network, which is not possible in sites, as only one poker room is providing access to the games.

The benefit of the network approach is that it allows distinct companies to promote and bring players to the tables, which generates more money for the network, while one company concentrates on developing the software and the infrastructure. This essentially allows the poker rooms to concentrate on marketing and promotion, while the company behind the network concentrates on developing the software. This arrangement is mainly positive from all perspectives: more players bring more money to everyone involved in the network. Consequently both poker rooms and the company running the network benefit. In addition it appears to be beneficial also from the players perspective, as more skins on one network allow shopping for the best promotions, bonuses and similar incentives schemes. In other words, the players in a network environment are able to choose the best loyalty programs, which creates healthy competition among different poker rooms, which benefits the players.

When looking at the loyalty schemes from an academic perspective, it appears that they as such are not very powerful at impacting on consumer behavior. According to Bhattacharjee (2001) loyalty incentives were discovered to have no significant effect on customer retention in online environment per se. However the study suggests that loyalty programs are considered to be effective in circumstances where the user considers the actual service to be useful in the first place. Hence the findings suggest that loyalty programs as such are not enough to ensure continuance intention in users, but combined with other features of the online service, they do have a significant impact on user retention. Thus it appears to be safe to assume that also in online poker context, loyalty programs have an impact on the choice behavior of poker players, at least to some extent.

However, from the perspective of this thesis, it does not matter whether a network has only one or multiple poker rooms. The current research is concerned about the

attributes in the poker site that impact on the decision made by poker players between two or more competing poker rooms. From the perspective of the poker player, the only significant difference between these two types of solutions is that in the other multiple poker rooms compete against one another, by means of providing better bonuses or loyalty programs, and by means of their reputation and brand.

## **2.5 Professional and recreational poker**

This section discusses the nature of poker in terms of skill and luck, and presents arguments that support the presumption that poker is primarily a game of skill. This section also discusses the differences between professional and recreational poker players' characteristics.

It has been under a great debate, whether poker is a game of skill or luck. More precisely, the question is if poker is a game where skill has more impact than luck, or vice versa. A lot of the legislation worldwide depends on this, as in many countries those games that are based purely on luck are differently than those that are skill-based. Therefore it is easy to see, why this argument has been and probably will be a hot topic for a long time. This issue also has implications for this thesis, because for one, if poker would be a game of pure luck, it would be essentially impossible for someone to play it professionally.

As the argument has been around for a while, an adequate amount of research has been conducted on it as well. One of the more recent studies conducted by Cabot and Hannum (2009), tries to provide unambiguous evidence for the fact that poker truly is a game predominated by skill and not by luck. Poker, as was already mentioned, differs significantly from other casino games because it is played against other individual players instead of playing against the casino, and therefore leaves room for skills. The authors argue that poker requires skills such as mathematics, psychology, evaluating competition, and fund management.

According to the study, practicing poker will increase one's skill level against other players, while the advantage of the casino in other games, such as roulette or black jack, cannot be removed by any amount of practice. In addition Cabot and Hannum claim that in a game of pure luck, a player cannot lose or lose faster because of intentionally bad play, which is possible in games of skill. The authors claim that this is the case in poker, but not in traditional casino games.

The study utilizes two distinct methods in its effort to prove this. The first experiment included mathematical analysis of Texas hold'em hands played by one skilled player against one unskilled player. In addition computer simulation was conducted to support the findings of the actual hands played. The second method was a computer simulation of a full table game in Texas hold'em and Seven Card Stud. The results from these two scenarios appear to suggest fairly unambiguously that skill predominates poker over luck. Therefore the authors conclude that poker clearly is a game of skill, where better player will over time win, once the variation evens out.

In addition, another recent study by McCormack and Griffiths (2012) tries to provide explanation for a fairly new phenomenon of a group of people, who earn their living by playing poker. The authors try to explain the differences between the behavior and attributes of professional and recreational poker players. The goal of the study was to discover the attributes that are required from a person capable of playing poker professionally. The sample of the study consisted of professional, semi-professional, and recreational poker players.

The results of the study suggested that playing poker for living is possible, but it requires a set of specific characteristics. The skills found to be important for a professional poker player were a mindset for success, commitment, patience, self-control and aptitude for the game. The researchers also found that professional poker players considered their playing to be more of a job than a past time. The professionals appeared to be spending a lot more time on poker than the recreational players, and were less likely to take risks or gamble under the

influence of drugs or alcohol. Also, professional players' behavior was found to be more rational and cautious, while recreational players appeared to have more tendencies for less rational and disciplined behavior. In short, professional players appear to be more rational, logical and disciplined in their behavior, whereas recreational players are more impulsive risk-takers, whose behavior is not always logical (McCormack and Griffiths, 2012).

The implications of these conclusions to the current research are fairly unambiguous. It appears that the inherent characteristics of professional and recreational are clearly distinct, and their attitudes towards playing online poker are very different. Based on the conclusion presented by McCormack and Griffiths (2012), this thesis will presume that recreational and professional players also prioritize different criteria as they are choosing which online poker site to use for playing. Based on the previous research, it appears to be safe to assume that the professional players would be biased towards such attributes as a good loyalty program, and useful functions, as these features presumably greatly contribute to the amount of money they are able to win. Thus preferring such features would appear logical and rational from a professional player's perspective, which seems to be inherent for such players.

On the other hand, it can be postulated that recreational players would be more biased towards features such as ease of use and enjoyment, as they are looking for excitement and pleasurable experiences rather than attempting to maximize their winnings. Such features are likely to make using a certain poker site more pleasing experience, and thus poker sites that possess such attributes are more likely to satisfy the needs of recreational players.

All in all, it can be concluded that there are two fundamentally different groups of people that play poker for different motives with different behavioral tendencies and personal qualities: professionals and recreational players. We can also postulate further that these two distinct groups are likely to have different preferences when it comes to choosing an online poker site, on which they would

like to play online poker. Based on this understanding about online poker and the people who play it, the current research will move on to covering the theoretical framework that will guide the study further and towards the empirical research. In the next chapter, the theoretical foundation for the research will be discussed, by reviewing previous literature that is relevant to the current research.

## **3 Theoretical framework**

This chapter covers literature that is relevant to predicting and explaining user acceptance and usage of information systems. This chapter consists of five sections. The first section is an overview of the literature in the field of interest, and explains the direction taken in the literature review. The second section reviews technology acceptance literature in more detail. The third section covers literature on network externalities. The fourth section reviews literature related to consumer mood and its effect on decision making. The fifth and final section covers the choosing of appropriate criteria for selecting an information system to be used for both utilitarian and hedonistic purposes.

### **3.1 Overview of literature**

The acceptance and use of technology among people has for a long been one of the most popular research topics within the information systems science. The interest in technology acceptance research has been steadily increasing along with the growing popularity of computers at both work and home settings. It is easy to see the interest in this specific topic, as devoting resources into developing technology that will be rejected by the users it is intended for, is a clear waste of resources. To address this issue, various authors have created different approaches to understand the behavior of users and to explain why they either accept or reject a certain technology (e.g. Davis, 1989; Davis, 1992; Venkatesh and Speier, 1999; Ajzen, 1991; Taylor and Todd, 1995; Rogers, 1995). Theoretical attempts to explain user acceptance have been based on psychology, sociology and information systems, which provide an explanation for over 40 percent of variance in users' intention to accept and use technology. This appears to be only logical as human beings are complex agents that are influenced by multiple internal and external factors (Venkatesh et al., 2003).



However, as usually happens, one approach proves out to be superior to competing approaches, and it begins dominating others. This has also happened in the information systems science field, and presumably the most widely used theoretical model in information systems to predict and explain user acceptance of new technology has been the Technology Acceptance Model (TAM) originally developed by Davis and Davis et al. in the late 1980s (Davis, 1985; Davis, 1989; Davis et al., 1989; Dillon and Morris, 1996).

The model was originally developed to help clarify and rationalize, why information systems are accepted or rejected at a workplace setting, as work environment was the setting where computers first emerged. It was created to explain acceptance and usage of systems aimed for utilitarian use, where information systems produce external value to the user. Numerous researchers have also developed modified and improved versions of the model (e.g. Dishaw and Strong, 1999; Venkatesh and Davis, 2000; Venkatesh et al., 2003; Van der Heijden, 2004). In the second section, the literature related to technology acceptance model will be reviewed in more detail, and its relation to online poker will be discussed.

Another major field of research that is relevant for the current research is related to network externalities. Network externalities theory is concerned about the impact of the size of a network on the value of the network perceived by its users. The theory that acts as a foundation for the modern day understanding about network externalities was first crafted in 1980s, and has since then been refined by various authors (Katz and Shapiro, 1985; Farrell and Saloner, 1985; Katz and Shapiro, 1986). Essentially online poker sites provide a platform, which connects poker players throughout the world, and allows them to play against one another. Thus it is apparent that also network externalities are present and likely to play an important role in the factors affecting on the choice behavior of online poker players. Network externalities theory will be discussed in more detail in the third section of this chapter.

Knowledge about the choice behavior of online poker players is not only useful for companies that provide the services, but also it brings new and essential understanding to the technology acceptance field. In addition this thesis aims to evaluate the differences in preferences based on the motivation of the player. In other words this study will try to bring new knowledge regarding differences in the preferences of utilitarian and hedonistic users of a same information system.

It is presumable that not all players of online poker are strictly professional or strictly recreational. It is possible that professional players occasionally might play poker just for fun. Also, vice versa recreational players might sometimes play only because of the desire to win money, in other words for utilitarian motivations. Also according to research on the field, it appears that there could be a situational factor that may impact on the choice behavior of poker players (Belk, 1975). Theories related to situational impact are covered in the fourth section of this chapter.

### **3.2 Technology Acceptance literature**

This section covers technology acceptance model (TAM) literature, and what are the implications of the literature for the current research. First the history and development of the technology acceptance model will be clarified. Second the version for the theoretical foundation of thesis will be chosen, and its benefits discussed.

The initial objective for developing the technology acceptance model was to create a tool that would provide a way to understand user acceptance processes in the field of information systems. The goal was that the model would also help in designing and implementing information systems, by providing a method to evaluate user acceptance before actually implementing the systems (Davis, 1985). Davis based TAM on a previous model called theory of reasoned action (TRA) (Fishbein & Ajzen, 1975), which was developed for a more general use, and thus it was not specific for information systems field. TRA model however had been good

for explaining and predicting behavior in various fields, and therefore Davis decided to use this theory as a basis for TAM.

Theory of reasoned action claims that behavioral intention is the probability that a person will behave in a certain way or perform a given task, and therefore behavioral intention would predict actual behavior. Thus behavioral intention measures someone's intention to execute the task at hand or behave in a certain manner. Furthermore, behavioral intention is determined by his or her attitude and subjective norm regarding the task.

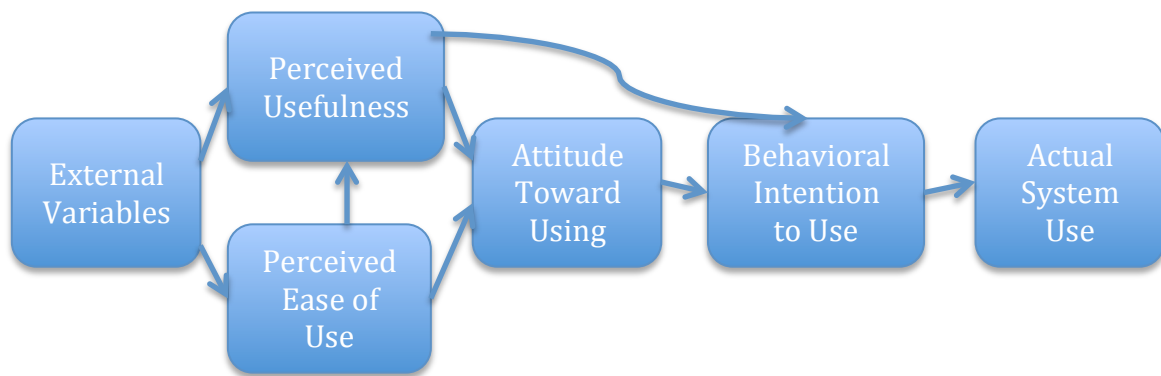
Attitude in the theory refers to the person's "degree of evaluative affect toward the target behavior" (Davis, 1985). In other words, this means the person's feelings, either negative or positive, towards the behavior in question. Subjective norm on the other hand is defined as the "person's perception that most people who are important to him think he should or should not perform the behavior in question" (Fishbein and Ajzen, 1975). Importance weights for these two factors are estimated by multiple regression. Davis also notes that one significant feature of TRA is that any other factor that influences behavior, does not have direct influence on behavioral intention, but instead influences it indirectly through attitude or subjective norm or their relative weights (Davis et al., 1989).

In essence, TAM is an adaptation of TRA that incorporates a vast amount of findings from information systems research into the model. It was created to be specific to the information systems domain, and thus it only applies to user acceptance regarding computer-based systems. However the aim of the model was that it would be general within the field of information systems, in the sense that it could be applied to various situations, in which explanation as well as prediction of user acceptance regarding computer systems is required. In addition to these objectives, the most important intention of TAM was to create a basis that would enable researchers to determine the "impact of external factors on internal beliefs, attitudes, and intentions" (Davis, 1989).

Just like TRA, TAM assumes that behavioral intention determines actual user behavior. However TAM suggests that behavioral intention is determined by the person's attitude towards usage as well as perceived usefulness, while the relative weights for these constructs are evaluated as in TRA. Perceived usefulness refers to the person's perception of the system's usefulness for him or her, by assessing how his or her performance will be improved because of using the system. In other words, "perceived usefulness is defined as a person's expectation that using the computer will result in improved performance" (Davis et al., 1992). Therefore the theory assumes that perceived usefulness would impact behavioral intentions, as improved performance in a workplace setting for instance, is likely to increase one's rewards for instance.

Subjective norm construct is not included in TAM, as Davis et al. (1989) considered it to be "uncertain theoretical and psychometric status". However, besides attitude and perceived usefulness, the model also distinguishes perceived ease of use, which measures the extent to which a person about to accept or reject a technology, perceives the acceptance to be effortless. Furthermore, TAM postulates that both perceived usefulness and ease of use define attitude.

In addition, the author notes that as perceived ease of use improves, the perception of usefulness is likely to be positively altered as well. Therefore perceived ease of use has a direct impact on perceived usefulness. In addition, different external variables can impact perceived usefulness over and above perceived ease of use. Some external variables can affect perceived usefulness directly, some indirectly through perceived ease of use and some simultaneously directly and indirectly via perceived ease of use. Technology acceptance model however notes that perceived usefulness and perceived ease of use are two distinct constructs, as this enables the users of this model to assess the relative influence of both constructs on attitude, which provides important information for researchers. The relative influences of perceived usefulness and perceived ease of use on attitude are estimated statistically via linear regression.



**Figure 3.1 Technology acceptance model (Davis et al., 1989)**

Technology acceptance model has been widely used in the information systems science research, which has also been recognized in a number of papers in the field, but other models also exist (Dillon and Morris, 1996; Venkatesh et al., 2003). Alternative approaches have been created, to gather enhanced information about the choice behavior of technology users, and to question the technology acceptance model approach. In the following the most prominent theories will be reviewed to form a coherent view of alternative theories related to choice behavior in technology context.

Cheung et al. (2000) try to gain a wider understanding about technology acceptance, by utilizing a modified Triandis (Triandis, 1979) model to study the influence of social factors and facilitating conditions. The study suggests that social factors as well as facilitating conditions are indeed significant factors explaining technology adoption, and it concludes that it could provide an alternative theoretical foundation for future research in the field. The findings suggested by Cheung et al. (2000) could have explanatory power also in online poker context, and they should therefore be taken into consideration the theoretical framework.

Goodhue and Thompson (1995) have also created an alternative model for predicting and explaining technology usage. The theory by these authors is titled task-technology fit, and it aims to evaluate how well information technology fits with the task at hand, and aims to use the fit as a predicting factor for performance improvements gained through the use of information technology. The model

emphasizes the importance of having the right technology for the right task, and when broken into components, provides a tool for evaluating how well a technology fits to the users' needs. However, the results of the analysis conducted by Goodhue and Thompson did not find very strong support for the model as a whole.

Other competing models in the field that are considered to be the most prominent ones in predicting and explaining user acceptance of technology (Venkatesh et al., 2003) are:

- Motivational Model (MM)
- Theory of Planned Behavior (TPB)
- Combined TAM and TPB (C-TAM-TPB)
- Model of PC Utilization (MPCU)
- Innovation Diffusion Theory (IDT)
- Social Cognitive Theory (SCT)

However, as was already discussed, technology acceptance model has become the prominent model, which has been tested and confirmed by various authors.

Because of the fact that the model has been successful in predicting and explaining user acceptance in numerous distinct studies with varying objectives (e.g. Lee et al., 2003; Hsu and Lin, 2008; Hossain and de Silva, 2009) the current research will rely on technology acceptance model as the foundation for the theoretical framework.

However, despite the fact that the competing models as such may not be as applicable as the technology acceptance model for the current research, a careful review of their constructs is still essential to understand the various factors that may have an impact on technology acceptance especially in the context of the current research. There have been numerous attempts to integrate some of the constructs from alternative models into the technology acceptance model. Some of

these extensions will be reviewed next, to gain a general understanding of possible factors outside of technology acceptance model that may influence on the choice behavior of potential users.

Dishaw and Strong (1999) developed a model that incorporates some of the constructs of the task-technology fit (Goodhue and Thompson, 1995) model into the technology acceptance model. In their research, the extended technology acceptance model was found to have more explanatory power than the original model. The authors discovered that once integrated into the technology acceptance model, task-technology fit constructs influence the user acceptance of information technology both directly, and indirectly through technology acceptance constructs. As this thesis aims to study differences between two user groups, it is essential to understand that the task, for which the user intends to use the technology, has an influence on his or her choice. Therefore for this research, it is vital to recognize that as poker players may engage in both professional and recreational playing, they essentially have to different tasks that they may be executing. In more practical terms, another poker site might be more appropriate for recreational playing, whereas another poker site is better for professional playing.

Furthermore, Venkatesh and Davis (2000) have also extended technology acceptance model to include several new constructs, which are divided into two groups: social influence processes and cognitive instrumental processes. The authors call this technology acceptance model 2 (TAM2). New constructs of TAM2 include noteworthy factors, such as social influence, voluntariness, image, and job relevance. The intention of the extended model is to enhance the understanding of the factors that influence on technology acceptance model's perceived usefulness and usage intention constructs, as well as the impact of experience a user has with a given technology.

The extended technology acceptance model was found to have more predictive power than the original model, but the results may have some limitations due to fairly small sample size and small number of items used to measure the new

constructs. However, the study does provide an important viewpoint to the model, and also further stretches the importance of having the right technology for the right task.

TAM2 was further tested in medical context (Chismar and Wiley-Patton, 2002), where perceived usefulness and job relevance were found to be the most important factors in determining user acceptance. Social factors, ease of use, and image however were discovered to have little or no impact on technology acceptance. The study suggests that essential parts of the model cannot be confirmed, which gives a reason to question the reliability of the second technology acceptance model. On the other hand, as the study was conducted with a fairly narrow focus on highly skilled and specialized group of professional, it is hard to draw widely applicable conclusions.

On the other hand, image may have different meanings, depending on the context. Trust is a significant factor that influences transactions that occur online, and it has been studied by many researchers in the field (e.g. Hoffman et al., 1999; Eastlick et al., 2006). Research focused on online trust, indicated that besides other factors, reputation, is a significant cause, which has an impact on trust and eventually on whether transaction occurs or not (Salo and Karjaluoto, 2007).

Trust elements have also been incorporated to technology acceptance model. In a study conducted by Gefen et. al (2003), trust was found to be equally important factor as perceived usefulness and ease of use in online transactions. In technology acceptance model context, online trust is built most importantly through beliefs. Thus it appears that general trustworthiness of an online operator may have noticeable influence on user choice behavior.

Another orientation in the technology adoption research has been focus on the training phase that usually takes place before and after the implementation of an information system at a work place. Venkatesh (1999) explored whether a game-based training would increase the intrinsic motivation of employees, which then



would increase the likelihood of accepting a certain technology. The study found that a more enjoyable training experience will lead to increase in the perceived ease of use of the system, and thus into increased user acceptance. Venkatesh and Speier (1999) have also approached the same topic, by studying the influence of a user's mood in training, on his or her intentions, motivation, and usage of a technology in both long and short term. The authors found that positive mood only has short-term impact, but a negative mood was discovered to lower also long term intrinsic motivation as well as intention to use the technology.

Venkatesh et al. (2002) developed a model that intended to integrate these two models concerned about training, intrinsic motivation, and mood, into one coherent model, in order to enhance the understanding of system acceptance prior to actual system implementation. The model was found to have stronger predictive power than the two existing models. The integrated model provides significant new perspective to the research field, but once again the focus is strongly on technology acceptance in working environment. However, what is a significant implication for this thesis, is the recognition of intrinsic motivation as well as mood, as factors that have impact on the intention to use and actual usage.

Other researchers have also studied the role of motivation in technology acceptance prior to Venkatesh's research. For instance Davis et al. (1992) examined the relative importance of enjoyment of technology usage as a predictor for intention to use, in contrast to perceived usefulness of a system. Other authors that have studied motivation theory principally distinguish between two kinds of motivation: extrinsic and intrinsic (Ryan and Deci, 2000). Extrinsic motivation refers to motivation that stems from the assumption that doing something leads to separable outcome. Intrinsic motivation on the other hand refers to doing something due to the fact that doing in itself is enjoyable or interesting. In technology acceptance model context, extrinsic motivation has traditionally been associated with perceived usefulness, in other words the external benefits that using certain software is expected to deliver as a consequence of using it. On the other hand, intrinsic motivation is usually connected with perceived enjoyment

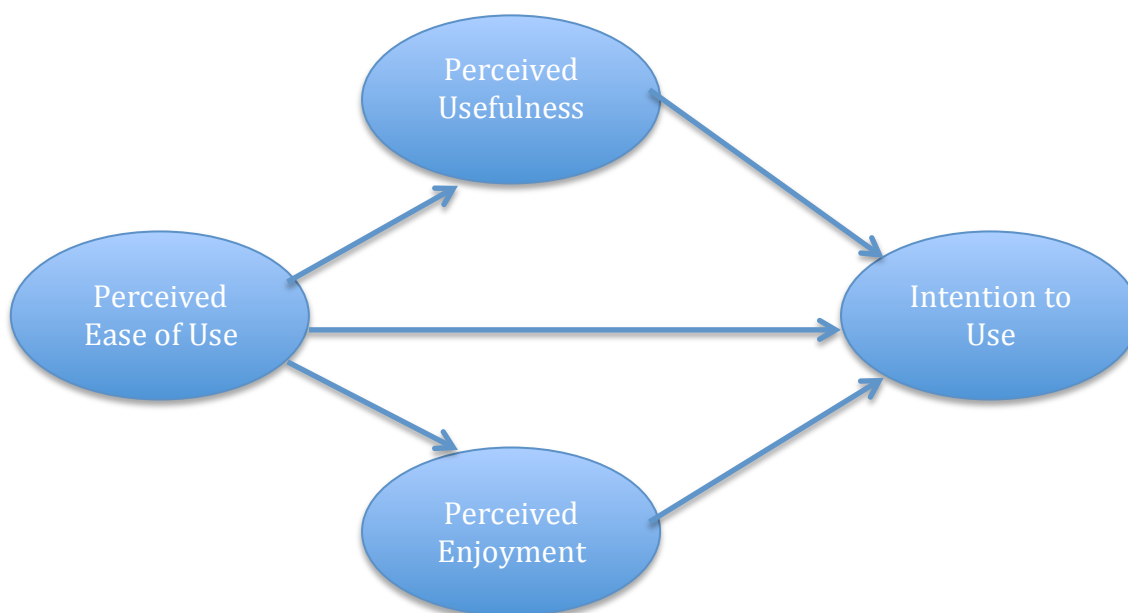
construct. In other words intrinsic motivation in practice means that using a certain technology is enjoyable in its own right, regardless of any external outcomes (Davis et al., 1992).

Davis et al. (1992) examined the relative importance of these two motivations in a work place setting, and arrived at the conclusion that perceived usefulness is approximately four to five times more influential than perceived enjoyment, in determining intentions to use certain technology. Together perceived usefulness and enjoyment were found to explain roughly two thirds of the variance in usage intentions. The authors also found a positive interaction between these two constructs. Whenever a system's perceived usefulness is high, perceived enjoyment will increase the likelihood of acceptance of that system, and whenever a system is perceived to be low in usefulness, the opposite occurs. In general it seems very logical, as in a workplace setting users are primarily extrinsically motivated, and thus perceived usefulness is the dominant factor in determining user acceptance of technology. Enjoyment is only a secondary factor that can increase user acceptance, but a prerequisite for this is that the system is useful per se.

The majority of past literature has focused on studying acceptance of utilitarian technology in working environment, which generally is productivity oriented. However it is essential for the current research to also review literature concentrated on hedonistic technology that is used principally for the fact that they provide pleasure for the user. In other words it is vital to review theories, in which also intrinsic motivation has a significant role. Probably the most recognized author in the field, has been Hans van der Heijden, who realized the demand for a model that would take into consideration the fact that there are two kinds of information systems: utilitarian and hedonic (van der Heijden, 2004). Based on previous research on the field, van der Heijden (2004) claimed that predictive value of the constructs in technology acceptance model depends on whether the system is hedonic or utilitarian in nature, and thus van der Heijden decided to refine the model to take this into consideration. As online poker is

played also for purely hedonistic or recreational purposes, it seems to be only rational to use this model as the theoretical foundation, to be able to appropriately explain and interpret user acceptance of such information systems.

Besides perceived usefulness and ease of use, van der Heijden has extended the model by introducing a new construct: perceived enjoyment. According to van der Heijden (2004) the new construct measures the extent to which user experiences enjoyment, while using the system, regardless of any performance improvements the system may provide. Hence it focuses only on measuring intrinsic motivation to use or not to use a certain system. Figure 3.2 illustrates Van der Heijden's (2004) model and its interconnections.



**Figure 3.2 Technology acceptance model according to Van der Heijden (2004)**

Based on previous research on the field, the extended model postulates that two kinds of motivation for using a system exist: extrinsic and intrinsic. The former refers to motivation derived from the user's expectation to receive some sort of reward that is external to the system use. In online poker context this would mean that the user is motivated to use the system as he or she expects to win money as a

result of using a poker site to play poker. Intrinsic motivation on the other hand refers to motivation derived from just using the system. If we think of online poker, a player that would be intrinsically motivated is one who interacts with the poker system because of the enjoyment or thrills he or she experiences while playing (i.e. interacting with the system), and not because of external rewards.

Van der Heijden (2004) notes that perceived usefulness is highly biased towards extrinsic motivation, as the construct in essence appears to measure the extent to which system use is able to improve the user's performance, and therefore refers to benefits that are not part of the system-user interaction. Thus the author concludes that extrinsic motivation is more dominant factor in determining utilitarian system use, while intrinsic motivation is more dominant predictor for hedonic systems. The ramifications of these findings are fairly significant, as the results of Van der Heijden's (2004) study suggest that for hedonic systems the impact of perceived enjoyment on intention to use is stronger than the impact of perceived usefulness.

In addition van der Heijden (2004) points out that as perceived ease of use measures how effortless the user-system interaction is, the construct is not concerned about external rewards or goals. Consequently, the influence of perceived ease of use in predicting intention to use depends on whether the system under research is utilitarian or hedonistic. Van der Heijden's (2004) study suggests that with utilitarian systems perceived usefulness is dominant to perceived ease of use, because in utilitarian systems user-system interaction is less important than achieving external goals. The opposite is true for hedonic systems, as external goals are less important and the actual interaction with the system is more essential.

Thus van der Heijden's (2004) research results propose that with hedonic systems, perceived ease of use has more impact on intention to use than perceived usefulness. Overall van der Heijden claims that in hedonic systems "perceived usefulness loses its dominant predictive value in favor of ease of use and

enjoyment.” (Van der Heijden, 2004, p.699). Also, the results suggested that perceived ease of use has a very central role in the model, as it enhances both perceived usefulness as well as perceived enjoyment by increasing utilitarian and hedonic value respectively. In addition perceived ease of use was found to have a direct impact on intention to use in hedonic systems, while in utilitarian systems it only has indirect impact through the other two constructs.

Based on the literature on technology acceptance reviewed, it appears that Van der Heijden’s (2004) model provides the current research the best starting point, as it appears to be capable of analyzing both utilitarian and hedonistic systems. As online poker can be used for both hedonistic and utilitarian purposes, this model appears to be very suitable for analyzing choice behavior in the context. In the following sections more attributes that are likely to influence on choice decision in online poker context are discussed.

### **3.3 Network externalities**

Online poker system fundamentally is a network that connects players from around the world, to play against one another. Therefore it is essential to review literature related to network externalities and their possible influence on user acceptance in online poker context.

The notion of network externalities first emerged in early 20<sup>th</sup> century along with the introduction of telephone. The actual theory that forms the basis for modern day understanding of the phenomenon was created in the mid 1980s (e.g. Katz and Shapiro, 1985; Farrell and Saloner, 1985; Katz and Shapiro, 1986). The research first focused on demand-side economies of scale and the effect of product compatibility on the value perceived by consumers. However, the essential contribution of the research has been the discovery of network externalities. Network externalities are said to occur when a user that is connected to a network, experiences increasing benefits as the number of other users in the same network

grows. In online poker environment this would mean that a poker network is perceived more beneficial for participants, as the number of other players in the same network increase.

There has also been an attempt to incorporate network externalities as a construct in the technology acceptance model. It was discovered that network externalities have a positive impact for technology acceptance. The results suggested that network externalities have a strong and statistical link with both perceived usefulness and perceived ease of use constructs, through which network effect influences technology acceptance. However, no direct influence of network externalities on intention to use was discovered in the research (Pontiggia and Virili, 2010). It has also been suggested that network externalities, besides influencing perceived usefulness and ease of use, also has a significant influence on perceived enjoyment (Mäntymäki and Salo, 2011). However, the research by Mäntymäki and Salo (2011) was focused on virtual worlds and teenage users, the results may not be directly applicable to the current research. On the other hand additional research in this field has reported results that are in line with the findings of Mäntymäki and Salo (e.g. Lin and Bhattacharjee, 2008; Sledgianowski and Kulviwat, 2009; Li et al., 2010). Therefore it may be safe to assume that these findings apply also in online poker context at least to some extent.

Counter to the general perception of network externality effect, it has also been discovered that the total network size is not always the most important factor in defining whether a user will accept or reject a certain technology. What is more significant is that the network is used by agents that are relevant for the user (Lin and Bhattacharjee, 2008). This is due to the fact that sometimes a network is so large that it is impossible for one user to interact with all of the other users. In such circumstances, it is important that the right kind of users that are relevant for the user in question are connected to the network. However, the total size of the network still has significant indirect influence, as a network that has a large total size, is more likely to bring other benefits for the users such as complimentary products or services.

In the online poker context, size of the network is perceived to be one of the most important features, in creating value to the player (Sieroty, 2011). In the online poker context, it has been discovered that achieving a critical mass of players is essential for the survival of the network. Poker players want to be able to play at any time of the day, and to be able to provide games at all times, a network has to have the critical mass. However, Sieroty (2011) also recognizes that having the critical mass is only one feature, and it alone will not ensure that a site will be successful or not. Essentially having the critical mass is prerequisite, and all other features of the poker site will determine the success or failure of a poker site.

Hence it can be concluded that network externalities appear to have significant impact on user acceptance of technology, especially in the context of this research. Various studies have confirmed that network externalities have indirect effect on user intention to use a technology through perceived enjoyment, ease of use and usefulness. In addition larger networks are more likely to bring other benefits to users, in the form of for instance complementary products and services. Therefore it is essential to consider network externalities as an important factor influencing on technology acceptance of online poker players.

### **3.4 Situational influence**

It has been established that it is possible to distinguish between professional and recreational players (McCormack and Griffiths, 2012). The authors recognized that each group has their own unique and distinct features, which essentially make them either professional or recreational players. In addition, certain features ensure that other players play profitable poker, while others end up losing money. However, it is still possible that professional players sometimes engage in recreational playing and vice versa. For instance, a professional player might be out and about on a Friday night with his friends, and playing a little bit of poker online just for fun, might seem like a good idea. Thus it is essential to also

recognize the situational influence as a possible factor affecting choice behavior in online poker context.

It has been recognized that situational variables can significantly improve the capability to explain consumer behavior (Belk 1975). The most appropriate oxford dictionary definition for the word 'situation' is: "a set of circumstances in which one finds oneself". Based on previous literature on the field, Belk has further defined five groups of situational characteristics that collectively make up a situation: physical surroundings, social surroundings, temporal perspective, task definition, and antecedent states. Essentially Belk (1975) claims that things such as décor, sounds, other persons present, time of day, fatigue, illness, or other similar things all have an influence on our choice behavior.

However, what is most relevant in Belk's (1975) findings for this research is the notion of task definition. In essence task definition describes, "an intent or requirement to select to select, shop for, or obtain information about a general or a specific purchase. In addition, task may reflect different buyer and user roles anticipated by the individual" (Belk 1975 pp. 159). For instance, people are likely to make different choices when they are buying a bottle of wine as a gift for a friend, than they would be when they would be buying a bottle of wine for personal use. As was already mentioned, the phenomenon has been also recognized in technology context by Goodhue and Thompson (1995), although it has not been discovered to be very effective model as such. However, the constructs of the model did prove to be capable of predicting and explaining user acceptance of technology, which demonstrates that task, does have an impact on the choice behavior also in technology.

Additional literature covering situational influence has studied the effect of various external situational factors on choice behavior. For instance, it has been recognized that the presence of friends (Bell 1967) or sales personnel (Albaum 1967) has an impact on the choice behavior of consumers. Therefore it can be assumed that



similar effects can be found in the online poker context, and the relative importance of choice criteria for an online poker site may vary accordingly.

The most important issue in situational influence regarding the current research is the recognition of the influence of different roles or tasks a consumer may have, and the influence of different roles on their behavior. This thesis postulates that an online poker player's choice behavior may vary depending on whether the person in question is playing professionally or recreationally. This may further be influenced by for instance the presence or absence of friends, while playing. Thus this research assumes that the role of the player will be a moderating factor that will have an influence on the player's preferences regarding the online poker site.

### **3.5 Construct selection**

This selection will review those constructs that emerged in the literature review that are likely to influence on technology acceptance in online poker context. In this section, a list of attributes that may have influence on the choice behavior of online poker players will be identified. These attributes will be further analyzed in the following sections of this thesis.

In the literature review, several different theories related to technology acceptance were analyzed to form a comprehensive understanding about the factors that affect decision making in the context of information systems. When reviewing the literature, it became very apparent that Technology Acceptance Model is a dominating theory. The theory's explanatory and predictive power has been proved in various contexts by numerous researchers. However, as the original Technology Acceptance Model had been developed to study technology acceptance for utilitarian purposes, a version that was modified to also explain hedonistic user acceptance, was chosen as the foundation of the theoretical framework for this thesis (van der Heijden, 2004). Therefore the three fundamental constructs that are expected to explain user acceptance in online poker context for both utilitarian

and hedonistic users are: perceived usefulness, perceived ease of use, and perceived enjoyment.

Second, it was recognized that as online poker essentially take place in a network that connects players from around the world to play against one another, network externalities are also likely to have an influence on the choice behavior in this context. It was recognized that network externalities influence mainly through perceived usefulness, perceived ease of use, and perceived enjoyment constructs, in the technology acceptance model context (Mäntymäki and Salo, 2011).

Third, trust (Hoffman et al., 1999; Gefen et al., 2003; Eastlick et al., 2006; Salo and Karjaluoto, 2007) was also discovered as things that have an impact on the choice behavior in online context. It was also recognized that trust in online environment has a significant influence, and according to some findings its impact may be as strong as that of perceived usefulness and perceived ease of use (Gefen et al., 2003). Trust in the online context is a sum of many factors, but it was recognized that besides things related directly to the quality of a website, and other TAM constructs, reputation is one important factor (Salo and Karjaluoto, 2007).

Finally, the need to review the influence of loyalty programs on technology acceptance was also recognized, as loyalty programs are an essential way to promote different poker sites. The literature suggested that loyalty programs as such are not likely to contribute to customer retention, but together with other factors they do have an impact (Bhattacharjee, 2001).

Other possible factors that would influence on consumer choice behavior were also recognized in the literature review. However as it has been recognized that people can only usually process around seven to nine different attributes at one time in an evaluation situation (Gustin et al., 1997; Miller, 1956), the decision was made to concentrate on the above attributes that were considered the most relevant for the current research.

According to the literature reviewed, a list of attributes that are likely to be taken into consideration by online poker players is presented below. In addition it should be noted that situational influence or role, is likely to influence on the perceived importance of each of the attributes below, and therefore it is not listed as an attribute per se.

- Perceived ease of use
- Perceived enjoyment
- Perceived usefulness
- Network externalities
- Trust
- Loyalty program

Thus the list represents all of the characteristics that are expected to influence on technology acceptance in online poker context. To confirm this list of attributes and possibly find new criteria that online poker players may have, four interviews were conducted with four online poker players.

## 4 Methodology

### 4.1 Selection criteria of interviewed online poker players

In order to validate the criteria found through the literature review, interviews with online poker players were conducted. The intention of the interviews was to confirm that the criteria found was relevant in the online poker context, and discover any possible new criteria that might have gone unnoticed in the literature review. The data was gathered through four interviews with online poker players that all had different motivations for playing as well as different backgrounds. All interviewees were selected and contacted using the author's personal contacts.

The interviews were conducted in Finnish, as the interviewees were all native Finnish speakers. The interviews followed an outline that is displayed in Exhibit 1. The interview started by covering the background of the interviewee and by identifying whether the interviewee considers to be more of a recreational or a professional player. The second part of the interviews consisted of questions related to online poker sites, their attributes and how the interviewees preferred different attributes on the poker sites. The second part started with questions that would allow the interviewees to freely state any features that they felt to be important. The questions got more specific towards the end, in order to gain a more profound understanding about a number of essential issues important for this survey, and to confirm the criteria found in the literature review. In other words, the questions in the beginning were broader to allow any such criteria to emerge that were not discovered in the literature review.

All of the questions in the interview were open-ended. All interviews were recorded and transcribed afterwards. The results of the interviews will be presented in the following section. The next section has been divided into four parts. In each part, first a short description about the interviewee's background and playing habits will be provided. Then the most important criteria of the

interviewee will be presented to draw conclusions about the most important factors influencing on decision-making.

## **4.2 Interviewee 1: Juuso Hytönen, March 23<sup>rd</sup>, 2012**

Hytönen is a 24 year-old Finnish business school student, who has been playing online poker for six years. He says that online poker provides him an extra source of income, but he spends the majority of his time studying, and claims that student aid is his main source of income. Hytönen estimates that he uses about 10 hours per week on playing online poker, playing at medium stakes level. He states that he plays poker essentially only to earn money, but he admits that he might sometimes play online poker only for fun.

### **4.2.1 Online poker site criteria**

For Hytönen, the most important criteria in an online poker site is that the site has a large player base, and that there is a good selection of different varieties of poker games available at all times. Secondary features that are important to him, are reliability and ease of use. He wants to use a poker site that runs smoothly, and does not crash. In addition he thinks that he is willing to play with a poker site that is slightly harder to use, if the games available are very good.

At the time of the interview Hytönen said that he had an account on only one poker site, but he was planning on opening another account on another site, to be able to have more games on at the same time, and to be able to find suitable opponents more quickly. For him, the most useful feature of a poker site is that there are heads-up tables available, as this is the form of poker Hytönen prefers and it is the most profitable form for him.

Hytönen thinks that a pleasant poker site should have a simple interface, so that it is quick and easy to see what happens in the tables, how much money each player

has et cetera. He also thinks that buttons that allow you to bet for instance  $\frac{3}{4}$  pot make a poker site more pleasant to use, as it makes playing more effortless. This also makes the poker site more useful in his opinion, as it allows quicker action, decision-making, and thus allows him to play more hands per hour and increase his expected profits.

Hytönen claims that it is difficult to recognize if a poker site is secure or not, and that he mainly relies on the reputation of a poker site, as he evaluates its safety and trustworthiness. He however thinks, that the security of a poker site is an important factor, and thus the reputation of a poker site greatly influences on his decision to use or not to use a certain poker site.

Finally, Hytönen thinks that loyalty programs are also a major factor influencing on his decision-making. He says that if some poker site would not offer a rakeback-contract, he would probably decide not to use such poker site. He says that the amount he is able to receive through rakeback, is so significant that it wouldn't be reasonable for him to play without a rakeback-contract.

#### **4.3 Interviewee 3: Aaro Valkila, March 23<sup>rd</sup>, 2012**

Valkila is 24 year-old Finnish professional poker player, who has been playing online poker for about two years. He has been playing professionally for a fairly short time. Poker winnings are his main source of income at the time of the interview, and he estimates to spend about 50 hours on playing poker per week. Valkila plays medium stakes poker games. He says that he plays primarily Texas hold'em to earn money, but sometimes he plays other poker games just for fun (e.g. Omaha). Thus he is considered to be professional player, who may sometimes engage in recreational playing.

### 4.3.1 Online poker site criteria

The most important feature of a poker site for Valkila is that the site would always have the games available that he likes to play. In other words, he states that the availability of right games in essence means that the player base of the poker site is large enough.

Almost equally important for Valkila is the ease of use of the poker site. Valkila explains that there are significant differences among different poker sites in terms of their ease of use, and that for him the usability of a poker site is very important.

Valkila thinks that having rules such as a minimum buy-in for a table, and enough time to think about each decision makes a poker site useful in general. Regarding the actual software, Valkila thinks that having bet sliders or buttons that allow you to bet for instance  $\frac{1}{2}$  pot is a very useful feature. In addition, Valkila thinks that an automatic buy-in feature makes his playing more efficient. Also having good waiting lists for ring games, improves the usefulness of a poker site, in Valkila's opinion.

Valkila states that the same features that make a poker site useful, also influence the enjoyment of use. However, he mentions that a possibility to customize the graphics or appearance of the poker site make the use of the site more pleasant. Generally he thinks that a poker site that is pleasant to use, has nice interface in terms of its appearance.

Reputation is also an important factor determining whether Valkila chooses to use a particular poker site or not. According to him, reputation is the only way he can evaluate the security or reliability of a poker site. For this reason, he tends to prefer well-known poker sites that are used by his acquaintances as well, and tries to avoid poker sites that may have a questionable reputation or no reputation at all.

Finally Valkila claims that loyalty-program is an important factor for him, and he always considers the rakeback-percentage before deciding, which poker site he is going to use. In general, he says that loyalty program is a significant factor for him.

#### **4.4 Interviewee 3: Sami Kelopuro, March 26<sup>th</sup>, 2012**

Kelopuro is a 24-year-old professional poker player, who has been playing online poker for six years. Kelopuro lives in Finland, and plays poker both online and offline, but mainly online. Poker is the main source of income for Kelopuro, and he estimates that he spends about 40 hours per week on playing online poker. Kelopuro plays high stakes poker games. According to Kelopuro, whenever he plays poker, his intention is to win money, and thus he is considered to be a purely professional and a utilitarian poker player.

##### **4.4.1 Online poker site criteria**

The single most important criterion for Kelopuro is that he can find the right kind of games on the online poker site. Practically this means that he is able to find games that have large enough stake-levels that has some 'value' for him, meaning that he considers that he is capable of playing the game profitably. He claims that the size of a network does not unambiguously correlate with the availability of the right kind of games. According to Kelopuro, it is more important to have the right kind of players in the network, than having a vast amount of players in the network. The reason why Kelopuro has fairly specific demands for the right kind of players, is probably explained by the fact that the number of players in the world that play in the stake level he prefers, is fairly limited. In addition, the majority of the players in these games are professionals and among the best in the world. Therefore, in order for the games to be profitable, it is essential, to find the weakest of these players, among these players.



Other important features of an online poker site that are important to Kelopuro, is that the poker site is compatible with third party poker tracking and analysis software (e.g. Hold'Em manager, PokerTracker) and services (e.g. pokertableratings.com). In addition, Kelopuro considers the look and usability of the poker site to be important factors. He says that he gets annoyed with software that has poor sounds, graphics, and animations, and prefers a site that has pleasing graphical interface, sounds and animations. In addition he thinks that if the user can modify a poker site's appearance somehow, it makes the site more pleasant. To conclude, Kelopuro considers simple sites that are easy and effortless to use to be also pleasant to use. Too many or too complicated animations, sound effects and things like that, may cause too much confusion and make a site too slow to use.

Furthermore, Kelopuro also points out that features that increase the usefulness of a poker site are important to him. Features that increase the usefulness of a poker site in his opinion, are things like a bet slider and buttons that allow you to automatically bet for instance 33% of the total pot, as well as a possibility to review a past hand easily and quickly. In addition he thinks that the filters in the poker site lobby that allow players to find the right games or tables, to be important and a useful feature, as they allow the player to quickly find and get into the best games available at any given moment.

Kelopuro says that he has accounts on multiple different poker sites at all times, as this arrangement allows him to find and pick the best available games at all times. In essence it increases the likelihood of finding the games that he considers have the best 'value' and thus allow him to maximize his expected profits.

Kelopuro thinks that the reputation of a poker site is essentially the only way he can distinguish whether a poker site is secure and reliable or not. He thinks that security and reliability is an important factor, but he also recognizes that online poker sites may have little possibilities to prevent things like someone accessing another player's computer and seeing the other player's cards and taking advantage of that. In practice he thinks that a site's Internet security is based on

news and rumors, and such things do influence on his decision to use or not to use a certain poker site.

Finally, Kelopuro says that he always chooses the best available loyalty program for each poker network, as usually multiple skins are available for any poker network that all offer slightly different loyalty programs. Kelopuro claims that a loyalty program is not a reason to use or not to use a certain poker site as such, but once a decision has been made to use a specific poker network, he will choose the poker room on that network that offers the best loyalty program on that network. The impact of a loyalty program per se is fairly small, according to Kelopuro.

#### **4.5 Interviewee 4: Pasi Vilén, March 28<sup>th</sup>, 2012**

Vilén is a 45-year-old IT consultant from Finland. Vilén has been playing online poker for four years, and he considers himself to be a purely recreational player, and plays only for fun. He estimates to spend on average 10 hours a week on playing online poker. Vilén plays low and medium stakes poker games.

##### **4.5.1 Online poker site criteria**

The most important feature of poker site for Vilén is the availability of the games he wants to play, which in practice means that the poker site is part of a network that has a large player base. Other significant features that Vilén considers to be important are that the software is easy to use, which means that you can easily find and join the games you want to play, and that the appearance of the software is clear.

Vilén had an account on more than one poker site at the time of the interview, and the reason for this was that he uses different sites for playing different poker games. Useful features in Vilén's opinion were things like appropriate filters in the lobby that allow you to quickly find the right tables, and that players are not given

too much time to think about their decisions, which makes the game more fluent. In addition he mentions that useful feature of a poker site is also the absence of excessive animations or graphics.

Vilén thinks that a poker site that is pleasant to use, should have pleasing colors, and essential buttons and functions should be easy and quick to find. In addition important information such as the amount of money in pot, or the amount each player has in chips should be clearly displayed. Generally Vilén claims that a pleasant site is simple and easy to use.

Vilén says that the security of a poker site is an important factor for him, but it is difficult to say whether a site is secure or not. He says that one can identify that payments are made under a secured connection, but all other perceptions related to the security and reliability of a poker site are based on the reputation of the site. For this reason, Vilén says that he tends to prefer sites that are run by well-known companies. Finally he says that loyalty-programs may have some impact on his decision when he is choosing a poker site, but the importance of rakeback-programs for him is very little.

#### **4.6 Interview results**

This section concludes the results regarding online poker site criteria, gathered through the interviews. The most important criteria that emerged in the interviews are examined and significant issues raised by the interviewees are discussed here.

When asked about the most important feature in an online poker site, all interviewees mentioned the availability of the games they like to play. In practice this roughly translates to the amount of players that are part of the network, on which the poker site is. When asked, three out of four interviewees confirmed that one could state that in their opinion the size of the network is the most important

feature. Kelopuro, who would not unambiguously agree with this, still said that the size of the network is still an essential part of the most important feature for a poker site, which however for him is a more complex construct. Thus it appears to be justified to conclude that based on the interviews, network size appears to be a significant factor for both professional and recreational players, as they are choosing which online poker site to use.

Ease of use and usability of the poker site was mentioned by all interviewees as an especially important feature. It appears that all of the interviewees preferred a poker site with clear and simple graphical interface, easy to use functions, plain yet pleasant animations and sounds. Also, essential information regarding players, pots, chips et cetera, should be clearly presented. In addition the poker site should be reliable in the sense that it will not crash easily. Furthermore, extravagant sound effects and animations were considered to be more annoying than pleasant, and they were perceived to hinder the ease of use, usability, and reliability of the poker site. In short, the poker site should be easy to use, it should have simple interface and it should not crash easily.

Ease-of-use aspect was further emphasized, and it was mentioned to influence on the perceived usefulness as well. Interviewees claimed that features such as bet-a-pot buttons not only enhance the ease of use, but also improve the usefulness of the poker site, and thus allow professional players to generate more profits. The features influencing on the perceived pleasantness of using the poker site and features that makes a poker site perceived as useful, were somewhat interconnected. In essence, simple and easy to use software were considered to be pleasant, but they will also increase profits, as they are quicker to use. In addition, perceived usefulness of a poker site was considered to be improved by features such as compatibility with third party analysis software, hand history, and similar features.

Thus there was a clear distinction between perceived usefulness, perceived enjoyment, and perceived ease of use, despite the fact that some features may

influence on more than one of these constructs. However, the significant finding regarding this relates to the fact that all of these issues were considered to be important by the interviewees.

Internet security and reliability of the poker sites was also found to be a significant factor influencing on the decisions of the interviewees. However, all interviewees claimed that the reputation of a poker site was the only real way to evaluate the reliability of a poker site. Therefore reputation in terms of security and trustworthiness of a poker site can be considered to have a significant influence on the decision to accept or reject a certain poker site.

Finally, loyalty program was a factor that divided the opinions the most. Based on the interviews, it appears that loyalty program is an important factor for professional players who play medium stakes games, but as the stakes get higher, the significance becomes smaller. Also, recreational players also tend to consider the loyalty program to be a somewhat less significant feature.

Overall it appears that the criteria found through an extensive literature review were validated by the interviews. However, the interviewees (Hytönen and Valkila), who were discovered to occasionally play both professionally and recreationally, reported that they used only one online poker site at the time of the interview. Therefore the interviews were unable to give any information of the influence of the motivation to play (i.e. intrinsic or extrinsic), on the choice behavior. However, despite the fact that the construct remains invalidated, does not imply that it would not influence on choice behavior of online poker players.

In addition, it was discovered that all interviewees perceived reputation as the main way of evaluating Internet security and general safety of an online poker site. Thus the notion of trust will be replaced with a construct called reputation, as it better captures the issue in the context of online poker sites. Besides these minor changes, no significant new criteria emerged as a result of the interviews.

However, it should be noted that only four interviews were used. On the other hand, the results were fairly consistent among the four interviews, which improves the reliability of the results. Hence the interviews in the view of the author confirmed that the criteria compiled from previous literature was comprehensive, and should allow us to explain and predict the acceptance of technology in online poker context.

Table 4.1 lists the constructs found through the literature review conducted in the previous chapter, on the left side of the table. On the right side are listed those constructs that were validated and confirmed through the four interviews.

<b>Original attribute</b>	<b>Confirmed attribute</b>
Perceived ease of use	Ease of use
Perceived enjoyment	Enjoyment
Perceived usefulness	Functionality
Network externalities	Poker network
Loyalty program	Loyalty program
Trust	Reputation

**Table 4.1 List of original and confirmed attributes**

To conclude, the list of constructs that was collected via an extensive literature review was mainly supported by the results of the interviews. Thus the above listed constructs will be chosen to be part of the model created to predict and explain technology acceptance in online poker context, and its influence will be further investigated in the following section of this thesis.

## **5 Relative importance of online poker site attributes**

In the previous two chapters the factors on decision making related to online poker site was recognized and validated via an extensive literature review and interviews. This chapter will describe the construction of a survey that includes a discrete choice experiment, which was created to gain further knowledge about the relative importance of the different factors for various respondents. In section 5.1 the methodology is explained and justified. The second section of this chapter will explain how the data was gathered for the research, whereas section 5.3 describes the demographics of the respondents. Section 5.4 explains latent class clustering that was performed on the respondents to identify four distinct player clusters among the respondents. Section 5.5 describes the discrete choice experiment theory, and explains in more detail how it was utilized in the current research. Section 5.6 presents the findings of the discrete choice experiment on an individual level, and section 5.7 presents the relative importance of attributes. Section 5.7 is divided into two parts. In the first part the differences are analyzed based on the roles the respondents indicated, whereas the latter is based on the four clusters identified. Findings of the current research are discussed in more detail in the final section of this chapter.

### **5.1 Methodology**

The objective of the current research was to identify the relative importance of different criteria that influence on the choice behavior of online poker players as they are choosing a poker site for playing. In addition it is also the intention of this thesis to recognize how the role of the poker player as a professional or as a recreational player influences the relative importance of the criteria, as well as to discover clusters among players that could impact on the choice behavior.

Generally research related to technology acceptance has utilized a Likert scale style surveys to study the perceived importance of different constructs (e.g. Chismar and Willey-Patton, 2002; Lee et al., 2003; Hsu and Lin, 2008). This approach however tends to allow respondents to indicate several criteria that are equally important for them, by allowing respondents to evaluate different attributes. Thus it does not force the respondents to actually indicate what they would choose in a situation, when trade-offs between different attributes have to be made. Therefore Likert scale styled studies fail to imitate the actual decision situation, in which the buyer usually has to decide on the relative importance of the attributes.

Unlike a Likert scale, a discrete choice experiment is a technique, which enables the researcher to identify the utility of each attribute related to a product or service (Louviere and Woodworth, 1983). In essence the approach allows also the identification of the relative importance of the attributes for the respondent. DCEs have been used in many contexts, where researchers have been interested in eliciting underlying values and preferences (Ryan et al., 2006). In a discrete choice experiment, respondents are presented with alternative products or services, which are often imaginary or hypothetical. Because of the ability of this method to reveal the relative importance of different criteria and ability to simulate an actual choice situation in a fairly authentic way, DCE was conducted for the current study.

## **5.2 Survey structure and gathering of data**

Respondents for this research were contacted using Pokerisivut.com, the largest poker website in Finland. In May 2010 the website reported to have more than 37 000 registered members (Wikipedia.fi). The website includes news, blogs, and discussion forums related to poker and online poker. In addition the website operates as an affiliate site for the majority of online poker rooms, by providing different promotions to these rooms. Pokerisivut.com was also chosen as the best



overall affiliate site in 2010 in the iGB Affiliate Awards (Casinoaffiliateprograms.com, 2010).

The invitation to participate to the survey was presented in a new discussion thread at Pokerisivut.com, where the purpose and background of the study was briefly explained, and a link to the survey was provided. A news article about the survey and the invitation was published on the front page of Pokerisivut.com, by the administrators of the website. At the time the data was downloaded the last time, the thread had attracted 1539 views. The number of respondents that successfully completed the survey was 332. Thus the response rate for the survey is 21.6%.

The study was hosted online, and a link through which the respondent would end up to the survey was provided. In the first page of the survey, the background and purpose of the survey was explained again, to give respondents an idea about who is behind the study, and what are the intentions of the researcher.

The conjoint analysis survey was created using Sawtooth Software SSI Web. After creating the survey, it was first tested by the author and then piloted by three people familiar with online poker, to ensure that the survey worked and was comprehensible to respondents. The survey started off with questions related to the background of the respondent. In the background section, information related to things such as age, gender, profession, and experience with online poker was collected. The respondents were also asked to identify the networks on which they currently had accounts. In addition the respondents that indicated to play occasionally both professionally and recreationally, were asked to distinguish those network(s) that they would use for recreational playing from the one(s) they would use for professional playing.

Before the actual discrete choice experiment part of the survey, the respondents were asked to imagine the situation where they would be choosing a new online poker site, and to indicate whether they will be doing the decisions as a

professional or a recreational player. In case the respondent plays occasionally for money and occasionally only for fun, the respondent was asked to choose the role, based on which he or she will be completing the rest of the survey. Based on the role the respondents chose, this thesis considers the respondents either recreational or professional players.

### **5.3 Respondent demographics**

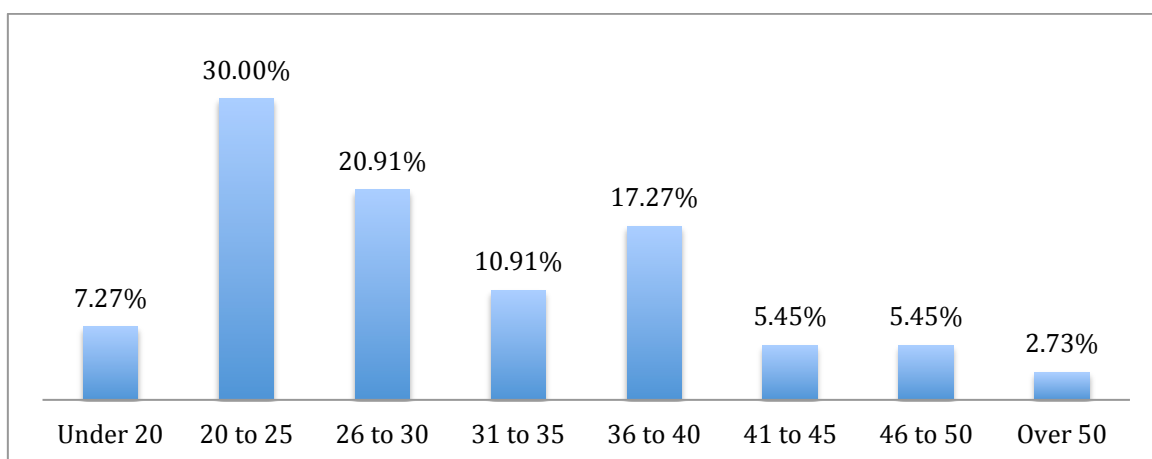
In the first part of the survey the respondents were asked to provide information related to their age, gender, occupation, experience with online poker, stake level, time spent on online poker, et cetera.

Both professional and recreational players were well represented in the sample. In total 332 respondents successfully completed the survey. Among this sample, 110 (33,1%) respondents identified themselves as recreational players, and 222 (66,9%) as professional players, when asked based on which role they would like to answer the discrete choice experiment part.

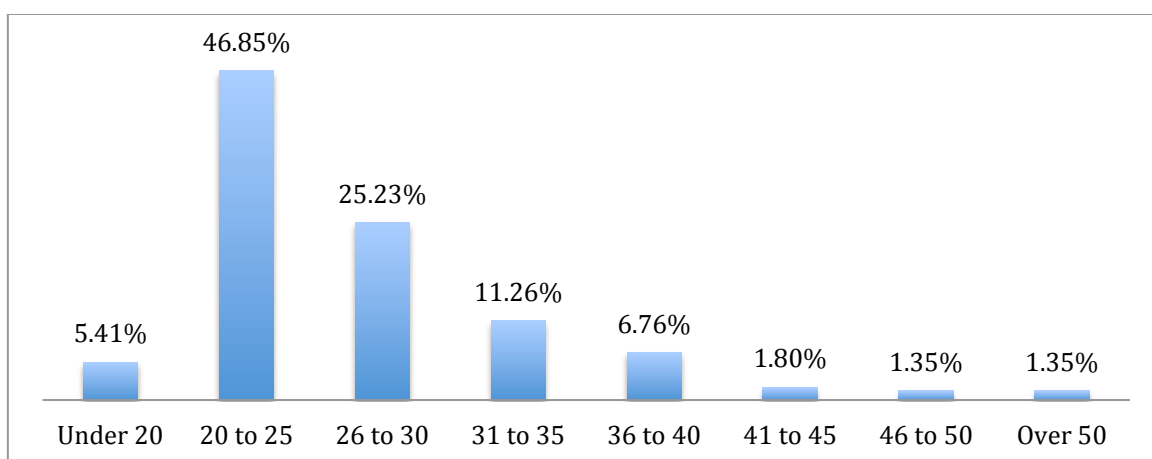
Also players at all stake levels (micro, small, medium, and high) responded to the survey. In this respect it is fair to claim that the sample is fairly diversified. However, poker in general appears to be far more popular among males than females, and probably for this reason the sample consists primarily of male respondents. Only two female respondents successfully completed the survey, and thus form only 0,6% of the total sample. This section will cover the background of the respondents in more detail.

The age distribution among the respondents is depicted in the figure 5.1. It seems that online poker is a young man's game, as over 70 percent of the respondents are below 30 years old. However there are also a fair amount of responses from poker players between the ages 30 and 50.

If comparing the age distribution between the respondents who identified themselves as professionals and those who chose the role of a recreational player, some differences can be observed. The age distributions for recreational and professional respondents are presented in figures 5.2 and 5.3 respectively. The average age for recreational players was 30,5 years, and for professionals 27,2 years. The recreational players appear to have an age distribution that is more evenly spread between different ages, whereas professional players' ages tend to be bent towards younger ages.



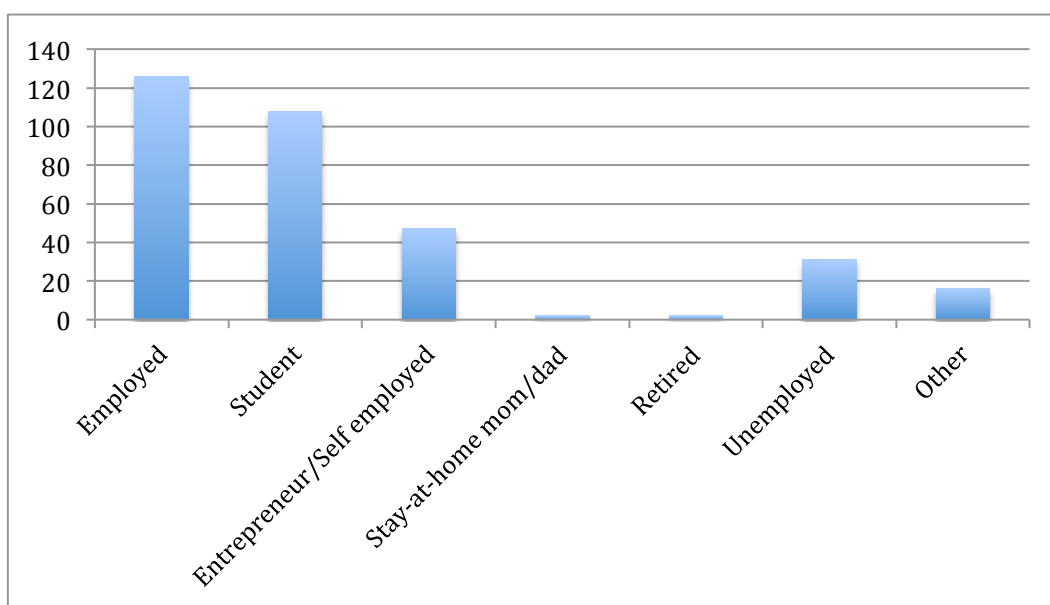
**Figure 5.2. Age distribution of recreational players**



**Figure 5.3. Age distribution of professional players**

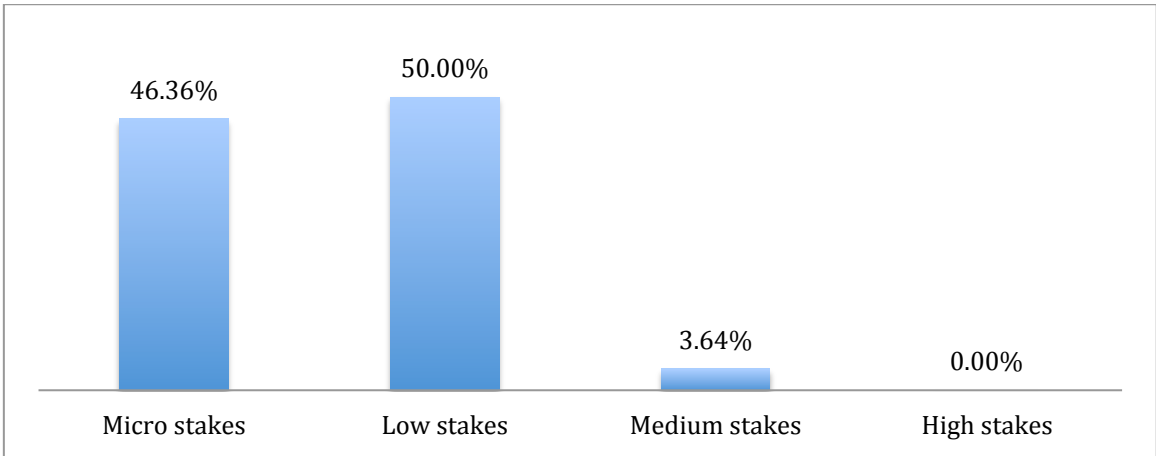
The occupations of the respondents are presented in figure 5.4. It appears that majority of respondents (84,64%) are either studying, working, act as

entrepreneurs or employ themselves as poker professionals. In addition almost five percent chose the other option, and wrote they were either professional players or working part time. Only less than 10% identified themselves as completely unemployed, but this group could also include people who actually live off poker at least to some extent. All in all the occupations appear to be in line with the ages indicated by the respondents, as approximately third of the respondents identified themselves as students. This appears to be logical, as the ages distribution of the respondents was strongly leaning towards younger people.

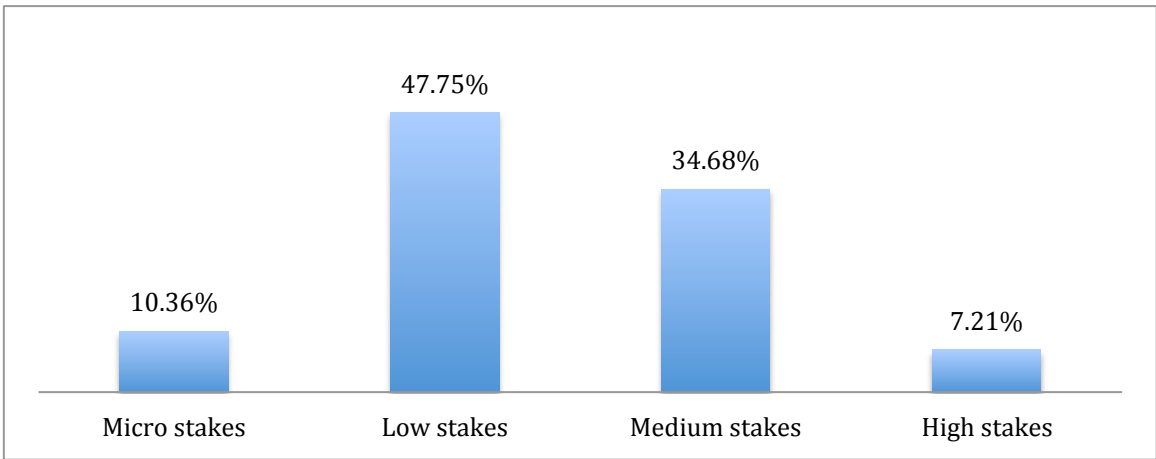


**Figure 5.4. Occupations of all respondents**

The respondents were also asked to indicate the stake level, on which they usually play. It appeared that all stake levels were well represented in the sample. The most popular stake level among all respondents was low stakes (48,49%). However, recreational players appeared to have a tendency to play more of the micro and low stakes games, whereas professional players appear to favor higher stake levels. In figures 5.5 and 5.6 the distribution for different stake levels are represented respectively for recreational and professional players.

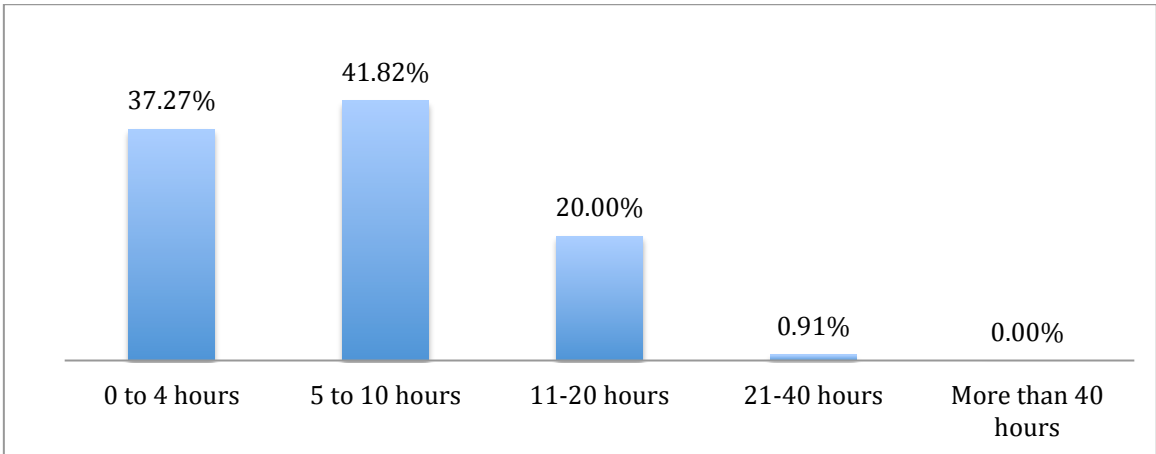


**Figure 5.5 Stake levels of recreational players**

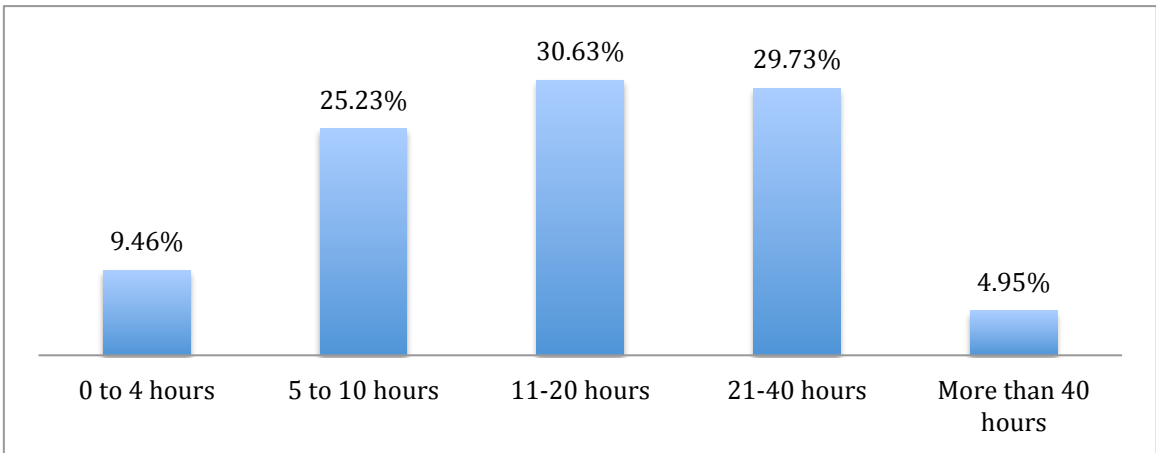


**Figure 5.6 Stake levels of professional players**

Not surprisingly, recreational players spend less time on online poker per week, than professional players. Figures 5.7 and 5.8 illustrate the hours respondents spend on average playing online poker per week, for recreational and professional players respectively.

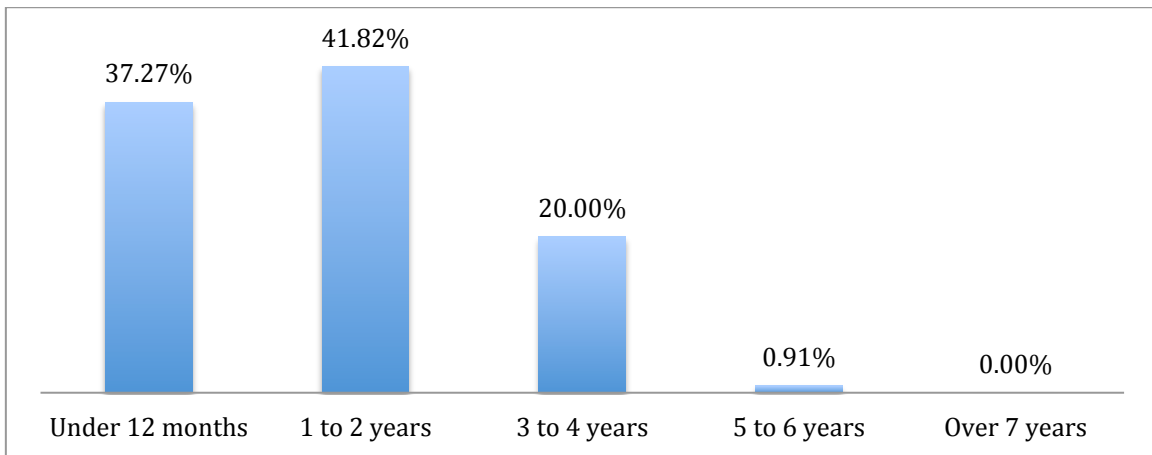


**Figure 5.7 Hours recreational players spend on online poker per week**

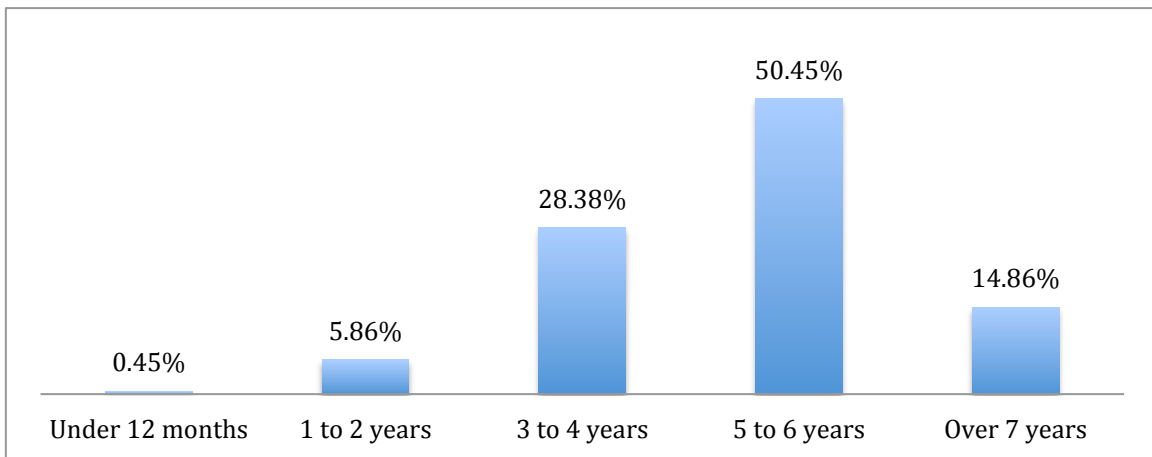


**Figure 5.8 Hours professional players spend on online poker per week**

Experience with online poker also appears to differ quite dramatically between recreational and professional players. According to the results, recreational players appear to have less experience with online poker than professional players. Most of recreational players appear to have less than two years of experience (79,09%), whereas with professional poker players, most respondents appear to have more than three years of experience (93,69%). Figures 5.9 and 5.10 illustrate the experience of respondents with online poker in both groups.



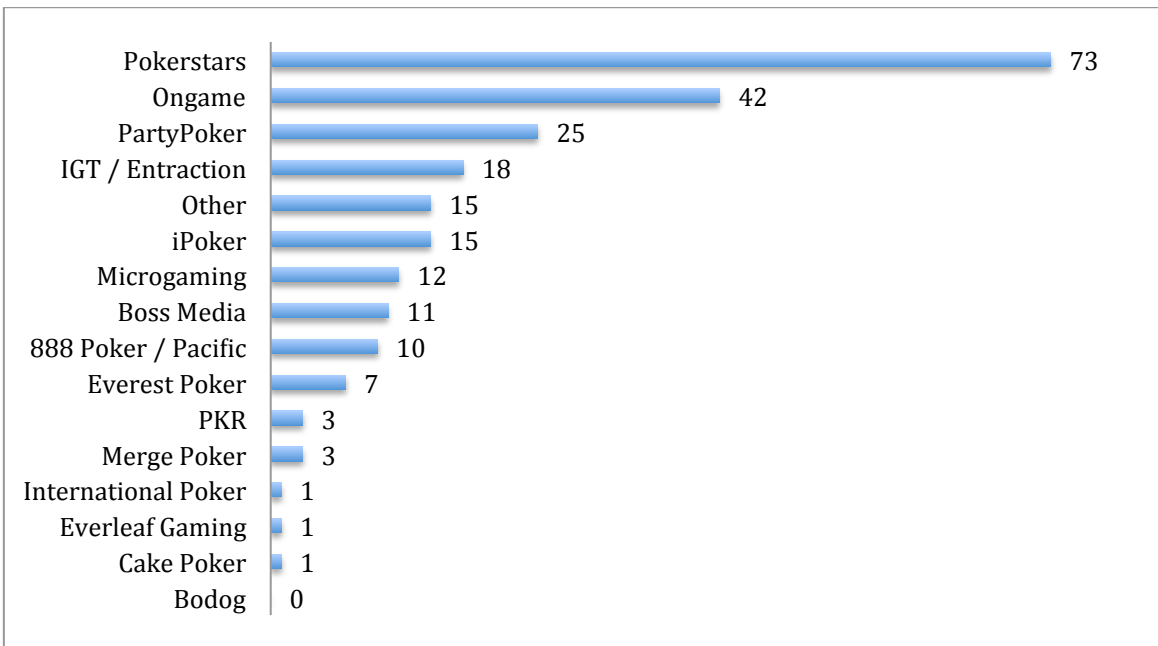
**Figure 5.9 Recreational players' experience with online poker**



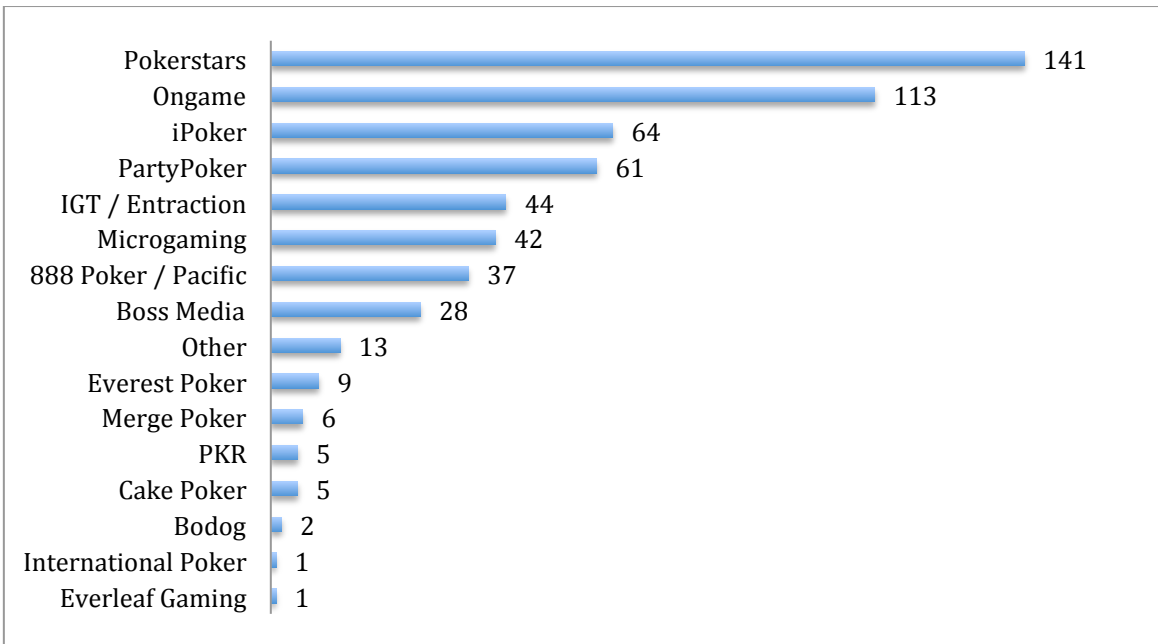
**Figure 5.10 Professional players' experience with online poker**

Finally, in the first section the respondents were also asked to identify the poker networks that they currently use for playing online poker. Recreational players use on average 2,15 networks, whereas professional players indicated that they use on average 2,58 networks. It appears rational that professional players tend to have accounts on more networks than recreational players. Professional players are also trying to maximize their income, by choosing the weakest opponents, and based on the information gathered through interviews, using more networks simultaneously enhances the discovery of the best available opponents.

Furthermore, in figures 5.11 and 5.12 is displayed the networks that were most popular among recreational and professional players.



**Figure 5.11 Popularity of networks among recreational players**



**Figure 5.12 Popularity of networks among professional players**

To summarize, respondents consist of people with various ages, occupations, stake levels, and experience with online poker, and therefore it can be assumed that the sample fairly well represents the population. However, the respondents are practically all male, which most likely is due to the fact that majority of poker



players appear to be male. Thus even in this respect, it can be assumed that the sample represents the population of online poker players well.

## **5.4 Latent class clustering**

To gain a deeper understanding about the respondents backgrounds, in addition to comparing relative importance of attributes between professional and recreational respondents, a latent class clustering was also conducted. The aim of using latent class clustering was to see, if it could reveal additional information about the preferences of different kind of online poker players, and study whether distinct clusters within the whole population of poker players could be discovered. In other words, the intention of latent class clustering was to analyze whether sub-groups could exist within professional and recreational players, or to see if groups consisting both kinds of players exist. The clustering was conducted, to understand, whether these sub-groups have their unique preferences that do not emerge when analyzing only differences between professional and recreational players on an aggregate level.

The following section describes the latent class clustering methodology. After this the clusters are described in more detail based on their characteristics.

### **5.4.1 Clustering methodology**

Cluster analysis in general refers to combining data objects into clusters. Clustering is done based on the attributes of the objects, in a way that the objects within one cluster are more similar to other objects in the same cluster, than they are to objects in other clusters (Dymnicki and Henry, 2011). In essence cluster analysis in the context of this thesis refers to analyzing responses of the respondents, and clustering the respondents into cluster based on the similarities or differences in their responses.

There are different ways of conducting cluster analysis, of which some are based on mathematical methodology whereas others use statistical methodology. A latent class clustering was the method chosen to be used in the current research. Latent class clustering refers to a statistical cluster analysis, which is based on the concept of likelihood. Most significant difference between mathematical and statistical methodology lies in the fact that when using the statistical methodology, objects have a probability of belonging to each cluster, instead of being absolutely assigned to a cluster. However, despite the chance that a given object could belong to multiple clusters, each object is still assumed to belong to only one cluster based on the probability assigned to it (Hagenaars and McCutcheon 2002).

Latent class clustering was conducted using Sawtooth Software's Latent Class segmentation module to find out the value functions for each segment (DeSarbo et al. 1995). Maximum likelihood criterion was used to optimize the sizes as well as the cluster-wise value functions of the clusters. In addition each respondent's likelihood of belonging to all of the clusters was also subject to optimization. In latent class clustering, each run does not provide a guaranteed global optimum, due to the fact that the likelihood problem is non-convex. Because of this, multiple repetitive runs were conducted for each pre-defined number of clusters. Based on the results of the runs, the best solution in terms of likelihood was chosen. According to DeSarbo et al. (1995) the amount of clusters to be used should be chosen based on the CAIC measure. DeSarbo et al. (1995) suggest that the cluster solution with the smallest CAIC is most "managerially interpretable", and therefore the best pick also for the purpose of the current research.

Based on the runs conducted for each pre-set number of clusters, it was discovered that the best solution was the one with four clusters. The CAIC measure for the chosen model was 4513. In this solution, each of the clusters had a reasonable number of respondents for further analysis, which also justifies the solution.

As already mentioned, in latent class clustering each respondent is assigned a probability (membership) of belonging to each cluster. The maximum membership

is the largest membership of all the clusters. In the chosen cluster solution, the average maximum membership of all the observations was over 0.90, which is considered to be good. Another way of assessing the cluster solution is to use entropy measure. Entropy measure can be seen as a way of evaluating the fuzziness in membership to a cluster (Ramaswamy et al. 1993). The entropy measure ranges from zero to one, with zero being the worst and one the best value. In the current research, the entropy measure is 0.84, which is also considered to be a good value.

In the below table (table 5.1) the cluster memberships have been cross-tabled with the role given by the respondents. A test of independence was conducted, to evaluate whether the variables are independent from one another. The chi-square p-value is 0.059, which can be interpreted to mean that differences exist, even though at 0.05 risk level, the hypothesis that the variables are in fact independent can be accepted.

Based on the evaluations and assessments carried out, it appears to be fair to conclude that the chosen cluster solution is good, and it seems justified to further analyze the information provided by the latent class clustering.

ROLE		CLUSTER				Total
		Beginners	Professionals	Experienced enthusiasts	Semi-professionals	
Recreational	Frequency	15	11	31	53	110
	Row %	13.64%	10.00%	28.18%	48.18%	
	Column %	41.67%	18.97%	38.27%	33.76%	
Professional	Frequency	21	47	50	104	222
	Row %	9.46%	21.17%	22.52%	46.85%	
	Column %	58.33%	81.03%	61.73%	66.24%	
Total	Frequency	36	58	81	157	332

**Table 5.1 cross table including cluster membership and role**

The table is read as follows. Frequency tells the number of respondents that were assigned to the cluster in question, based on the probability estimated in the latent class clustering for each of the two roles. In addition, the total row shows the total number of respondents that belong to each cluster. Row percentage describes the percentage of respondents in each of the two roles that belong to the cluster in question. Column percentage on the other hand depicts the percentage of recreational and professional players that belong to each cluster respectively.

As the total number of respondents that chose the professional role is more than double when compared to recreational respondents, it is also apparent that the column percentage is higher for professional respondents for every cluster. However, the row percentage provides more valuable information for further analysis on how different roles are distributed between different clusters.

As can be seen from table 5.1 the clusters are not equally divided in terms of frequency, which appears to be only natural, as the same is true also in the real world. For instance, the number of professional players playing with high stakes is likely to be far lower than that of recreational players playing with small stakes.

In the following section the characteristics of the clusters will be discussed in more detail, starting from the cluster with largest number of respondents and proceeding towards the smallest cluster.

#### **5.4.2 Cluster demographics**

This section will describe the demographics of the clusters, describe them in more detail, and explain the justification for naming the clusters. The clusters are presented in order starting from the one with highest number of members and proceeding towards the smallest cluster. More detailed quantitative data regarding the clusters, and their members' backgrounds can be found in exhibit 3.

##### ***5.4.2.1 Semi-professionals***

The cluster that has the highest number of respondents is called semi-professionals. When comparing this cluster to the other three clusters, it appears to lack clear characteristics that would allow more unambiguous description about the players that are likely to make up the cluster. It appears that almost equal share of recreational and professional players belong to this cluster. However it also appears that the motives for playing seem to be slightly more biased towards playing for money than playing just for fun. In addition, a relatively high number of respondents in the group had indicated to be either entrepreneurs, self-employed, or had chosen the other option indicating that they were poker professionals, in the background question regarding employment, suggesting a tendency towards professionalism in this cluster.

In addition, the time the respondents in this cluster spend on playing per week is quite evenly distributed, as about fifth of the respondents say to play between 20 to 40 hours per week, whereas a third says they only play between five and ten hours. Almost half of the respondents in this cluster say they play small stakes

games, and about a quarter indicated that medium stakes is the most commonly chosen stake level. In addition the respondents that belong to this cluster also appear to be fairly experienced in, as only less than 9 percent indicated to have less than two years of experience.

To conclude, it appears that the largest cluster consists mainly of players that appear to be more professionally than recreationally oriented. On the other hand the relatively high number of recreational respondents belonging to this group suggests that those likely to belong to this cluster are not unambiguously professional, the respondents in the cluster are considered to be semi-professionals. Hence also the cluster is named based on these assumptions.

#### ***5.4.2.2 Experienced enthusiasts***

The second largest cluster is called experienced enthusiasts. Unlike the largest cluster, this cluster has certain characteristics that relatively clearly distinguish it from all the other clusters. The most significant distinction being that recreational players have a higher tendency of belonging to this cluster than professional players. In addition the respondents in this cluster are by far the most experienced. Over 96 percent of the respondents in the cluster have more than three years of experience in online poker. In addition the average age in the cluster is the highest of all the clusters, which appears to be in line with the finding that the cluster also consists of very experienced players.

The motives of the players in this cluster are biased towards playing for fun, and not because of money. Almost 50 percent of the respondents indicated that they play primarily because it is fun. Almost ten percent of the respondents that belong to this cluster also indicated to play purely for fun, which is clearly the highest percentage among all of the clusters.

To conclude the second cluster seems to consist of respondents, who are intrinsically motivated and relatively experienced poker players. Therefore the respondents belonging to this cluster shall be called experienced enthusiasts.

#### **5.4.2.3 Professionals**

The second smallest cluster consists of players who are clearly playing for one reason only – they want to win money. No single respondent belonging to this cluster had indicated to be playing just for fun. Instead, over 70 percent of the respondents claim that the reason for playing poker was that it was their only source of income or that it was an source of extra income.

In addition the members of this cluster also clearly appear to be spend on average more time on playing than respondents in all the other clusters, which further studies have identified to indicate professionalism (Cabot and Hannum, 2009). More than 63 percent have indicated to spend more than 10 hours per week on playing. In addition the respondents in this cluster are also very experienced, as more than 93 percent have more than three years of experience. Also only less than fifth of the respondents in this cluster stated their most usual stake level was micro stakes, which is the smallest percentage among all of the clusters. It appears fairly logical that professionals tend to play on average with larger stakes than people playing only for fun.

Based on the characteristic of the cluster, it appears fairly safe to assume that this cluster consists of professional players, and hence the cluster has been named accordingly.

#### **5.4.2.4 *Beginners***

The smallest cluster among the four, is called the beginners-cluster. The naming is based on the fact that the respondents in this cluster appear to have the least experience of all of the clusters. Almost fifth of the respondents had been playing less than two years, whereas in all the other clusters the same percentage was clearly under ten percent. In addition the respondents in the beginners cluster tend to prefer the smallest stake levels, as more than 72 percent of the respondents had indicated to play primarily either micro or small stakes games. No one in this cluster had indicated to play high stakes games, which also supports the assumption that this cluster consists of beginners.

The respondents in the beginners cluster are also the youngest among the respondents. When analyzing the motives for playing, it appears that the respondents are primarily motivated intrinsically, as more than 60 percent of the respondents said that they play poker primarily for fun, which is the highest percentage of all the clusters. Almost half of the respondents had also indicated that they were employed, and approximately the same number of respondents had claimed they spend less than ten hours per week, on playing, also suggesting recreational playing (Cabot and Hannum, 2009).

Thus based on these characteristics it appears that the smallest cluster consists of players for whom poker is just a past time activity, in which they are not yet very experienced. Therefore the name beginners, appears to be fairly well justified title for the cluster.

#### **5.4.2.5 *Conclusions***

As it was earlier explained, comparing professional and recreational players based on the role the respondents indicated, could provide only a view of the surface, and for this reason a latent class clustering was conducted to discover if digging deeper in the data could reveal more significant differences in the respondent's



demographics, and if clustering could reveal sub-groupings that were not recognized in the earlier phases of the research.

The following section will analyze the differences in the preferences of professional and recreational players, as well as the differences in the preferences of each cluster. In addition, the discrete choice experiment methodology is explained, and the results presented.

## **5.5 Discrete Choice Experiment**

After gathering background information about the respondents, the second part of the survey covered the actual Discrete Choice Experiment (DCE). This section will explain what DCE actually is and its theoretical background. In addition the utilization of DCE in the current study is also described and justified.

According to Louviere et al. (2010) Discrete Choice Experiments are based on choice-theory that has been thoroughly tested over time, and are capable of considering inter-linked behaviors. The theory can be traced back to 1920s, when a theory titled random utility theory (RUT) was proposed (Thurstone, 1927). In addition the theory has been influenced by economic theory by Lancaster (1966). The theory has been under research ever since, and more recently it has been refined mainly by McFadden (e.g. McFadden, 1986, McFadden and Train, 2000). For the purpose of the current study, RUT appears to have a clear advantage over competitive theories, such as conjoint measurement (CM), which is the theoretical foundation for conjoint analysis (CA). Conjoint analysis is often confused with discrete choice experiment, but discrete choice experiment appears to be a superior method, when compared to conjoint analysis. This is because conjoint measurement appears to be only a mathematical theory that is interested in the behavior of number systems, whereas random utility theory is capable of explaining choice behavior of human beings (Louviere et al., 2010).

In essence, RUT suggests that a latent construct titled “utility” exists, which is something each person has for every choice alternative, but which researchers cannot observe. The theory proposes that these latent utilities consist of two distinct components, a systematic and a random component. Systematic component is something that can be explained, whereas the random component cannot be explained. In other words, random component represents all those stimuli that cannot be observed, whereas the systematic component represents the observable decision strategy of the respondent. This discovery is at the heart of DCEs, as they essentially present respondents with discrete options, and allows the researcher to measure the explainable component of the utility. To conclude, the foundation of DCE lies in solid and well-tested behavioral theory, which recognizes the existence of both deterministic and random components in preferences (Crouch and Louviere 2004).

In practice, DCE is executed as follows: the respondents are displayed two or more complete offerings, and they are asked to choose the alternative that they would choose. In the current research the alternatives are described by six distinct attributes, which are those features that were recognized as most important through literature review and interviews. Each attribute has two different levels, which in essence aim to describe the quality of the attribute in question. Hensher et al. (2000) recommend having the same amount of levels for each attribute. The attributes used in the research, and their respective levels are described in table 5.2.

<b>Attribute</b>	<b>Level 1</b>	<b>Level 2</b>
Ease of use	Using poker site is easy	Using poker site is difficult
Enjoyment	Graphics, sounds, and animations are pleasant	Graphics, sounds, and animations are unpleasant
Functionality	Poker site has many useful functionalities	Poker site has only basic functionalities
Poker network	Large number of players	Small number of players
Loyalty program	Good loyalty program	Bad loyalty program
Reputation	Poker site has a reliable reputation	Poker site has a questionable reputation

**Table 5.2 Attributes and their respective levels**

According to the research in the field, there is no best practices or guidelines on how to create optimal levels (Louviere et al., 2010). Therefore careful consideration and testing the levels with pilot respondents was required, before the final versions of the levels were achieved. The aim was to ease the choosing process for the respondents by having only two levels. The first level in all attributes was positive and presumably a desired feature, whereas level two was the opposite. This approach was chosen to clearly make the respondents think about the most important attributes for them, and make the choice sets as transparent as possible.

In essence what happens as a respondent is presented with a DCE task, is that he or she is has to make a conscious trade off between different alternatives based on the attributes and their levels. However, the respondent is not choosing between different individual attributes, but between complete choices. Consequently, this imitates a real life choice situation, as one cannot cherry pick individual attributes from different product offerings in real life either. Despite the fact that respondents choose from complete offerings, discrete choice analysis allows researchers to analyze the relative importance of each attribute. This is possible, as

each respondent is presented with numerous choice sets. An example of a choice set used in the current research is presented in exhibit 2.

For a discrete choice experiment to be successful and capable of delivering good results, it has to have right number of choice sets (Hensher et al., 2000). Similar to other methods, if the survey has too many questions, or choice sets in this case, there is a risk that it is too exhausting for the respondents. However, if the number of choice sets is too small, the accuracy of the results suffer. A method suggested by Hensher et al. (2000) was utilized to determine the approximately optimal amount of choice tasks.

According to the book by Hensher et al. (2000), one should combine all attributes into a collective factorial, and choose the smallest main effects design. Such design indicates that no interactions between attributes exist, and measuring the impact each attribute independently is possible.

In the current research, two levels represented each of the six attributes. Thus the number of potential combinations is  $2^6$ , or 64. Hensher et al. (2000) suggests an approach to determine the degree of freedom by multiplying the number of attributes by the number of levels, and subtracting this number by the number of attributes. In this case, it would have resulted in having only 6 choice set, which was deemed as too low. After testing a few alternatives with pilot respondents, the final amount of choice sets was determined to be 12 random tasks and two fixed tasks, which could be used for control purposes. This number of choice tasks was considered to have enough choice sets, to produce accurate results, while still keeping the survey not too laborious for the respondents. As mentioned the choice tasks were random, and the total number of different versions of the survey was 300. The approach taken allows nearly-orthogonal design, and allow the researcher to look for interactions between different attributes in the analysis phase.

The survey was online for a week. At the end of the week, once the data was downloaded from the server, the total number of respondents was 332. Thus the total number of observations with 12 random choice tasks was 3984, which is a sufficient amount for a discrete choice analysis. The data was then divided into two groups according to the role respondents had chosen before the actual discrete choice experiment. In other words, the data was divided between recreational and professional players, and each data was separately analyzed. The results will be discussed in the following section.

## **5.6 Individual attribute utilities**

Although the objective of this thesis was to uncover the relative importance of attributes, a look at the utilities of individual attributes will be provided in this section. This section will present the part worths for each of the six attributes and explain how they were computed.

Part worth refers to the perceived utility of certain attribute by the respondent. In essence, a part worth measures the desirability of some characteristic an online poker site may have. The data gathered in this study was analyzed using software called Sawtooth Software SMRT. The software is capable of different kind of analysis, and provides a way to compute part worths, and discrete choice analysis. In short, high utilities or part worths translate into high desirability, and vice versa, low part worth means low desirability. In practical terms this means that an attribute level that has high part worth, is also likely to have high probability of positively influencing on the choice.

The part worths of the levels of each attribute add up to zero. As there are only two levels for each attribute in the current research, each part worth is an opposite number of the other level. In other words, if the part worth for level 1 for attribute is 1, the level 2 has to be -1.

Essentially negative part worth does not unambiguously mean that the level in question is perceived as bad. However, in the current research, the levels were designed in a manner that the second level was intended to be negative, and level one a positive. Thus the results of the individual part worths are not surprising. The part worths, their standard deviations and significance level for each attribute are presented in table 5.3 (recreational players) and table 5.4 (professional players).

Level	Attribute	Part worth	Std Err	Within Att. Chi-Square	Significance
	<b>Ease of use</b>			8.194	p<.01
1	Using poker site is easy	0.19543	0.03954		
2	Using poker site is difficult	-0.19543	0.03954		
	<b>Enjoyment</b>			9.39	p<.01
1	Graphics, sounds, and animations are pleasant	0.21801	0.03961		
2	Graphics, sounds, and animations are unpleasant	-0.21801	0.03961		
	<b>Functionality</b>			1.894	Not significant
1	Poker site has many useful functions	0.07086	0.03862		
2	Poker site has only basic functions	-0.07086	0.03862		
	<b>Poker network</b>			192.436	p<.01
1	Large number of players	0.76347	0.04519		
2	Small number of players	-0.76347	0.04519		
	<b>Loyalty program</b>			69.4	p<.01
1	Good loyalty program	0.43512	0.04101		
2	Bad loyalty program	-0.43512	0.04101		
	<b>Reputation</b>			460.122	p<.01
1	Poker site has reliable reputation	1.10068	0.04929		
2	Poker site has questionable reputation	-1.10068	0.04929		

Log-likelihood for this model -893.67994  
Chi Square 1112.97657  
Respondents 110

**Table 5.3 part worths of attribute levels for recreational players**

Level	Attribute	Part worth	Std Err	Within Att. Chi-Square	Significance
	<b>Ease of use</b>			26.427	p<.01
1	Using poker site is easy	0.20081	0.02875		
2	Using poker site is difficult	-0.20081	0.02875		
	<b>Enjoyment</b>			22.594	p<.01
1	Graphics, sounds, and animations are pleasant	0.19385	0.02924		
2	Graphics, sounds, and animations are unpleasant	-0.19385	0.02924		
	<b>Functionality</b>			6.475	p<.05
1	Poker site has many useful functions	0.09612	0.02841		
2	Poker site has only basic functions	-0.09612	0.02842		
	<b>Poker network</b>			351.252	p<.01
1	Large number of players	0.74903	0.03277		
2	Small number of players	-0.74903	0.03278		
	<b>Loyalty program</b>			281.95	p<.01
1	Good loyalty program	0.68634	0.03221		
2	Bad loyalty program	-0.68634	0.03222		
	<b>Reputation</b>			993.266	p<.01
1	Poker site has reliable reputation	1.1741	0.03712		
2	Poker site has questionable reputation	-1.1741	0.03712		

Log-likelihood for  
this model -1673.50384  
Chi Square 2506.39859  
Respondents 222

**Table 5.4 part worths of attribute levels for professional players**



All but one attribute was found to be statistically significant in the computations, when tested. The attribute that was not statistically significant was functionality for recreational players. The results in terms of the relative part worths are not surprising. The first level of all of the attributes has a positive part worth, whereas the second level has a negative part worth. This means that level one was preferred over level two, which is only logical as it was the intention of the two levels that the first one would be a positive description of the attribute and the second one a negative description.

From the tables presented it is possible to conclude that the attributes that appear to have the most significant impact for both recreational and professional players, are reputation, loyalty program, and poker network. It appears that these attributes have achieved far greater attention than the constructs that were derived from technology acceptance model. However, it is impossible to draw any further conclusions, as only individual part worths have been evaluated here. In the next section, when the whole choice model will be analyzed, further conclusions can be drawn regarding the relative importance of the attributes.

## **5.7 Relative importance of attributes**

The main objective of this thesis was to discover the relative importance of different attributes of online poker sites for different kind of online poker players. This section will cover the results related to the relative importance of the attributes, and also discuss the methods in which the results were achieved. The section is divided into two parts. First the relative importance of attributes for professional and recreational players are presented and analyzed, along with explanation of the evaluation process. Second the relative importance of attributes for each of the four clusters identified through latent class clustering are presented and analyzed. This is followed by discussion of the results.

### 5.7.1 Relative importance of attributes – a role based analysis

To be able to evaluate the influence of each individual attribute, and to be able to compare their relative importance, the contribution of each attribute on the overall log-likelihood of the choice model has to be calculated (Crouch and Louviere, 2004). This is achieved by estimating the choice model seven times for recreational and professional players, by removing one attribute at a time from the estimation. Hence the model was estimated altogether 14 times, seven times for recreational players and seven times for professional players. Each time one of the six total attributes was removed from the model, to reveal the influence of that particular attribute. Thus the difference in the log-likelihood compared to the log-likelihood of the original model with all attributes, indicates the relative impact of that attribute. The results of these estimations for both recreational and professional players are displayed in tables 5.5 and 5.6 respectively. In the table, the difference in the log-likelihood has been calculated for each attribute, as well as the percentage sum of the difference in comparison to the model with all attributes included. This information is displayed on third and fourth columns respectively.

<b>Excluded attribute</b>	<b>Log-likelihood</b>	<b>Chi Square</b>	<b>Difference in log-likelihood</b>	<b>Percentage sum of difference</b>
None	-893.67994	1112.97657		
Ease of use	-906.11558	1088.10527	-12.43564	1.92%
Enjoyment	-909.17382	1081.98879	-15.49388	2.39%
Functionality	-895.36809	1109.60027	-1.68815	0.26%
Poker network	-1074.7558	750.82485	-181.07586	27.90%
Loyalty program	-954.89849	990.53947	-61.21855	9.43%
Reputation	-1270.69425	358.94795	-377.01431	58.10%
			-648.92639	100.00%

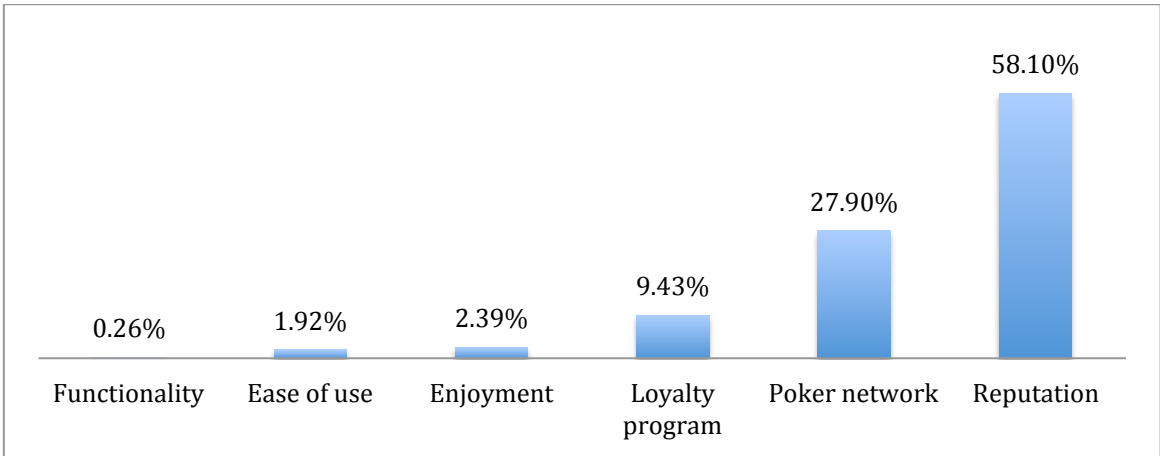
**Table 5.5 Explanatory power of each attribute for recreational players**

<b>Excluded attribute</b>	<b>Log-likelihood</b>	<b>Chi Square</b>	<b>Difference in log-likelihood</b>	<b>Percentage sum of difference</b>
None	-1673.50384	2506.39859		
Ease of use	-1698.36083	2456.68462	-24.85699	1.70%
Enjoyment	-1695.87892	2461.64843	-22.37508	1.53%
Functionality	-1679.25086	2494.90455	-5.74702	0.39%
Poker network	-2001.97457	1849.45713	-328.47073	22.42%
Loyalty program	-1949.78219	1953.84189	-276.27835	18.85%
Reputation	-2481.12919	891.1479	-807.62535	55.11%
			-1465.35352	100.00%

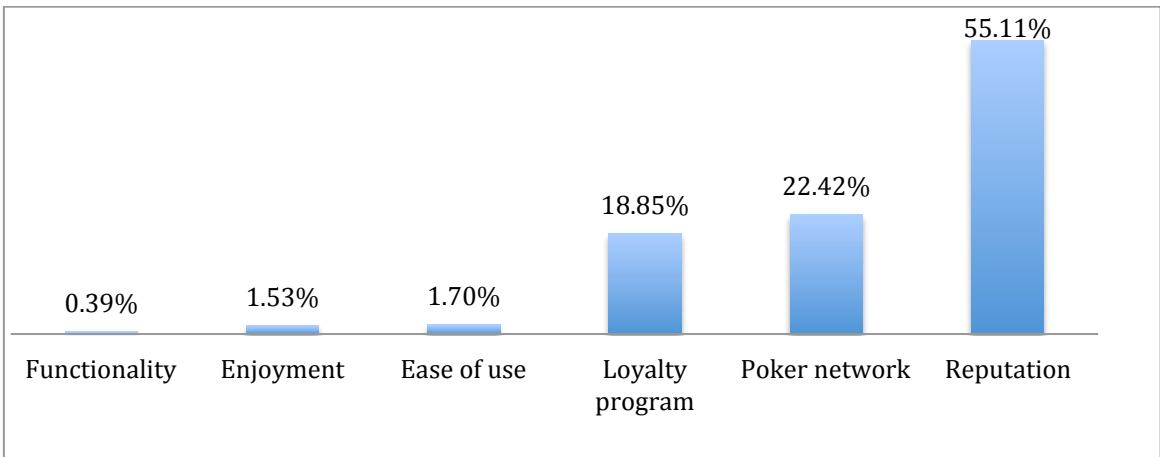
**Table 5.6 Explanatory power of each attribute for professional players**

As can be observed from the above tables, the results for recreational and professional respondent groups appear to be fairly similar. In figures 5.13 and 5.14 the same information has been displayed in a more explicit way, by presenting the attributes according to their importance from the least important to the most important, for both respondent groups.

The results suggest that for both groups the most important attribute is the reputation of the online poker site. Second most important attribute for each group appears to be the size of the poker network, while the third most important attribute is found to be the loyalty program. These three attributes account for most of the explanatory power of the six attributes that were part of the survey. In the recreational respondent group these three attributes account for 95,43% of the explanatory power, and for professional players these attributes appear to explain 96,38% of the choice behavior. What can be considered as surprising at least to some extent is the small impact of the ease of use and enjoyment factors even for recreational players. These factors explain only 4,31% of the variance for recreational players, and 3,23% for professional players. The results will be discussed more thoroughly in the following section.



**Figure 5.13 Relative importance of attributes for recreational players**



**Figure 5.14 Relative importance of attributes for professional players**

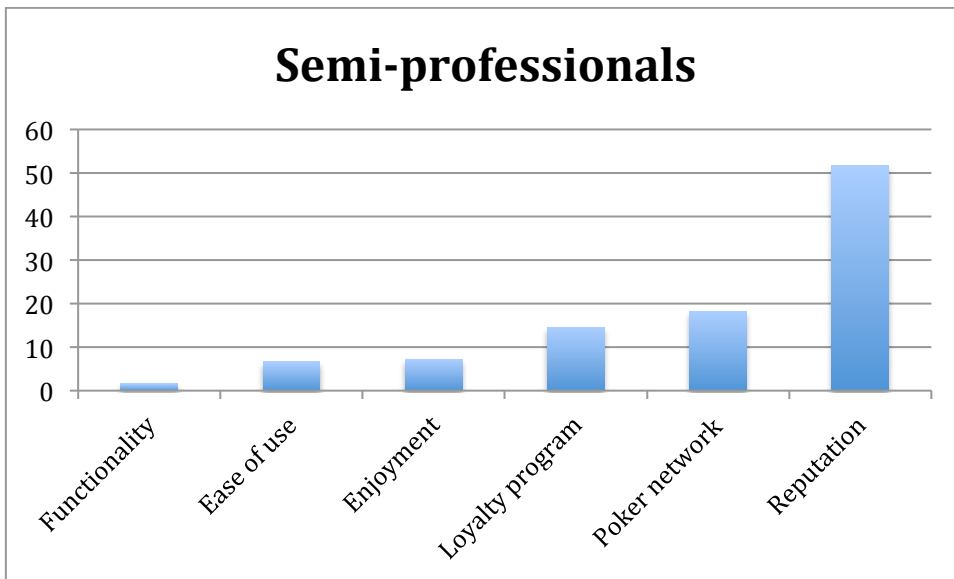
### 5.7.2 Relative importance of attributes – cluster based analysis

As mentioned to gain deeper insights into the relative importance of the attributes for different kinds of online poker players, a latent class clustering was conducted, and then using the same methodology as in the previous section, the choice model was estimated for each of the four clusters. In the below table 5.7 the relative explanatory power of each attribute for each cluster are presented. In the following sections the results for each cluster are explained in more detail.

	Beginners	Professionals	Experienced enthusiasts	Semi-professionals
Ease of use	18.44165	7.7776	5.81107	6.66498
Enjoyment	11.40298	6.08103	8.71752	7.2374
Functionality	3.91	4.25583	2.64593	1.66099
Poker network	17.3807	19.62654	40.49309	18.16903
Loyalty program	20.51654	37.42289	16.65553	14.59956
Reputation	28.34812	24.8361	25.67685	51.66804

**Table 5.7 Relative importance of each attribute for the four clusters**

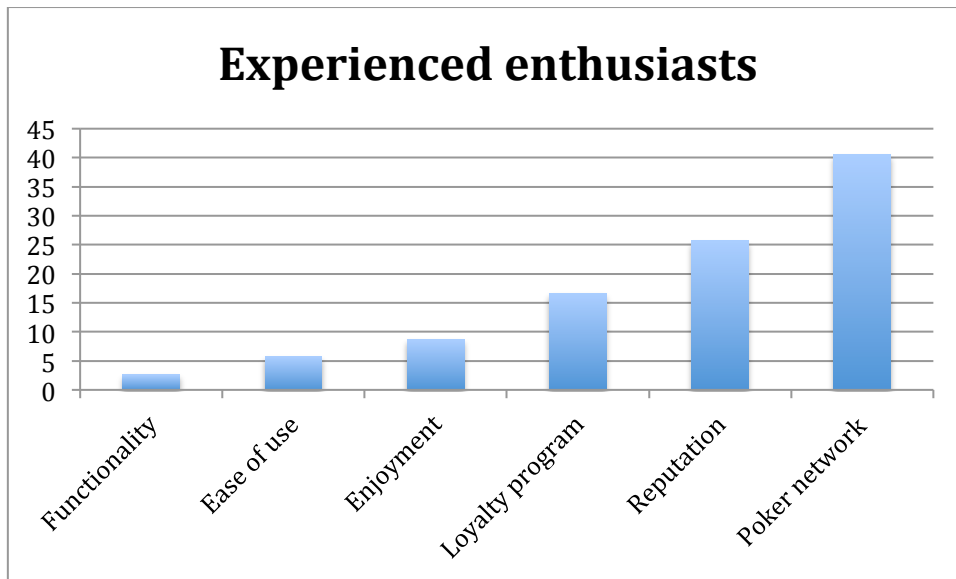
### 5.7.2.1 *Semi-professionals*



**Figure 5.15 Relative importance of attributes for semi-professionals cluster**

For the semi-professionals cluster, it appears that clearly the most important attribute is the reputation of the poker site, as it has more than 50 percent of the explanatory power for this cluster. In addition this cluster appears to consider the size of the poker network to be fairly important as well as having a good loyalty program. Ease of use and enjoyment appear to be less important, and functionality appears to have no significance for semi-professionals.

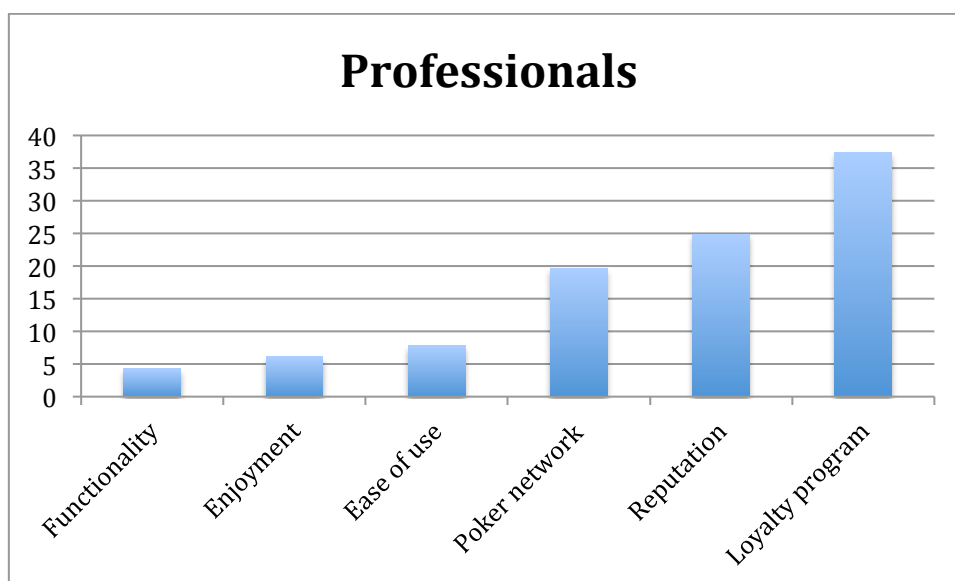
### 5.7.2.2 Experienced enthusiasts



**Figure 5.16 Relative importance of attributes for experienced enthusiasts cluster**

For the experienced enthusiasts the preferences appear to be biased towards the size of the poker network. This attribute appears to explain over 40 percent of their choice behavior. In addition experienced enthusiasts consider the reputation of the poker site to be the second most important attribute. Furthermore, this cluster also appreciates a good loyalty program, as it seems to have third most explanatory power for experienced enthusiasts. Once again also for the experienced enthusiasts, the least important attribute appears to be the functionality of the site. Enjoyment and ease of use are considered to be somewhat important, but still far less significant than the top three attributes.

### 5.7.2.3 Professionals



**Figure 5.17 Relative importance of attributes for professionals cluster**

The most important attribute for professional players appears to be having a good loyalty program. This appears to be only logical, as especially for professionals playing in the smaller stake levels, a good loyalty program is essential. This was also recognized in the interviewing phase, as Valkila, Hytönen and Kelopuro all said that they consider the loyalty program and always opt for the poker site with the best possible loyalty offering.

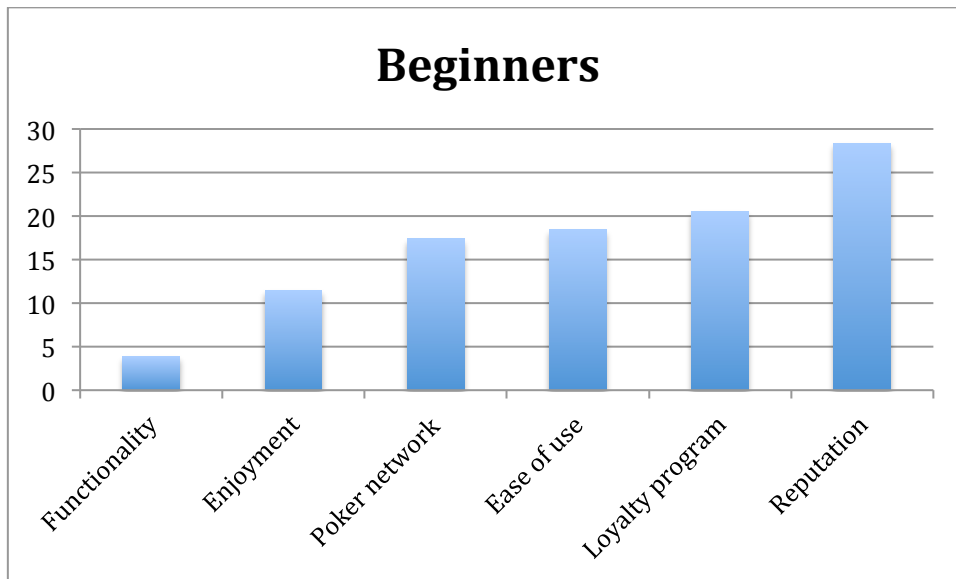
The second most important attribute for professionals appears to be reputation, which also appears consistent with previous findings. The professionals are generally playing with higher stakes and therefore have a greater risk of losing more money, which makes it important to consider the risks affiliated with each poker site, by assessing the reputation. Almost as important attribute appears to be the size of the network, which also appears to make sense, as finding right opponents easily is essential for professionals, who make their living by playing.

Just like for all the other clusters, the least important attribute for professionals is functionality. The second least important attribute is enjoyment of use. Ease of use



appears to explain little less than eight percent of the choices made by the professionals, and thus its influence appears to be fairly low as well.

#### 5.7.2.4 *Beginners*

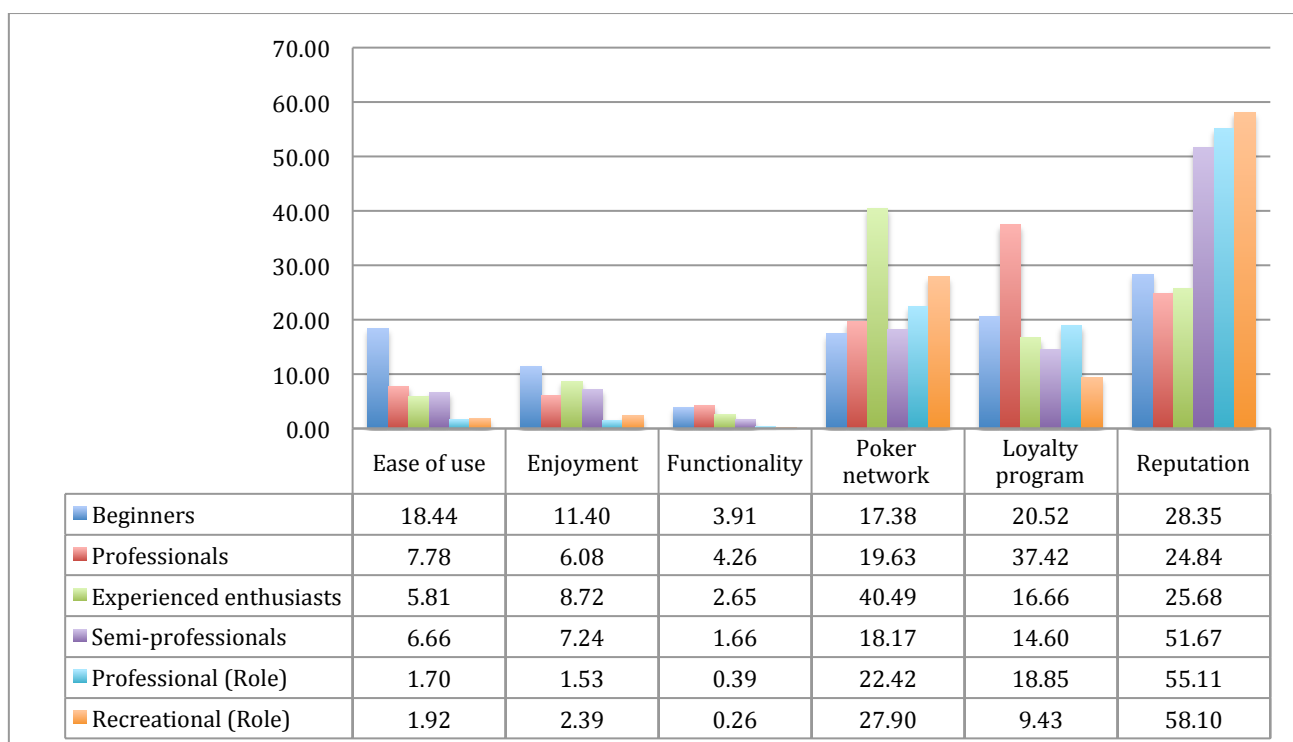


**Figure 5.18 Relative importance of attributes for beginners cluster**

For the beginners the spread between different attributes appears to be larger than it is for all the other clusters. For the beginners the most important attribute is reputation. This makes sense, as usually when people have limited experience it is common to rely on others opinions and rely on the poker sites with the best reputation. The second most important attribute appears to be loyalty program, with little over 20 percent of the explanatory powers.

The third most important attribute for beginners is ease of use. This appears to be rational, as for beginners it is clearly more important to have an easy to use poker site, as they are only learning how to play, and the easier the site is to use, the easier it is to learn. The size of poker network appears to be almost as important as ease of use for beginners. The least important attribute once again is the functionality, and the second least important appears to be enjoyment of use.

### 5.7.3 Conclusions



**Figure 5.19 Relative importance of attributes for all clusters and roles**

The above table 5.19 depicts the importance of each attribute for each cluster as well as for the two roles. To conclude the results provided by the latent class clustering approach provide significantly more interesting information about the preferences of different online poker players than the comparison between professional and recreational roles, chosen by the respondents. It is apparent that important attributes for all clusters are the size of poker network, loyalty program and reputation of the poker site. It also appears that functionality was clearly the least important attribute for all of the clusters. However, except for functionality, it appears that all of the other attributes were at least somewhat important to at least one of the clusters.

Clearly, it can be concluded that functionality appears to be an attribute that is not important for any of the clusters, and hence one could assume that it is an attribute that is not appreciated by any poker players. However, one should also bear in

mind, that as the descriptions used to describe the feature were knowingly kept as simple as possible, it is also possible that the respondents had difficulties in interpreting what was meant with the attribute, and therefore it could have had greater chances to be ignored by the respondents. Some of the other attributes are more easily comprehensible, such as the size of the network. Therefore one shouldn't draw any definite conclusions about the findings, even though it is clear that out of these attributes it has clearly been the least important.

In addition, enjoyment in general has not been significantly important to any of the clusters. Similar considerations should also be made regarding this attribute, as there is a chance respondents were not completely certain what is meant by the attribute. Also it is probably possible, that for instance ease of use attribute for some respondents could substitute for enjoyment, as sometimes ease of use of a software could be perceived also as being more enjoyable to use. Other than these general conclusions, it appears that all of the attributes were important for at least some of the clusters.

To conclude, it is apparent that the latent class clustering provided several significant and interesting insights into the preferences of various poker players that did not emerge in the comparison based on the roles indicated by the respondents. Therefore one major conclusion that can be drawn based on the comparison of these approaches to analyzing the data is that there are clearly different user groups among poker players that have differing preferences when it comes to the attributes of the poker site. These were not revealed at more aggregate level when comparison was done based only on the chosen role. The findings related to these approaches are discussed and analyzed in more detail in the following chapter.

## **6 Discussion of results**

This chapter will discuss the most significant and noteworthy results of this thesis. This chapter aims to cover the most important attributes as well as the least important attributes, analyze the results in the context of online poker and compare the results to previous literature in this field.

### **6.1 Premise for the analysis**

What is a significant underlying factor that one should bear in mind when analyzing the results is that the relative importance of the attributes is highly dependent on the approach taken to analyzing the responses. In the analysis where players were divided into two distinct groups based on whether they chose the professional or recreational role, the results were fairly explicit and unambiguous. For both professional and recreational players the data suggested that their three most important attributes were the reputation of the poker site, the size of the network the poker site is part of, and the loyalty program the site offers.

On the other, when the data was analyzed based on latent class clustering, more interesting differences among the preferences emerged, which is a clear advantage of this approach (Dymnicki and Henry 2011). The latent class clustering allowed to recognize clusters of players with similar features and helped to identify significant differences in the preferences of poker players with different backgrounds. The following section discusses all of the attributes used to evaluate an online poker site, and analyses the results related to each attribute using both approaches to dividing the respondent data.

## 6.2 Reputation

The single most significant attribute for both the professional and recreational respondent groups was the reputation of the online poker site. When analyzing the preferences of the four clusters, reputation also emerges as an attribute with a very strong impact. Reputation is perceived as the most important attribute by beginners and semi-professionals alike, and as the second most important attribute by professionals and experienced enthusiasts.

It is relatively easy to comprehend why this might truly be the single most important attribute and justify why it is so. Already in the first phase of the empirical research, all of the four interviewees considered that the safeness, security, reliability, and trustworthiness of an online poker site can essentially be evaluated based on the sites reputation, as it appears to be the only valid way of measuring those things (interviews with Hytönen, Kelopuro, Valkila, Vilén). Therefore it was concluded that an attribute initially called trust was translated converted to reputation, as in online poker context those two notions appear to be synonyms for one another. Both previous literature in the field as well as recent occurrences in the online poker site market provide further explanation to the fact that having a good reputation is the most important feature a poker site can have.

First of all, recent occurrences in the online poker market suggest that the consumers are concerned about the safety and trustworthiness of an online poker site for a good reason. Poker sites going bankrupt and closing down because of illegal actions (e.g. Rovell, 2011, Sieroty 2011) are apt to raise suspicion and emphasize the importance of choosing a poker site that can be trusted with the players money. In other words it translates to choosing a poker site with a solid reputation. However, it may also be true that the respondents perceive the importance of reputation as higher, at the time of conducting survey due to the recent events. One should therefore bear in mind that were the survey conducted at some other point in time, the results could have been different.

On the other hand, recent research that has concentrated on investigating the role of trust in online transactions suggests that it has a significantly important role in influencing online purchasing behavior (Salo and Karjaluo, 2007; Mäntymäki and Salo, 2011). Despite the fact that these results have not been empirically studied and tested in online poker context, the environments in which research conducted by Salo and Karjaluo (2007) as well as well as Mäntymäki and Salo (2011) are fairly similar in nature, and therefore it can be assumed that their findings apply also in online poker context to some extent. Also the findings of Eastlick et al. (2006) suggest that trust and reputation are in fact interconnected and they have appear to have a strong influence on choice and purchase behavior in online environment. Also Gefen et al. (2003) suggest in their research that trust is as important attribute as perceived usefulness and ease of use in online transactions, which further emphasizes the significant importance of this attribute. Gefen et al. (2003) also suggest that trust as an abstract notion is built on beliefs, which also provides further evidence to the assumptions of this thesis that reputation equals trust in online poker context.

To conclude it seems that previous literature has had similar findings related to the notion of trust in online environment. As it was recognized through the empirical research that in online poker context trust could be measures by evaluating the reputation of the poker site, it seems justified that reputation emerges as the most influential factor in the current research. This also supports the assumption that the results are perhaps not only influenced by the recent events, and therefore suggest that high importance of reputation is not just a fad, but an attribute that is constantly significant for all kinds of online poker players. All in all, it can be considered that reputation is a prerequisite that has to be filled before any of the other attributes are even considered.

### **6.3 Poker network**

The attribute that can be considered to have the second most significance across different kinds of players appears to be the size of the poker network. In the aggregate results of professional and recreational players, this attribute was the second most important for the respondents in both chosen roles. As we look at the four clusters it can be discovered that poker network emerges as the second most important attribute only for semi-professionals. On the other hand, experienced enthusiasts consider poker network to be the most important attribute, meaning that it is more significant factor influencing their choice behavior than reputation. For the professionals, poker network appears to be the third most important attribute, and for beginners its impact appears to be even less significant, as it only the fourth most important attribute.

These results are evidently less univocal than those of the reputation attribute, which was in the top two most important attributes for all kinds of players. Therefore this appears to require further analysis to understand what could explain the diverse preferences of the different player types.

The network externalities theory (Katz and Shapiro 1985; Farrell and Saloner 1985; Katz and Shapiro 1986) in short provides an explanation why this attribute emerges as one of the most important attributes for most players. Essentially the utility that an online poker player perceives increases as the number of players in the same poker network increases. In addition, a poker site is practically useless if it has no or very little players, as one will lack opponents to play against and cannot thus use the poker site for the purpose it exists.

Pontiggia and Virili (2010) as well as Mäntymäki and Salo (2011) have also suggested that network externalities have a significant impact on technology acceptance through other constructs in the technology acceptance model. In addition various other previous studies have also proved the impact of network externalities in the technology acceptance, which appears to support the findings

of the current research (Lin and Bhattacharjee 2008; Sledgianowski and Kulviwat 2009; Li et al. 2010). The significance of having a critical mass of players in an online poker network has also been recognized in the online poker context and it is considered as one of the most important features a poker site can have (Sieroty, 2011), which further supports these findings.

However, what is interesting is the finding that for beginners the poker network attribute is only the fourth most important, or the third least important, depending on how one wants to look at this. This could be explained by the fact that as one looks at the demographics of this cluster it is noticed that players who appear to belong to this cluster play practically with the smallest available stake levels. In other words they play mainly with micro and small stakes.

As was pointed out by Kelopuro in the interview, finding opponents in the highest available stake-levels is challenging, as only a limited number of players that can afford to play such stakes exist. The opposite is true to the smallest stake levels. If generalizing, the number of players is the highest in the lowest stake levels and lowest in the highest stake levels. This could explain why the beginners do not perceive network externalities as important as all of the other player types. Beginners play in the smallest stake levels, where opponents are likely to exist no matter the absolute number of players in the network.

Furthermore, the professionals considered the poker network attribute only the third most important attribute. The interview with Kelopuro could provide an explanation to this phenomenon as well. He claimed that it is not unambiguously the number of players in the network that makes a poker site good. He said that what is more important, is having the right kind of opponents that he considers are weaker than him and therefore profitable opponents. This could also explain the slightly weaker impact of the poker network attribute for professionals when comparing it to the preferences of experienced enthusiasts and semi-professionals.



The aforementioned assumptions are also supported by previous research in the field. Lin and Bhattacharjee (2008) suggest that sometimes a network consists of so many other participants that it is impossible for one to interact with all others. This is usually the case in poker networks that may have tens of thousands of players online at one time. Therefore Lin and Bhattacharjee (2008) suggest that it is more important to have those kinds of players in the network that the player wants to play with, than having just a large number of any kinds of players. This in the case of beginners translates to having micro and small stakes players in the network, which usually are abundant in any network, as they usually make up most of the players in one network. Therefore the beginners may deem this attribute as less important than all the others. Similarly, professionals may deem this attribute as less important because of the fact that they are not looking just any kind of opponents. Instead they want to find the opponents against which they have the greatest chance of winning.

Overall it is apparent why the size of the poker network is a significant attribute for many online poker players, but for some kind of players this attribute becomes less important as they have more specified requirements for their opponents, which is the case with professionals. On the other hand, for beginners the existence of other micro and small stakes players is essentially guaranteed on any network as they are always the majority, and therefore also beginners could consider this attribute as less important.

#### **6.4 Loyalty program**

Loyalty program is perceived differently among different kinds of players. Despite this it is still in the top three most important attributes for all kinds of players. If looking at the responses based on the roles indicated by the respondents, the results suggest this attribute to be the third most important attribute for professionals and recreational players alike. In the clustering based approach, larger differences in the preferences emerge: the professionals consider the loyalty

program to be the most important attribute, the beginners consider it to be the second most important, and for semi-professionals and experienced enthusiasts it appears to be the third most important attribute.

For professionals especially the loyalty program appears to be exceptionally important. In the role-based approach the respondents who had chose the professional role, the results suggested that loyalty program explained significantly more of the variance than it did for the respondents who chose the recreational role. Also in the clustering-based approach it is apparent that the kind of players that appreciate this feature the most are those who play professionally.

It is logical that professionals especially appreciate having a good loyalty program as it is often part of their monthly income, and thus has a direct impact on their livelihood. Loyalty programs have not been studied much in the online context, but some evidence to support this evidence was however found. Bhattacharjee (2001) for instance suggest that loyalty programs are considered to have an influence when the service of which they are part of, are initially considered useful by the users. However, loyalty programs as such are not capable of influencing on the choice behavior. In other words, an online poker site, on which all of the other attributes are poor, but it has an excellent loyalty program, is unlikely to be chosen by any player. Thus this suggests that the poker site has to have other prerequisites in place, before players start to evaluate the goodness of the loyalty program. This appears to be the case for all others except for the professional player cluster.

Also the results of the interviews suggest that loyalty programs are more important to players who are more professionally oriented and extrinsically motivated (Interviews with Hytönen, Kelopuro, Valkila, 2012) and less for more recreationally and intrinsically motivated players (Interview with Vilén, 2012). However, even the professional players note that despite the fact that this is an important attribute, a good loyalty program alone is not a sufficient reason to choose a particular site.

As this field appears to lack academic research and previous findings, it is hard to draw unambiguous conclusions about the impact of loyalty program and justify the analysis. However based on the interview results and research by Bhattacharjee (2001), one can fairly safely claim that the impact of loyalty program is significant for the players who play professionally, and less significant for recreational players. Still, it is among the top three most important attributes even for recreational players, and therefore it appears that a poker site without a sufficient loyalty program would not be very popular among any kind of players.

## **6.5 Ease of use**

In the role-based approach, the impact of ease of use on choice behavior was relatively low for both the professional and recreational respondents. However for the beginners identified through the latent class clustering, ease of use appears to be the third most important attribute. For professionals it explained fourth most of the variance in choice behavior, and for experienced enthusiasts and semi-professionals, it explained the second least of the variance in choices.

It is relatively logical to understand why beginners perceive ease of use as more important than any of the other clusters. As the beginners are players, who are only trying to learn how to play, it makes sense to prefer easy-to-use poker sites. Also Van der Heijden's (2004) research suggests that the influence of ease of use is more significant for recreational players, which beginners practically always are. One has to learn before coming a professional.

For all other clusters the impact of ease of use appears to be relatively small. The emphasis is on the other three attributes discussed above. It appears that other studies that have utilized similar methods (Discrete Choice Analysis) have arrived at a similar conclusion that only a few attributes account for most of the variation (Crouch and Louviere, 2004). Therefore it appears that the results are quite normal, and one can expect to see this kind of results with the chosen

methodology. Therefore it appears that one can conclude that the ease of use attribute has a significant impact only on the choice behavior of less experienced players, and the influence of this attribute diminishes as a player becomes more experienced.

## **6.6 Enjoyment**

Despite the fact that it was postulated that enjoyment would emerge as a significant attribute for recreationally oriented players, this was not the case. Enjoyment was considered to be either the second or third least important attribute by all kinds of players. The overall impact of enjoyment attribute was relatively little, and it appears that this attribute generally is considered to be relative insignificant. In previous research enjoyment of use has also been discovered to have fairly limited impact on choice behavior in technology that is used for utilitarian purpose (Davis et al., 1992). The findings of Davis et al. (1992) suggest that enjoyment can increase user acceptance, but in its own no technology is accepted because the use of it is enjoyable. The technology should be considered useful in the first place.

Van der Heijden (2004) recognized the need to study the impact of enjoyment in the acceptance hedonic technology, to discover if it would have a more significant impact than perceived usefulness, in hedonic settings. Van de Heijden's findings suggest this to be the case, which is also supported by the current research to some extent. However, as was already discussed in the previous section, in the chosen methodology the impact of only a small number of attributes can become significant, while the impact of others is deemed smaller (Crouch and Louviere, 2004). It is likely that the top three most important attributes are considered as important as they are, due to the fact that they have more direct connection to the core of the subject matter at hand, namely online poker.

## 6.7 Functionality

The least important attribute of the six attributes selected to be part of the survey appears to be functionality of an online poker site. Both for professional and recreational players alike as well as for all of the four clusters this attribute explained least amount of the variance, and therefore it can be concluded that this attribute is the least important for any kind of online poker player.

This thesis postulated that functionality would be perceived as more important by professionally oriented players, and less important by recreationally oriented players, based on the findings of Davis et al. (1992) and Van de Heijden (2004).

However, such results did not clearly emerge. The only finding that supports this assumption to some extent is the fact that for the respondents, who identified themselves as recreational players, functionality was the only statistically insignificant attribute. However, this could also denote the fact that this attribute was not fully comprehended by the respondents.

Therefore one should also consider the actual wording in the survey that was intentionally kept as simple as possible. The risk in this approach is that it becomes probable that not all of the respondents had a clear understanding what exactly was meant by the construct. For this reason it is possible that respondents preferred attributes that they were more familiar with. On the other hand, some of the other attributes can be considered to contribute to the perceived functionality of an online poker site. For instance having a good loyalty program could be perceived as an useful feature. This could partially explain why other attributes were deemed significantly more important than the functionality of an online poker site. In addition this is also supported by the findings of other similar studies (Louviere and Woodworth 1983; Crouch and Louviere, 2004).

Despite the fact that it is important to understand the limitation related to this particular attribute, this thesis will nevertheless trust on the findings and conclude

that the functionality of online poker site is in fact the attribute that is deemed as least important by all kinds of players. It is probable that players consider basic functionality to be sufficient, and no additional functions are significantly less important than having for instance a good loyalty program, or a solid reputation. In addition the results of the interviews support this assumption, as it was discovered that too many functionalities could cause a poker site to become too complex and even annoying (Interviews with Hytönen, Kelopuro, Valkila, Vilén 2012).

Overall it can be concluded that basic functionality is a prerequisite but additional useful functions are deemed as less important than all of the other constructs used to evaluate an online poker site.

## 7 Conclusions

The final chapter of this thesis first summarizes the research conducted in section 7.1, then covers the main results of the research in 7.2, and discusses their relation to previous literature in the field. In section 7.3 managerial implications are discussed, 7.4 covers limitations of the study, and finally section 7.5 suggests future research directions based on the current research.

### 7.1 Research summary

This thesis aimed to study the relative importance of different attributes related to online poker sites, and to discover whether the preferences vary between different kinds of online poker players. Online poker was a personal interest, and an interesting context per se, but what was more intriguing was the opportunity to study something that has not been studied much within the information systems science field: information systems that can be used for both utilitarian and recreational purposes. Thus the research aimed to reveal differences between two user groups of the same software that have completely different purposes. Professionals are using it to generate income, whereas recreational players tend to enjoy the thrill and excitement of the actual playing, and are less concerned about the money. This study provided an opportunity to gather information about such information systems, and offered a possibility of generating knowledge that could possibly be utilized even outside the online poker context.

Because essentially decisions behind choice behavior can be broken down into smaller factors, this thesis aimed at first investigating the most important attributes that a poker site has, and then aimed to investigate what is their relative importance for recreational and professional players respectively. Thus the research question of this thesis was *What is the relative importance of online poker site attributes, and how the relative importance differs between different types of poker players?*

As mentioned, the first step was to identify what are the underlying attributes that online poker players take into consideration when they are making choices between different online poker sites. An extensive literature review was conducted, in which literature related to technology acceptance, network externalities, and other relevant topics was reviewed. Through the literature review, a list of six potential attributes was created. Using the insights gained through the literature review, interviews were conducted with four online poker players with distinct backgrounds and motives for playing. The interviews were conducted to confirm that the attributes found would apply in the online poker context. In addition it was the purpose of the interviews to reveal any such attributes that had not surfaced in the literature review. The attributes found on the literature review were validated in the interviews. Only a small modification was made to the attribute that aimed to describe the reliability and security of online poker sites. The attribute was renamed as reputation, as all interviewees concluded that it was essentially the only way to recognize and evaluate the reliability of an online poker site. The other attributes were ease of use, perceived enjoyment, perceived functionality, number of players in poker network, and loyalty program.

After the attributes had been identified and validated, a discrete choice experiment was conducted to identify the relative importance of the attributes, and to analyze any differences in the preferences of professional and recreational poker players. The experiment was implemented as an online survey, and respondents were contacted using the largest online community of poker players in Finland, Pokerisivut.com. Altogether 332 respondents successfully completed the survey, out of which 110 were recreational players and 222 professionals. A latent class clustering was also conducted, to identify distinct clusters within the respondents. In the discrete choice experiment, the respondents were asked to choose the best online poker site, out of three imaginary online poker sites. Each imaginary poker site was described with the six attributes identified, by using two levels that described the quality of each attribute. This method forced the respondent to make



tradeoffs between the attributes, which allowed analyzing the relative importance of the attributes.

## **7.2 Main findings**

The results of the discrete choice experiment suggest that by far the most important attribute an online poker site can have, is reputation. It emerged as the most influential attribute in both the cluster and role based analysis. In the interviews it was discovered that reputation essentially is the only way in which poker players can estimate the safety and reliability of a poker site. It is presumable that recent occurrences in the online poker site market have been apt to get poker players concerned about the safety of their money, and therefore reputations impact was deemed as high as it was. It also appears that these findings are in line with other studies that have emphasized the important role of trust in online transactions (e.g. Hoffman et. al 1999, Gefen et. al 2003, Salo and Karjaluoto 2007).

Poker network and loyalty program were also considered as the second and third most important attributes, depending on the type of player. In addition, ease of use was also discovered to be the third most important attribute for beginner players, but it did not appear to have much impact on the choice behavior of more experienced players.

What can be considered surprising to some extent is the fact that all of the attributes derived from Van der Heijden's (2004) technology acceptance model, did explain only a small amount of the variance. The only exception seemed to be the ease of use attribute that did impact fairly significantly on the choice of beginners. Based on previous literature, it appears that having only a small number of attributes explaining most of the variance is fairly common, and other researchers utilizing the same method have encountered similar results (e.g.

Crouch and Louviere, 2004). Therefore the results of this thesis can be considered as normal.

Overall the findings of the thesis appear logical, and provide very interesting insights into the way in which different kinds of poker players evaluate online poker sites. However, it was surprising to discover that the relative importance of the attributes did not differ significantly between professional and recreational players, but more significant differences were discovered through the cluster analysis.

### **7.3 Managerial implications**

This section discusses implications that managers working in the field should take into consideration when making decisions, especially regarding product development, strategy and communications.

First of all, as reputation emerged as the most important criteria for all kinds of players, it should definitely be every online poker site's number one concern. Well-established communication between the company and its customers, transparency, and consistent history are likely to improve the reputation of any company. In addition creating a strategy that aims at fostering reputation and creating a strong brand image is likely to also improve competitive advantage of an online poker site. As was stated by one of the interviewees, large and well-known companies are preferred over small and less known ones.

Clearly, one objective should also be to attract as much players in your network as possible. However this obviously is the obvious ultimate goal, and all other actions are essentially executed towards this objective. Therefore it is presumably not important to further discuss the implications of the fact that size of the network is a critical factor, when it comes to choosing an online poker site.

The issue of loyalty program presumably provides the most important implications from marketing perspective. It appears that the loyalty program is significantly more important to professional players than it is for recreational players. Therefore managers in charge of marketing and promotion, should try to take this fact into consideration, as they are making decisions and segmenting their customers. Professional players are likely to be more interested in loyalty programs, whereas they might not be perceived as important among recreational players.

In terms of product development, it appears that both recreational and professional players deem attributes related to the actual characteristics of the software as less important than for instance reputation. Because of the fact that discrete choice experiments tend to provide results that are bent towards only a couple of attributes, it is essential not to ignore the importance of having a well functioning, easy to use software as well. Many commenters on the survey however said that they are willing to learn to use even more difficult software, if the games are good. Many appreciate also the ability to modify the appearance of the software by themselves, if looking at the comments provided by some of the respondents. Therefore it appears that if the company is unwilling to invest large sums in developing the software to be as easy to use and as enjoyable as possible, they should at least keep the system open, in order to allow modification by the users. However, one should bare in mind the fairly obvious discovery that beginners place a significant emphasis on the ease of use of the poker site, compared to other types of players.

On the other hand, it also appears that generally the software provided by poker sites today has all of the useful functions, and are easy to use as well as enjoyable. This could also explain why reputation and network size were considered so significant attributes. However, as the industry is still fairly young, it is more than likely that there is room for improvements, and many innovations to be made. Therefore it is recommendable that managers actively seek ways in which they can improve the customer experience in their poker sites.

Finally, even though the number of female poker players remains low, poker sites could possibly try targeting the female audience. It is presumable that there is a large untapped market in form of potential female poker players. Unfortunately due to the lack of female respondents in the current survey, the results were unable to reveal any possible differing preferences that female poker players have in comparison to male players. The next section will discuss the limitations of this study.

#### **7.4 Limitations of the study**

The limitations of the study relate to the fact that existing literature regarding online poker sites and their attributes is very limited. In addition, the whole notion of comparing two user groups of same information system, with different motivations, is also novel, and therefore the whole study can be considered to fairly experimental.

The fact that online poker is a fairly new phenomenon is also the reason why literature regarding the topic is not really abundant. However, literature regarding technology acceptance in general is widely available, and most of the theories used have been proven to be widely applicable. Therefore it is also reasonable to assume that they apply in this context as well. However, due to the novel nature of the topic in general, the results are subject to error.

Presumably the biggest limitation regarding the study is related to the discrete choice experiment, and especially to the wording of the levels used to describe the attributes. As no guidelines or consensus exists on how to create reliable levels, careful consideration, testing, and discussion with supervising professors were the means through which the final wording was achieved. Despite carefulness in this matter, it is still possible that the wording may have caused error to the results. It was the intention of the study to describe each attribute as accurately as possible. On the other hand, the aim was also to keep descriptions as short as possible, to

prevent the choice experiment from becoming too laborious for the respondents. However, due to the short descriptions used, it is possible that respondents have had slightly differing interpretations of the attributes, which may have caused error in the results.

## **7.5 Suggestions for future research**

As was recognized, the reputation and size of network were dominant attributes in this field, and for this reason it could be interesting to conduct a similar study, in which these attributes would be removed to be able to investigate the remaining attributes in more detail.

Another direction for future research would be to utilize similar research methods to study other information systems that are used for both recreational and professional purposes. For instance web browsers or smart phones are used for both purposes. It would be interesting to study, whether the findings of the current research apply in other contexts as well.

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## 9 Exhibits

### 9.1 Exhibit 1: Interview questions

#### Taustakysymykset

1. Kauanko olet pelannut nettipokeria?
2. Onko pokeri pääasiallinen tulonlähteesi?
3. Kuinka monta tuntia pelaat keskimäärin viikossa?
4. Millä panostasolla pelaat tällä hetkellä? (mikro, small/low, medium, high)
5. Pelaatko mielestäsi enemmän A) rahallisen hyödyn takia vai B) huvin vuoksi?
6. Kysymys edellisen kysymyksen vastauksen mukaan:
  - a. Pelaatko joskus myös ainoastaan huvin vuoksi?
  - b. Pelaatko joskus myös ainoastaan tienataksesi rahaa?

#### Pokeriohjelmisto

7. Mikä on mielestäsi pokeriohjelmiston tärkein ominaisuus, kun valitset mitä ohjelmaa käytät pelaamiseen?
8. Mitkä muut ominaisuudet pokeriohjelmistossa ovat sinulle tärkeitä?
9. Käytätkö tällä hetkellä useampaa kuin yhtä ohjelmaa pelaamiseen? Miksi?
10. Mitkä ominaisuudet mielestäsi tekevät pokeriohjelmasta hyödyllisen?
11. Mitkä ominaisuudet mielestäsi tekevät pokeriohjelmasta miellyttävän käyttää?
12. Vaikuttaako pokeriohjelman tietoturva päätökseesi käyttää tai olla käyttämättä sitä? Miten tunnistat turvallisen/epäturvallisen ohjelman?
13. Vaikuttaako ohjelmiston tunnettavuus/maine päätökseesi käyttää tai olla käyttämättä sitä?
14. Vaikuttaako pokeriohjelmiston tarjoama palkinto-ohjelma / rakeback-sopimus siihen, mitä ohjelmaa käytät?

## **Interview questions**

### **Background**

1. How long have you played online poker?
2. Is poker your main source of income?
3. How many hours, on average do you spend on playing poker per week?
4. On what stake level do you currently play? (Micro, small/low, medium, high)
5. Do you think you play to a) to earn money or b) just for fun?
6. A question based on the answer to the previous question
  - a. Do you occasionally also play just for fun?
  - b. Do you occasionally also play only to earn money?



### **Poker software**


7. What do you consider to be the most important feature in a poker site, when you are choosing a poker site to play on?
8. What other features in a poker site do you consider to be important?
9. Do you use more than one poker software at the moment? Why?
10. What features make a poker site useful?
11. What features make a poker site pleasant to use?
12. Does Internet security of a poker site influence on your decision to use or not to use it? How do you recognize a secure/unsecure site?
13. Does the image or reputation of a poker site influence on your decision to use it or not to use a particular poker site?
14. Does the loyalty-program/rakeback-contract on you decision to use or not to use a particular poker site?

## 9.2 Exhibit 2: Survey Sample

Jos alla olevat kolme vaihtoehtoa olisivat ainoat käytössäsi olevat pokerisivustot, minkä näistä valitsisit? Valitse mielestäsi paras sivusto klikkaamalla eri vaihtoehtojen alalaidasta löytyvää nappia, ja siirry seuraavaan tilanteeseen nuolella.

<b>Käytettävyys</b>	Pokerisivuston käyttö on vaikeaa	Pokerisivuston käyttö on vaikeaa	Pokerisivuston käyttö on vaikeaa
<b>Nautittavuus</b>	Grafiikat, äänet ja animaatiot ovat epämiellyttävät	Grafiikat, äänet ja animaatiot ovat miellyttävät	Grafiikat, äänet ja animaatiot ovat miellyttävät
<b>Toiminnallisuus</b>	Pokerisivustolla on paljon hyödyllisiä toimintoja	Pokerisivustolla on ainoastaan perustoiminnot	Pokerisivustolla on ainoastaan perustoiminnot
<b>Pokeriverkon koko</b>	Vähän pelaajia	Paljon pelaajia	Paljon pelaajia
<b>Loyalty-ohjelma</b>	Huono loyalty-ohjelma	Hyvä loyalty-ohjelma	Huono loyalty-ohjelma
<b>Maine</b>	Pokerisivustolla on arveluttava maine	Pokerisivustolla on luotettava maine	Pokerisivustolla on luotettava maine

0%  100%



### 9.3 Exhibit 3: Cluster demographics

Occupation	Beginners	Professionals	Experienced enthusiasts	Semi-professionals
	Percentage of total	Percentage of total	Percentage of total	Percentage of total
1. Employed	47.22%	31.03%	32.10%	41.40%
2. Student	33.33%	44.83%	33.33%	27.39%
3. Entrepreneur / Self-employed	2.78%	12.07%	16.05%	16.56%
4. Stay-at-home mom/dad	2.78%	0.00%	0.00%	0.64%
5. Retired	11.11%	1.72%	1.23%	0.00%
6. Unemployed	0.00%	5.17%	13.58%	8.28%
7. Other	2.78%	5.17%	3.70%	5.73%

Reason for playing online poker	Percentage of total	Percentage of total	Percentage of total	Percentage of total
1. Just for fun	5.56%	0.00%	9.88%	5.10%
2. For fun, but money also motivates	55.56%	29.31%	39.51%	39.49%
3. Extra income from poker, primarily working/studying	19.44%	44.83%	29.63%	29.30%
4. Playing professional, poker primary source of income	19.44%	25.86%	20.99%	26.11%

Stake level used most often	Percentage of total	Percentage of total	Percentage of total	Percentage of total
1. Micro stakes	33.33%	18.97%	22.22%	21.02%
2. Small stakes	38.89%	56.90%	46.91%	48.41%
3. Medium stakes	27.78%	20.69%	24.69%	24.84%
4. High stakes	0.00%	3.45%	6.17%	5.73%

<b>Experience in online poker</b>	<b>Percentage of total</b>	<b>Percentage of total</b>	<b>Percentage of total</b>	<b>Percentage of total</b>
1.Less than 12 months	2.78%	0.00%	1.23%	1.91%
2. 1 to 2 years	16.67%	6.90%	2.47%	7.01%
3.3 to 4 years	36.11%	27.59%	29.63%	26.75%
4.5 to 6 years	33.33%	58.62%	45.68%	49.68%
5. More than 7 years	11.11%	6.90%	20.99%	14.65%

<b>Hours spent on playing per week</b>	<b>Percentage of total</b>	<b>Percentage of total</b>	<b>Percentage of total</b>	<b>Percentage of total</b>
1.0-4 hours	22.22%	10.34%	23.46%	18.47%
2.5-10 hours	30.56%	25.86%	30.86%	32.48%
3.10-20 hours	22.22%	43.10%	20.99%	25.48%
4.20-40 hours	19.44%	18.97%	18.52%	21.66%
5.More than 40 hours	5.56%	1.72%	6.17%	1.91%