Texas hold'em poker: a qualitative analysis of gamblers' perceptions

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Abstract

The authors examined gamblers' perceptions of Texas Hold'Em (HE) poker, especially regarding excessive behaviours and the nature of skill involved. Sixteen regular HE gamblers were assessed through a semi-structured interview and took part in a session of gambling exposure. A qualitative thematic analysis and a comparative analysis on problem and social gamblers were performed. Problem gamblers had an emotional profile that was characterized by a lack of self-regulation and difficulties with delayed gratification. The desire to take on a new persona through poker seems to be implicated in excessive poker behaviours. Three kinds of skills came to the fore: technical skills (mastery of rules and strategies), psychological skills (self-regulation and accurate analysis of adversaries), and financial skills (the ability to correctly assess the financial risk). The results support the fact that poker deserves to be set apart from other gambling forms, especially when it comes to prevention and treatment.

Résumé

Les auteurs ont examiné la perception qu'ont les joueurs de poker Texas Hold'Em (HE) de leur activité, en particulier les comportements excessifs et la nature des compétences requises. Des entretiens semi-structurés ont évalué 16 joueurs de poker HE qui avaient pris part à une séance de jeu. Deux analyses ont été effectuées : une analyse thématique qualitative et une analyse comparative des joueurs compulsifs et des joueurs sociaux.Les joueurs compulsifs avaient un profil émotionnel caractérisé par une absence d'autorégulation et des difficultés à réfréner leurs envies pour obtenir une gratification différée. Les comportements de jeu excessifs semblent

impliquer le désir de se créer un nouveau personnage à travers le poker. Trois genres de compétences ont été mis en évidence : compétences techniques (maîtrise des règles du jeu et des stratégies), compétences psychologiques (autorégulation et analyse précise des adversaires) et compétences financières (aptitude à évaluer correctement le risque financier).Les résultats viennent appuyer le fait que le poker mérite d'être distingué des autres formes de jeu, en particulier en ce qui a trait à la prévention et au traitement.

Introduction

Over the last decade, there has been a growing craze for poker games, particularly Texas Hold'Em (HE). According to a recent study of more than 346,000 online gamblers, there are approximately 44.5 million poker gamblers around the world, half of whom gamble online (see www.pokerplayersresearch.com, Spring 2010 data). Although relatively recent, this huge popularity of poker games has drawn the attention of researchers. However, there is still a dearth of studies examining the gamblers' perceptions about participation, problem gambling, and skill in HE, particularly from a qualitative approach.

Poker gamblers are predominantly young males (Laplante, Kleschinsky, Labrie, Nelson, & Shaffer, 2009; Shead, Hodgins, & Scharf, 2008). Students in particular seem to be involved in poker, especially online poker (Laplante et al., 2009; Shead et al., 2008; Wood, Griffiths, & Parke, 2007). In a study of 513 student gamblers (irrespective of the gambling activity), poker was the second most common form of gambling (62.2%) behind lotteries (73.3%). Moreover, HE was the most popular variant of poker (91.8%) among poker players (Shead et al., 2008). In another study, 30% of 422 student online poker gamblers played poker at least twice a week, although poker was not the only gambling activity for most students (Wood et al., 2007).

Gambling Problems in Poker

In the broad church of gambling, the prevalence of pathological gambling is estimated at about 0.2–3.0% (Ades & Lejoyeux, 2000; Ladouceur, Jacques, Chevalier, Sevigny, & Hamel, 2005; Petry, Stinson, & Grant, 2005; Toneatto & Millar, 2004). Poker is by no means to be exempted from gambling problems, even though there are no epidemiological data available on the prevalence of poker problems in the general population. Only a small number of studies have been published on selected populations of gamblers, and most of them are contradictory. For example, Wood et al. (2007) detected about half of their sample of 422 student online poker gamblers as having a type of gambling problem, and Chevalier et al.

(2004) found "only" about 12.3% of the sample in a casino to be at risk for pathological gambling and probable pathological gamblers.

Several studies have looked at the specific features of gambling problems in poker compared with other forms of gambling. The results show that poker gamblers seem to manifest gambling problems more in terms of the excessive amount of time spent gambling rather than in terms of financial difficulties (Shead et al., 2008). Another possible particularity is that distorted cognitions, especially the conviction that poker is purely a game of skill, seem to have a greater role in the onset of gambling problems (Mitrovic & Brown, 2009; Wood et al., 2007). In other forms of gambling, distorted cognitions are usually said to be involved in both the onset and the maintenance of gambling problems.

Very few studies have directly investigated the question of specific gambling problems in poker by comparing social and problem gamblers, especially using a qualitative approach. Yet, Wood et al. (2007) have pointed out a general weakness in poker research, which is that problem gambling is defined and understood through purely quantitative measures. They suggested that further qualitative research into poker players would be needed to examine the phases of their gambling problems in detail.

Thus, in the vast majority of contemporary literature on problem gambling in poker, poker players are compared with other gamblers or non-gamblers by using quantitative measures. To our knowledge, only one study has explored the specific features of problem gambling in poker qualitatively (Bjerg, 2010). However, this study compared 15 professional and recreational poker players to 14 problem poker gamblers who were recruited through a treatment program. As highlighted in earlier literature, problem gamblers seeking treatment are a specific subgroup and do not share the same characteristics as all problem gamblers. There is therefore still a need to qualitatively assess and describe the features of problem gambling in poker in a non-clinical sample.

The Dimension of Skill in Poker

Studies have shown that between one third and one half of poker players believe that skill is predominant, or even omnipresent, in poker (Sevigny, Ladouceur, Dufour, & Lalande, 2008; Wood et al., 2007). A number of studies have tried to answer the question of the respective proportions of chance and skill in HE, but the scientific community remains divided. A Canadian study has shown that poker players, even those playing at a very high level, only seemed to be able to win when the distribution of cards was in their favour, thus demonstrating the predominance of chance (Sevigny et al., 2008). In contrast, other authors have shown that the use of elementary strategy documentation is a way of improving player performance in HE poker (Dedonno & Detterman, 2008). Still others have suggested that the skills developed by poker players might be transferable to other areas of life (stress management, coping skills, etc.), especially in professional and relational domains

(Parke, Griffiths, & Parke, 2005). Another study fell partway between these two endpoints on the spectrum, showing that the proportion of skill in poker is dynamic and relative, varying according to the respective levels of the players at the table (Turner & Fritz, 2001).

The issue of how to quantify the respective proportions of chance and skill in poker has not yet been resolved and will probably always be a subject of controversy within the scientific community. Evidently, the question of skill in HE cannot be answered consensually by using quantitative approaches and may perhaps be seen from another point of view. Skill in poker is often addressed as a unique and all-encompassing faculty (skilled players vs. non-skilled players). As recently declared by McCormack and Griffiths (2011), "further research is clearly needed to identify which skills are at play" (e.g., calculating probabilities or reading the opponents' tells). In other words, there is a need to explore which skills are involved in making a poker player a skilled player. Moreover, exploring poker skills from a naïve perspective would allow us to be more objective and to leave behind some of the usual preconceptions about what kind of skills are presumed to be involved in poker (e.g., it is often supposed that poker gamblers have enhanced memory capacities, even though this has never been demonstrated). Finally, as far as we are aware, skills in poker have never been explored in a "hot" situation (i.e., during a real poker session).

Objectives of the Study

In this work, we chose to conduct a qualitative analysis of gamblers' perceptions about HE. We wanted to put the quantitative aspect aside in order to enhance the depth of the analysis and to gain an understanding of the attitudes and feelings that underpin gambling behaviour in poker.

With this in mind, we outlined three objectives for the study. Our first aim was to describe the gamblers' trajectory and relation to HE. Our second goal was to investigate gamblers' perceptions about the importance and nature of skill in poker and especially about which underlying cognitive mechanisms are involved. The idea here was to allow gamblers to express their own point of view on the subject in order to highlight the skills that are most often used by gamblers in real poker situations. This would constitute the preliminary work to a quantitative study on how these skills contribute in reality, to be explored with an experimental procedure. Third, we aimed to compare gamblers' perceptions across two subgroups of HE gamblers: social players and problem gamblers.

Method

The Suitability of Qualitative Methods

Given that the player's skill is a parameter that is complex and that cannot be assessed only with quantitative measures (success in a game of HE does not provide

any direct information about a player's skill, and collecting only wins and losses is then not satisfactory for assessing the complexity of skills in HE), the choice of qualitative methods seems appropriate. The aforementioned controversy in the literature about the relative proportions of skill and luck supports this choice. Problem gamblers often deny that they have a problem with gambling. This sometimes results in an underestimation of problems when they are investigated by self-assessment tools or structured interviews. Putting forward an overall evaluation of gamblers' perceptions about their gambling practices and then comparing these perceptions in social and problem gamblers may in fact help to avoid this bias. Moreover, the use of qualitative methods has allowed us to explore poker practice in a naïve way. We deliberately made the choice not to apply any a priori views to the potential skills or problems that may be involved in poker in order to let the participants express their points of view freely. Lastly, gambling problems are often investigated by using quantitative measures such as frequency of play, amount of money wagered, and so forth. Wood et al. (2007) outlined the fact that these measures are not necessarily representative of gambling problems and that further qualitative research was needed to examine gambling problems in detail.

In conclusion, qualitative methods allowed us to tease out some aspects that may well have gone unnoticed in a quantitative approach. They provide access to much more personal perspectives and allowed us to interact with participants immediately and to enhance the depth of the investigation. Qualitative methods indeed generate much richer data than do quantitative methods and do not require fitting respondents into ''boxes'' that the researchers have created:

> Qualitative methods facilitate study of issues in depth and detail. Approaching fieldwork without being constrained by predetermined categories of analysis contributes to the depth, openness, and detail of qualitative inquiry. … qualitative methods typically produce a wealth of detailed information about a much smaller number of people and cases [by contrast with quantitative methods]. This increases the depth of understanding of the cases and situations studied but reduces generalizability. (Patton, 2002, p. 14)

> Qualitative inquiry is especially powerful as a source of grounded theory, theory that is inductively generated from fieldwork, that is, theory that emerges from the researcher's observations and interviews out in the real world rather than in the laboratory or the academy. (Patton, 2002, p. 11)

Participants

The participants were 16 HE poker gamblers recruited from the general population. All the volunteers were contacted by telephone and were authorized to participate only if they met all of the inclusion criteria, that is, being males, aged over 18 years, playing at least twice a month, and doing so for at least 1 year (these criteria ensured that only

regular and experienced HE gamblers were included in the sample). Professional HE gamblers and problem gamblers from other forms of gambling were excluded.

Procedure

This study was conducted in partnership with a French institute specializing in health qualitative studies (*BVA Reason Why*), which recruited the sample and conducted the interviews.

Each participant was assessed by using a semi-structured face-to-face interview, carried out at the research institute's offices or at the gambler's home. Two interviewers with experience in qualitative studies (each with more than 7 years of experience in the field) conducted all of the interviews. The interview lasted for about 2 hr. The interviewer guidelines consisted of open questions exploring gambling trajectory and habits (participation in gambling, frequency, starting age, etc.); influence of and relation to gambling (motivations for playing, gambling expectancies, etc.); views about skill in HE, especially which skills are important for being a good HE gambler; and cognitive mechanisms that lead to decision making during the game.

Participants also answered the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000) section on pathological gambling. Gamblers who met at least three *DSM-IV-TR* criteria were classified as problem gamblers ($n = 8$) and the remainder were classified as social gamblers ($n = 8$). We chose the threshold of three positive criteria in order to include both gamblers at risk for pathological gambling and gamblers with a diagnosis of pathological gambling. Indeed, we wanted to include problem gamblers who presented symptoms of gambling abuse (harmful use) and not just those who had a confirmed diagnosis of dependency on gambling. We then followed the current logic of the (at the time) future *DSM-5* (which regroups abuse and dependency under the global concept of addiction for substance-related disorders). This threshold has already been used in the literature, for example, in the well-known prevalence survey performed in Quebec (Ladouceur et al., 2005). Online and offline HE gamblers were equally represented among both social and problem gamblers.

Concurrent to the interview, participants took part in a session of gambling exposure to online or offline poker, depending on their preferences. The gambling sessions were carried out at the gambler's home for online gamblers and at a live poker room for offline gamblers. During the gambling exposure session, participants were instructed to gamble as they would do normally and to comment on and justify their actions during the game (not for offline gambling sessions, because of the presence of the other gamblers). The interviewer simultaneously observed the participant's attitudes during gambling and transcribed them in his or her notes. At the end of the gambling exposure session, the interviewer questioned the participant about the cognitive mechanisms that led to the decisions made

during the game. The gambling exposure sessions lasted approximately 45 to 60 min. The observation method in the gambling session exposure was added to the interview for three reasons: first, because it gave us access to unconscious and non-verbal data (emotion, tone, posture, silences, hesitation, etc.); second, because it provided a hot state aspect for the investigation; and third, because it allowed us to observe the social interactions between the participant and the other players during the gambling session, in particular how the opponents' attitudes or actions can influence the participant's decisions during the game.

This combination of the semi-structured interview and the observation method enabled us to reduce biases linked to the qualitative methodology of the study, enhance the diversity of the data gathered, and better appreciate phenomena that are not directly observable. It also allowed us to capture the complexity of the skills involved in poker play and to combine hot and cold state assessments of the skills.

Semi-structured interviews and gambling exposure sessions were audio-recorded and later transcribed. Quotes from participants included in the text have been translated from French, and the anonymity of participants has been ensured by changing their names.

French legislation about biomedical research did not require competent authority authorization or ethics committee approval for the present research. In accordance with French legislation, participants were informed about the research and orally they expressly agreed to participate in the study.

Analysis Methods

Verbatim transcripts were analysed by using a qualitative thematic analysis (Bardin, 2007; Strauss & Corbin, 1998). Raters identified all statements related to gambling from the whole corpus. Verbatim transcripts were first analysed individually in terms of content and discourse evolution during the interview. For each participant, the raters coded statements into meaningful units, which were then analysed to obtain an individual profile representing the participant's experience. Transcripts were then compiled and analysed together as part of the whole sample. Similar meaningful units were grouped together and assigned to subcategories. Discrepancies were also analysed and new subcategories emerged. The subcategories with shared similarities were grouped together in order to identify the main topics. Finally, a comparison was made of social and problem gamblers.

Results

Qualitative Analysis Across the Whole Sample

The analysis revealed that the gamblers' perceptions could be grouped into two main topics:

- the trajectory of gambling and relation to gambling
- skills and cognitive mechanisms underlying decision making during the game

Quotes in the following sections by social gamblers are indicated by (S), and those by problem gamblers by (P).

Gamblers' trajectory and relation to gambling. The average length of poker playing experience for the whole sample was 8.8 years ($SD = 7.4$, range 1.5 years to over 30 years). The vast majority of participants played HE at least once a week ($n = 14$; 87.5%).

Although the first encounter with poker was often a five-card version (draw poker), players usually moved on to HE relatively quickly, as this version is seen as more exciting and more stimulating. Generally speaking, the players from our panel were introduced to playing HE in adolescence or early adulthood through a group of (very) close friends. HE quickly became their most commonly played game, sometimes their only game.

The Internet was the entry point for the younger poker players, thanks to their greater familiarity with and accessibility to this particular medium. The Internet was often used to ''get the hang of it,'' for free or for low stakes, especially thanks to statistical software and practice sites. Whereas online gaming was more focused on playing techniques, live games were considered to be a veritable experience in themselves (atmosphere, handling the cards and chips, history and prestige of the play venues, human relationships, etc.). These two modes of play (live/online) were not played exclusively of one another for most of the players that we encountered.

Most HE players also engaged in other gambling activities ($n = 10$; 62.5%), mainly lotteries (50.0%) and scratch cards (31.25%).

Perceptions about skill in HE and underlying cognitive mechanisms. Participants considered that luck could be greatly (and easily) minimized, or even cancelled out altogether, by learning the theory and accumulating practical experience in poker. One of the specificities of poker, in their view, lies in the nature of the adversary: another player, who is fallible, instead of a gambling industry, which is programmed to be profitable. From the point of view of participants, the primary aim was to reduce this element of luck as far as possible.

> *''In poker, you're not playing against the bank but against other players - that's not the same position.'' (S)*

From the perspective of the players in our sample, the skills required to be a good HE player were diverse, and we subsequently grouped them into three main categories: technical skills, psychological skills, and financial skills.

Technical skills mainly involve mastery of the rules of the game, statistics, and probabilities of winning for each starting hand and for commonly used strategies.

> "*Poker theory is constantly evolving: a year and a half ago, everybody said that the aggressive style was the most beneficial but today there are new styles that have emerged like the 'Small Ball,'[1] which seems to be much more profitable.*" (S)

This theoretical stage requires prior learning, facilitated by specialized books and websites, statistics software available on the Internet (making it possible to analyse opponents' hands and strategies, for example), forums or blogs used to share experience, and so on.

> "*There are a lot of information sites where you can ask why you misplayed, and, you can get a lot of feedback comments within the hour; this allows you to improve your play faster.*" (S)

The cognitive mechanisms most often cited by our sample, for this category of skill, were concentration and attention, as well as mathematical abilities and logical reasoning.

Psychological skills can be divided into two subcategories: The first subcategory is decoding opponents, which involves, first, assessing the level of the other players present at the table in comparison with the player's own level.

> "*A great player said, 'If after a given time, you still have not spotted any pigeons at the table, it's because you are the pigeon.'*" (S)

Next, it requires observation and analysis of aggressive or cautious behaviours, betting habits depending on the kind of game, changes in behaviour, gestural clues (*tells*), and so forth, in others.

> "*There are some very good players that play like robots, they don't change their play at all, and then it's unpredictable: they have the same gesture with good or bad hands, imperturbable…*" (S)

> "*This is the gesture on the broad sense. You can fix or not the person, you can speak or be silent, you can laugh or be remote: there is no right or wrong way, but the most important is the concentration that allows you to absorb as much information as possible, regardless [of whether] you're conscious of it or not.*" (S)

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[1]The "Small Ball" is a popular strategy that allows the player to reduce losses by keeping the pot small, while seeing more flops than a tight player (who plays only good hands) by playing a large range of hands.

Finally, players attempt to identify the other players' weaknesses (superstitions, fears, beliefs about luck, need to concentrate, etc.) in order to then use them to their advantage, the aim being to destabilize the opponent.

> *"I know a player who focuses on green. If I know I'm likely to be playing against him, I'll be sure to come dressed in a green shirt…"(S)*

> *"My opponent might believe that I have a pair of aces, and if that is what he believes, my pair of deuces is a pair of aces. In all other games, you either have good cards or you do not, whereas here, you can win money even with a poor hand." (P)*

For this aspect, the cognitive mechanisms identified by the participants were focus, attention, and intuition.

The second subcategory is self-control, which comes through self-awareness and the players' ability to manage their limitations. Frustration, especially during live matches where the games are slower, can fuel poor management of emotions (haste, lack of discernment).

> *"The most important thing is to stay calm. It is mental. If the game does not go very well and you are not affected by that, that's good, don't worry." (S)*

It is also a question of imposing one's presence and personality at the table and demonstrating how comfortable one is. In this context, the theatrical dimension can play a central role.

> *"I like to play with my 'French school of poker' T-shirt, because it seems to put some people off." (S)*

It is also essential to remain as impenetrable as possible; maintaining control over one's gestures and tics is therefore vital.

> *"The most difficult thing is to be as unpredictable as possible and make sure that my opponents do not know whether I'm an aggressive player, whether I am bluffing or not, whether I'm lying or not…"(S)*

For this skill, the cognitive competences required according to our panel were self-awareness and control, as well as the ability to adapt.

Financial skills are halfway between the aforementioned technical and psychological aspects. The nature of the financial skill is not restricted to the amount of money wagered but, rather, is to be found in the delicate balance between being bold and taking risks on the one hand, and keeping one's cool, distance, and self-discipline on the other. The ability to assess financial risk is paramount and the player must remain cool headed, without emotional involvement, in order to continue to be successful.

"You must be very rational, very patient. What often causes players to lose is that when they have no luck in one or two hands they would normally have won, they then lose their heads and start playing recklessly." (S)

The financial stakes of the game must not be excessive, which means that the consequences of a loss must not be overly important.

"I am a good player because I always put myself in game situations that I can calmly deal with, because I play at the limit where I can afford to lose money. I never put myself in danger financially. I played with people who just received their wages and lost three quarters of their salary from the 2nd day of the month; it is not the same thing: I just play my €100 quietly because I can afford to lose them, this is not the same thing at all." (S)

In financial terms, the cognitive skills highlighted by our panel were discipline, patience, and composure, as well as long-term vision of the overall gains/losses ratio.

Comparisons Between Social and Problem Gamblers

It is possible to compare two contrasting profiles of social and problem players, particularly on the basis of their relationship with poker: The *social player* has a stable personal and professional situation in which he flourishes and shows greater maturity. His lifestyle balance means that poker can remain a hobby among others and does not occupy a disproportionate position with respect to family, social, or professional life.

"I have a bunch of other stuff I like to do, which keeps my head screwed on properly: my wife, my children, my company, playing tennis." (S)

His relationship with money seems healthy, with clear financial limitations and a long-term vision, which ensures that he is never in financial danger (the poker budget is separate and disconnected from the "necessities of life"). Winnings go back into the poker budget or are spent on special treats.

"There is my salary and what I can afford to spend in poker. It's an expense like any other. I never exceed these limits. I play with what I've won, I rarely put money back in… and only when the loss is not a problem." (S)

"You see this watch that I'm wearing—I bought it out of poker winnings when I won a big game. I thought 'this is money from poker, it doesn't come from the sweat of my brow.' The fact that it's easy money allowed me to have a little fun, that's what is interesting in poker: it's not money that I expect to have, for me, it's a bonus." (S)

Money is one motivation among others, and the real interest in poker comes from the desire to master the technique and complexity of the game through competition.

> "What interests me in poker is the complexity of the game, which is strictly infinite." (S)

> "I enjoy playing because there is competition, honestly I do not play to win money. If I can win € 5,000, it is good but it will not change my life. It is a pleasure, it's the competition which is important." (S)

The game does lead to some powerful emotions that are similar to the emotional states induced by any kind of competition.

> "I love the adrenaline and the competitive spirit of the game." (S)

Playing HE is well grounded in reality and can improve life (stress management, interpersonal relations, etc.).

> "I like the psychological side, its scope reaches beyond the game itself to personal development in the management of emotions." (S)

This could be called a *rational profile*, which may be illustrated by some typical participant profiles (see Table 1).

The problem gambler has a less stable situation, often being insecure in personal and professional life, where he does not flourish. His lack of lifestyle balance leads the player to attribute excessive importance to poker, which offers the possibility of enabling access to a more prestigious persona. The problem gambler lives a parallel form of his real life through poker, which is more gratifying.

> "The dream is to escape your own life. It is as if there was a different life related to the game. It is something other than money; it's about to proving to yourself that you have influence, reputation, that you are the best, impressive." (P)

> "Everyone's dream is to become someone in the eyes of others. If I have been successful on my own, I don't care about popularity. But in the game, you're popular in relation to that particular game, yes, that's better. In poker, you're awesome, you've got technique, it is based on something, it is something concrete. You're really someone because you have won something, not just money but also the battle of wits, you have earned your authority, you're dominant. It's a game of appreciation." (P)

The poker budget remains approximate, with hazy financial limits and short-term vision of the winnings/losses ratio (sometimes limited to the hand or the game). For example, the problem gamblers from our sample all claimed they were down, or at best had broken even.

Table 1

Typical Examples of the Social Gambler Profile

	Michel	Henri	Charles	Antoine
Personal and professional situations	37 years old, business manager, married, 3 children	34 years old, manager in finance, married, 1 child	24 years old, student (qualified this year), has a girlfriend	34 years old, works in the public sector, single
Poker practice (online/live)	- Gambles regularly online, gambles occasionally in live poker (and mostly with his friends)	- Was previously a heavy video gamer - Currently gambles exclusively online - Gambled previously in live poker, but no longer appreciates the tense atmosphere - Initially gambled as a way of thrill seeking – has recently changed his play (more patient, more distant)	- Gambles both online and in live poker - Has previously participated in some major tournaments	- Gambles both online and in live poker, with a real passion for live poker (he is a member of a famous poker club and takes part in major tournaments)
Financial balance and expectations for the future in relation to poker	- Has previously won €18,000 in a single year, which he used, in part, for a wonderful trip with his whole family - Currently showing a slight deficit (€500/year), a loss that he accepts easily in the name of leisure activities	- The money gained through poker allows him to pay for all his special treats - As a man who is passionate about poker, he would like to make it his job (but has a family)	- Has a current output of approximately €100,000 - Expects to make poker his job in the next 2 years, with a limit of about 5 hr per day	- Sometimes wins a lot at poker, and accepts losing some money within his own limits - Has a mean output of tens of thousands of Euros

Note. To ensure anonymity of participants, names given are pseudonyms.

"I play what I win in the game, but also what I earn by working." (P)

"Sometimes I'd be better off filling up on gasoline or shopping instead of playing poker and ending up with nothing. Sometimes there are priorities, but sometimes they are not really effective, I say 'never mind, I'll try my luck, we'll see.' It is a mistake…" (P)

"The last time, I lost €300 in two days, ¼ of my salary!" (P)

Money is *the* primary motivation, leading to inflated, almost magical expectations, with the fantasy of a radical change in life, in which all problems are solved.

> *"By working, you see how hard it is to earn money, while with poker, it is very simple, in a single day, you can make a great deal of money. The dream is to get out of your life, you want to stop working, take a vacation, live the life! My dream is to become like travelers, free and independent. I figured, if I win €1500 each month, I can stop working for the rest of my life…" (P)*

Moreover, our panel of problem gamblers often indulged in other gambling activities, always in search of easy money, often with some major cognitive distortions (especially the belief in supposedly infallible techniques that make it possible to increase the probabilities of winning in games based purely on chance).

In poker, mastering the technique is only important because it allows money to be made quickly and easily.

> *"Playing is very attractive, but the main issue is not that, it's still winning money." (P)*

In addition to financial damage, problem gamblers often reported problems, in terms of time spent, that are sometimes more problematic for them than financial losses.

> *"You waste time playing so you see others less. It happens in life, you don't notice it but the game does as much damage as alcohol." (P)*

> *"When I play, it's often for 6 hours at a stretch… my girlfriend sometimes complains about how much time I spend…" (P)*

The emotions experienced through playing are such that they sometimes lead to emotional states that are difficult to control, sometimes even physically uncontrollable, leading to irrepressible gambling urges and an inability to assess risk.

> *"It's like a roller coaster, my heart is throbbing, I have chills. There is something similar to sex, it produces feelings, emotions, even physical reactions." (P)*

> *"I have a tendency to forge ahead when I'm in the game." (P)*

> *"I have all the answers in my head but I do not apply them." (P)*

Whereas social players talk about "knowing how to handle one's emotions," problem gamblers talk about a role-playing game in its own world. The game is seen

Table 2

Typical Examples of the Problem Gambler Profile

	Benoit	Vincent	Pierre	Benjamin
Personal and professional situations	30 years old, technician, single	27 years old, waiter, single	30 years old, out of work, single	28 years old, courier, single
Poker practice (online/live)	- Gambles both online and in live poker, but prefers to gamble in live settings	- Gambles exclusively in live poker for the adrenaline	- Gambles both online and in live poker, but prefers gambling in live settings	- Gambles mainly online, but also occasionally in live poker - Had an unforgettable emotional experience in Las Vegas, where he lost a lot
Financial balance and expectations for the future in relation to poker	- Has been through (and is still going through) regular periods of financial difficulties due to betting too great a proportion of his wages - Has already wagered the small sum of an inheritance	- Thinks he has lost a lot in gambling - Cannot imagine blowing a big win all at once, but has calculated that €1,500 a month over 50 years would be enough for him to achieve his dream - Dreams of making big money so that he can stop working and travel	- Has been through (and is still going through) regular periods of financial difficulties due to betting too great a proportion of his wages - Borrows money easily - In debt	- Met with financial difficulties, still driven by the adrenaline of the game and the hope of winning - Continues to gamble when he is in debt

Note. To ensure anonymity of participants, names given are pseudonyms.

as being outside of reality, in another universe, a means of escaping from oneself and a source of dramatization.

> "It's a film, a scenario, when I play I'm in another world." (P)
> "I want to be popular in the game and have influence. You become someone because you have achieved something: you managed to make money." (P)

> "Poker is a farce, this is only theatre." (P)

More than mere competition, the game is seen as a form of combat, the stakes of which are almost life-and-death. Impulsivity and risk behaviours are at the heart of this, based on the principle of immediate pleasure.

"We are in a kind of duel, a combat, and adversity." (P)

"When you win you feel untouchable, you're the king of the world. But when you lose, it's the descent into hell, you're gutted, it's the end of the world." (P)

It may therefore be appropriate to speak of an *emotional profile* that is illustrated by some typical participant profiles (see Table 2).

Discussion

The aim of this qualitative study was to gain a better understanding of the gamblers' trajectory and relation to HE poker on the one hand, and on the other, the importance and nature of skill in HE, especially regarding the underlying cognitive mechanisms. We also sought to examine the features that set social and problem HE gamblers apart.

Gamblers' Trajectory and Relation to Gambling

In most cases (be they online or offline players, social or problem gamblers), players start playing poker when they are young and are initiated to poker through a circle of friends, which gives the game a convivial setting. Participants' motivations for playing HE were mainly its social aspect and the involvement of skill, which supports ideas put forward in earlier literature (Shead et al., 2008; Wood et al., 2007). Poker quickly becomes an important part of leisure activities, especially because of the financial aspect, which increases interest in the game. Poker is considered to be very different from other games, one that is particularly attractive and accessible because it can be played anywhere, with almost anybody, without the need for an intermediary (interest of playing with other players, allowing for a potential profit). Poker is seen almost as a sport, requiring a certain self-discipline and especially constant training and regular reading.

Perceptions About Skill in HE and Underlying Cognitive Mechanisms

According to the results of our study, skill in poker seems to be the result of a number of aptitudes, which are learnt or innate. By extrapolation, we have compared the different skills cited by the gamblers to major cognitive functions such as perception, attention, reasoning, and memory. Because emotions influence each of these cognitive functions, they play an essential role, in particular with regard to self-regulation capacities (impulse control). For instance, a study by Parke et al. (2005) suggests that self-regulation is a crucial aspect, which makes it possible to distinguish good players from novices and also from problem gamblers. A low level

of emotional involvement in the game seems to make it possible to maintain a cool-headed capacity for analysis and in particular to avoid the downward *chasing* spirals during a period of successive losses. The ability to delay rewards (or delayed gratification), often associated with self-regulation (National Institute of Health and Medical Research [INSERM], 2008), is also important on the strategic side of poker. This concept can be linked with some of the strategies used in poker: a *loose* strategy (playing lots of hands, whatever their value) could be a sign of difficulties in delaying gratification, whereas a *tight* strategy (playing only the best hands) could reflect a good capacity for delayed gratification. This ability to delay rewards is often associated with greater maturity and better adaptation skills, and tight strategies are often beneficial when they are associated with a more aggressive playing style (Siler, 2009).

Figure 1. Interactions between the three components of skill and the cognitive functions involved.
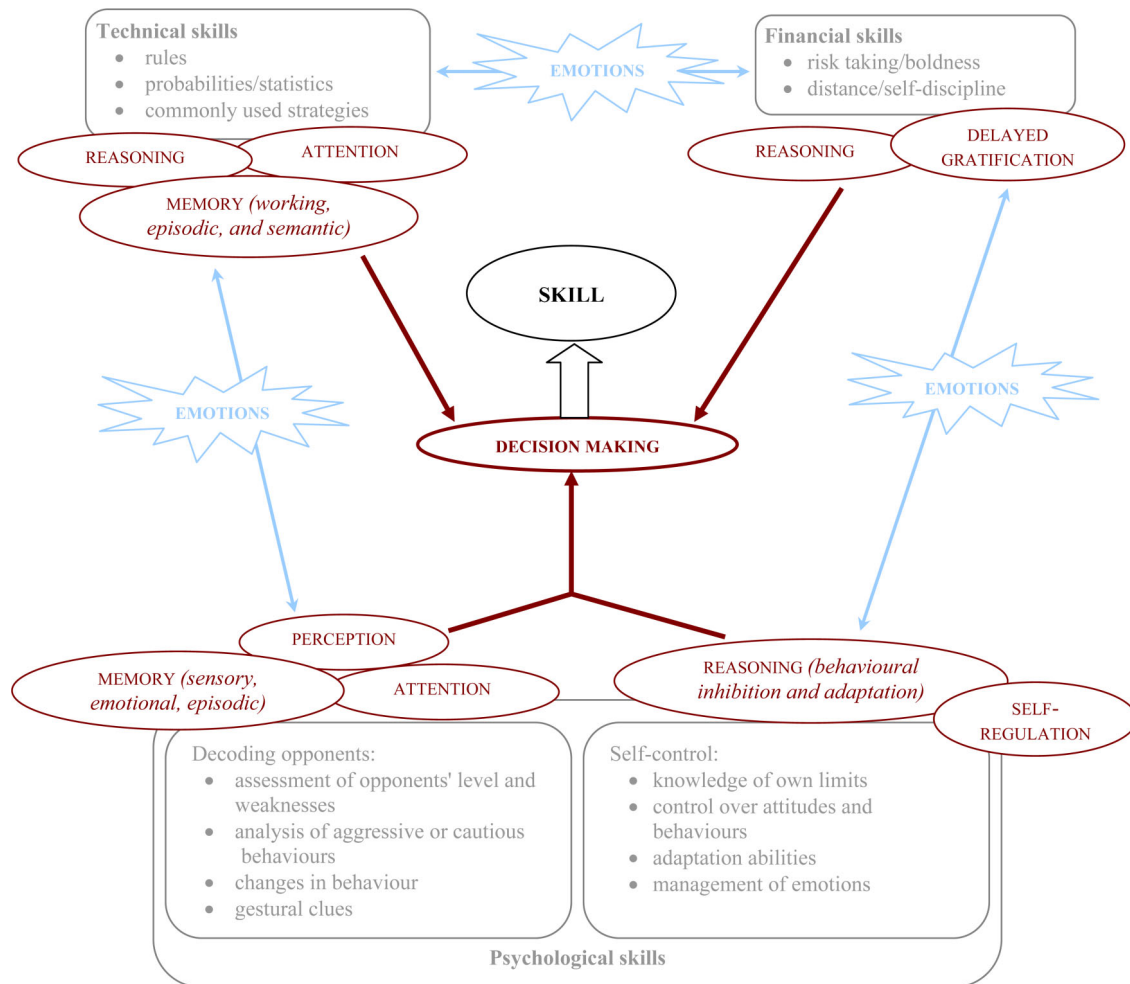
Figure 1 shows a model of the interactions between the three components of skill and the cognitive functions thought to be involved.

The aim of this work was neither to quantify the part played by skill in poker, nor to answer the question of the classification of poker as a game of pure chance or as a game of pure strategy. The results of this study could provide arguments that support considering poker as a game that involves a close and complex association between skill and luck. This would dovetail with the point of view expressed by Boutin (2010), who classes HE in a separate category from all other gambling games: games "with skill and potential profit" as opposed to games of "quasi-skill without potential profit" (black jack, horse racing, and sports betting) and games "without skill or potential profit" (lotteries, scratch cards, electronic gaming machines, and slot machines). This classification is based on the involvement of skill in the game and the notion of potential profit, which is assessed according to whether the player plays against "the house" (i.e., against an operator programmed to be profitable) or against another player (who is potentially fallible). The category of games with skill and potential profit comprises almost only poker variants, such as HE, but also Omaha poker, rush poker, stud poker, and so forth. Some other variants, such as Caribbean poker (a variant of five stud poker, but played against a croupier rather than other players) or video poker (which is an electronic version of draw poker and functions in the same way as a slot machine), belong to the category of games without skill or potential profit.

As mentioned in the introduction, skill in poker is often tackled as a unique and all-encompassing faculty. Indeed, the literature on poker often seeks to determine whether poker is a game with or without skill (Dedonno & Detterman, 2008). Although this question is obviously very important, researchers have recognized that this binary vision is insufficient and now recommend exploring the distinct skill sets at play in poker (McCormack & Griffiths, 2011). The objective of the present study was to consider skill in poker in a naïve way and to build a repertoire of the competencies used by players while playing poker. This design has allowed us to demonstrate that poker probably involves multiple cognitive skills. This could be another argument in favour of considering skill in poker as a multidimensional faculty, which involves multiple cognitive, social, or emotional competences. Future studies should test the real application of these faculties in poker gamblers.

Perceptions About HE in Social Versus Problem Gamblers

According to our sample, four characteristics seem to account for the gambling problems encountered in poker. These are discussed below in terms of the specificity of these characteristics to poker in comparison with those known for other gambling activities.

Cognitive distortions about skill. One of the beliefs that is characteristic of the problems encountered by gamblers from our sample was an increased perception of

the importance of skill in poker. Somewhat contrary to social players, problem gamblers were convinced that luck is a controllable variable in poker. This belief is typical of the cognitive distortions so often observed in the initiation and maintenance of excessive gambling practices (Shead et al., 2008). In some cases, they can lead players to systematically and wrongly attribute their winnings to a particular playing technique or to their own intrinsic skills, and their losses to bad luck, which is beyond their control (Shead et al., 2008; Siler, 2009). This is one example of the concept of illusion of control described by Toneatto (1999) as "attributional bias." In the case of poker, there are times when it is correct to attribute winning to skills and losses to bad luck. This is considered to be a cognitive distortion only when the failure to win a game is obviously due to an inadequate strategy adopted by the player, or when the success is due to a particularly auspicious hand. This is the difference in poker, where a belief is considered erroneous only in relation to the context in which it is expressed. It would seem, however, that the problem gamblers with the most severe gambling problems in our sample can sometimes put it all down to luck when faced with an accumulation of losses and the inefficiency of their supposed skills. This mistaken belief in the exaggerated perception of the amount of skill in HE is therefore not necessarily maintained for the duration of the gambling problems. In fact, it may even diminish when the gambling problems have reached a greater degree of severity. This finding would confirm the hypothesis put forward by Wood et al. (2007), who suggest that cognitive distortions have a greater role to play in the initiation of poker-related problems rather than in their maintenance, unlike the case with other gambling activities. Moreover, it appears that more problem gamblers than social players also engage in other gambling activities. This finding would confirm Mitrovic and Brown's hypothesis (2009), which suggests that one of the predictors of the development of a poker-related problem is involvement in other gambling activities that involve no skill. More specifically, the authors suggest that the high degree of cognitive distortions found among problem poker gamblers is merely a reflection of their greater involvement in unskilled gambling (Mitrovic & Brown, 2009).

Damage related to poker. On the one hand, winning money was always a motivation cited spontaneously by our poker players, in the same way as it has been for other gambling activities. This is confirmed by the extensive participation of our sample in other gambling activities (outside of poker). For problem gamblers, this motivation is greatly increased and surpasses all others. Problem poker gamblers seem to have difficulty deferring an immediate but lesser reward in favour of a greater but delayed prize (as has already been shown for other gambling activities or other addictions; Billieux & Van der Linden, 2010; INSERM, 2008). This would explain why these gamblers play too many hands, despite what is recommended by most of the books on poker strategy, leading to long-term losses.

On the other hand, all of the gamblers in our sample, including the problem gamblers, declared that they had more or less broken even in financial terms. This would seem to indicate that the loss or damage suffered as a result of poker

problems is not closely associated with financial losses, contrary to the case for other gambling activities. As already highlighted in the study conducted by Shead et al. (2008), problem gamblers often report losses, in terms of time spent, that are sometimes more problematic than financial losses. One of the participants indicated that a long stretch would be 6 hr of play, which is much less than time spent playing by professional or heavy players (which can reach more than 48 hr at a stretch), and by players in tournaments. Here, the notion of excessive time spent playing is subjective and should be considered in relation to the gambler's life: There is no "threshold" above which the time spent playing could be considered as excessive. In future research, it would be interesting to see how the concept of the passage of time plays out.

Lack of self-regulation. Difficulty managing emotions is also central to problem behaviours. Poor self-regulation abilities can lead to extreme emotional states that reduce a player's capacity for analysis and self-control skills, which are of critical importance for the outcome of a poker game. Many players report that heavy losses are often due to one bad hand, which leads to such a level of tension, sometimes even panic, that it can lead to totally inappropriate risk-taking behaviour. Gamblers can then find themselves in a downward spiral of losses, sustained by chasing behaviour, with the irrational desire to win back the money they had previously lost, no matter what the cost. Not only has the financial risk-taking behaviour been modified, but on top of that, the player's capacity for self-control and ability to analyse the game and the opponents (whether from a technical or psychological point of view) deteriorates as a result of the growing anxiety, such that even a very good player ends up playing extremely poorly. The player may then lose all of his former winnings, and may sink into a significant deficit.

The desire to take on a new persona. The first three characteristics mentioned above related to problem gambling in poker have already been highlighted in earlier literature, in particular in the only study that specifically addressed this question using a qualitative approach (Bjerg, 2010). Nevertheless, this study focused on pathological gamblers seeking treatment in the pathological group of participants. In the present work, however, the non-clinical sample used has allowed us to reveal another interesting particularity of problem poker gamblers. Whereas social gamblers played poker with their own personality and found in poker an occasion to improve themselves in the real life (stress management, relations with others, etc.), poker enables problem gamblers to take on another persona, one that is more highly valued, especially in cases where one's personal and professional life is unsatisfactory. Poker allows problem players to re-enact a parallel form of real life in which their intrinsic value can be acknowledged, which is not the case in real life.

The imaginary character created for poker (the avatar for online poker and the persona for live poker) gives players the feeling that they can control events. This could be likened to the concept of locus of control (LOC). LOC is a psychological construct of personality with reference to the perception of the extent to which

individuals can control events (Rotter, 1966). Internal LOC is associated with an individual's own control over events and external LOC with attributing events to external sources (chance or powerful others). In the case of gambling, external LOC refers to the attribution of losses to bad luck and internal LOC to the attribution of wins to one's own personal skill. In a recent study on online HE poker (Hopley, Dempsey, & Nicki, 2011), problem gambling was found to be uniquely predicted by internal LOC. The authors explain this somewhat unexpected result (problem gambling is traditionally associated with external LOC) by the illusion of control provided by the skill dimension of poker. With reference to the present study, Hopley et al.'s finding (2011) of a high internal LOC in problem HE poker gamblers could also be linked to our conclusion about the desire to take on a new persona in problem HE gamblers. Indeed, the imaginary character created to play poker could reflect the desire of the player to regain control over events, having failed to do so in their own life. The fact that this characteristic is not restricted to online gamblers makes it especially pertinent. This would mean that the desire to take on a new persona is not simply the expression of the online disinhibition effect described in the context of Internet gambling (defined as the fact that "people say and do things in cyberspace that they wouldn't ordinarily say and do in the face-to-face world"; Suler, 2004). Rather, the desire to take on a new persona may in fact share some characteristics with this online disinhibition effect. In particular, dissociative imagination described by Suler (2004) may apply to poker in relation to the new persona created. Dissociative imagination is the process of creating imaginary characters that exist in a different sphere and are separate from the responsibilities of the real world. As in Internet gambling, poker players also create an imaginary character, even in live poker, which is a type of role they play when they sit down at the poker table. This persona moves in the poker circle, which has its own rules and its own codes distinct from those of real life. Although this imaginary process may be totally healthy for the vast majority of poker players, those who have some problems with their poker practice could find an opportunity to escape the real world in their imaginary persona. This might be compared with a defence mechanism, whereby the gambler uses poker to cope with a belittling situation, like a type of narcissistic reassertion of worth. The problem might then arise when the gambler faces the paradox of the glamorous and prestigious persona he created on the one hand, and his repeated losses on the other hand. It would then be interesting to explore how this characteristic might be involved as a factor for the maintenance of gambling problems. Indeed, if the shelter provided by the poker persona is seen as a defence mechanism, we could hypothesize that the problem gambler must keep up his poker persona at all costs, even when this means facing considerable losses, in order to avoid returning to cope with his real situation and the non-existence of the persona behind whom he has taken refuge. This need to keep up the imaginary persona at all costs may be rather like the chasing observed with other gambling forms. Chasing in traditional gambling refers to betting larger sums of money or taking greater risks in order to undo or make up for previous losses. In the context of poker, this could be betting larger sums of money or taking greater risks in order to maintain the credibility of the poker persona. In future

research, it would be important to consider the degree to which this particular motivation (the desire to take on a new persona through poker) might be involved in the development and maintenance of poker-related problems.

The new persona created for poker would thus allow the gambler to escape problems or dissatisfaction with real life and to enhance control in "poker life." These two motivations to play have both been found to be predictive of a problematic engagement in some types of video games (i.e., massively multiplayer online role-playing games [MMORPGs]). Indeed, Yee (2006) demonstrated that there was a positive correlation between problematic usage of MMORPGs and two motivations to play: escapism, which was the best predictor (using the game to avoid thinking about real life problems) and advancement (the desire to gain power and to progress rapidly in the game). The desire to take on a new persona in HE poker could therefore be likened to the use of avatars in video games, which allows players to live another life through gaming. The avatar created in the video game could have the same function as the imaginary character in HE poker, that is, allowing the gamer to regain control over events on the one hand, and escaping real-life problems on the other hand. Indeed, a recent study on MMORPGs found that high urgency and motivation to play online for immersion (which includes the tendency to use the online environment to avoid thinking about real-life problems) were the only predictors for problematic use of MMORPGs. This desire to immerse oneself in a virtual world, especially when it is associated with negative mood states, has been cited in conjunction with low self-regulation abilities that underpin excessive use of video games (Billieux & Van der Linden, 2010). It would be interesting to explore the link between poker gamblers and MMORPG players in greater depth, especially predictors for problem gambling or playing. Although the role of the avatar has often been studied in the context of problematic video game use, to our knowledge, the role of the avatar or persona in poker has never been studied. A specific study about the importance and role of the avatar used would be particularly relevant in a comparison between MMORPGs and HE poker. In the case of HE poker, the definition of an avatar should not be restricted to the online avatar of online poker, but should be extended to include the persona created for live poker as well (i.e., the role played by the player when in a poker situation).

Limitations

This study has several limitations, especially the small size of the sample. Making quantitative comparisons between two groups, with a total of 16 players, would have no validity. However, because the study is qualitative first and foremost, it should shed light on the gamblers' perceptions about HE and related problems, although it makes no claim to be representative of the population of HE gamblers as a whole.

Another limitation of the study is that the sample consisted only of men. However, men do account for the vast majority of poker players, with over 86% of the poker

players in the study conducted by Wood et al. (2007) being male, for example. In our small sample, we sought to keep the groups as homogeneous as possible.

The naïve perspective adopted to explore skills, although bringing objectivity to the study, should also be mentioned as a limitation. Indeed, it is possible that some of our observations or interview questions missed some of the nuances of the game that a regular player would have noticed. However, although this naïve perspective must be acknowledged as a derivation from the standards in qualitative research, it should be understood in this particular context as a desire not to have any a priori views about the expected results rather than a lack of knowledge about the poker field.

Finally, some data that may have had an influence on decision making during the gambling session were not collected. In particular, the variants of HE poker (limit/ no-limit) played during the gambling session were not reported. One might argue that the limit and no-limit variants require different decision-making processes and could influence the participant's comments about his play. Moreover, although social interactions with other players during the gambling session were observed and collected as additional data to be analyzed, the interactions between the player and the interviewer during the interview or observation were not specifically explored. It could be hypothesized that these kinds of interactions, especially the fact that the participant was asked to describe his play, could also have an influence on decision making during the gambling session.

Conclusions

One of the first conclusions we can draw is that we must be very careful in the way we attempt to classify poker within the field of gambling. Although HE does fall under the overall category of gambling (i.e., playing games involving the chance to win money), it is important to recognize the involvement of skill and therefore to consider poker separately. Although it shares a number of characteristics with other gambling activities, in particular with regard to gambling-related problems, it also carries a number of specificities that need to be taken into account when looking at preventive measures and treatment. Beyond the specifics of poker itself, it is important to remember that the Internet is a privileged medium for poker playing and in itself represents a heightened risk for gambling addiction (Griffiths, Wardle, Orford, Sproston, & Erens, 2009).

Furthermore, we can say that although social players and problem gamblers have different profiles, they are all convinced of the importance of strategy in poker and of the often limited consequences in terms of financial losses. A tailored attitude should be adopted to deal with such players, one that does not rely too much on actions that are used for other gambling activities (in particular a discourse that is too heavily focused on the role of chance). It seems that in the case of problem poker gamblers, talking about the damaging effects in terms of the time spent playing rather than the money lost would be more effective. Similarly, it seems that we

should put more emphasis on the fact that even playing very skillfully can lead to losses in the long term (Shead et al., 2008). Our prevention, treatment, screening, and diagnostic tools must therefore be adapted to this specific population of gamblers.

In conclusion, this study has allowed us to pinpoint some areas of research pertaining to poker. For example, motivations for playing and self-regulation difficulties do appear to have a central role in the development of excessive poker behaviours. Although the motivations for gambling have often been explored in studies on gambling in general, the desire to take on another persona through gambling is often ignored, despite the fact that this seems to be a particularly important motivational factor, especially in poker. A potential avenue for future research would be the exploration of the desire to take on a new persona as a new motivational factor behind playing HE and as a factor in the maintenance of gambling-related problems in HE poker. It could be particularly interesting to explore this motivation with reference to the LOC theory (the desire to take on a new persona to gain control over events).

Finally, one of our aims in this work was to leave behind any preconceptions about the type of skill involved in poker so as to explore the question of skills in a more objective manner. In the future, we would like to test how these skills operate in reality and in particular the underlying cognitive performances, by using an experimental cognitive procedure.

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References

Ades, J., & Lejoyeux, M. (2000). Jeu pathologique [Pathological gambling]. *EMC Psychiatrie, 37-396-A-25*.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Bardin, L. (2007). *L'analyse de contenu* [Content analysis]. Paris, France: Presses Universitaires de France (PUF).

Billieux, J., & Van der Linden, M. (2010). Addictions et mécanisms d'autorégulation: Pour une approche multifactorielle et dynamique [Addictions and self-regulation mechanisms: For a dynamic and multifaceted approach]. *Psychotropes*, *16*, 45–56. doi:10.3917/psyt.161.0045

Bjerg, O. (2010). Problem gambling in poker: money, rationality and control in a skill-based social game. *International Gambling Studies*, *10*(3), 239–254. doi: 10.1080/14459795.2010.520330

Boutin, C. (2010). *Le jeu: chance ou stratégie? Choisir librement la place du jeu dans votre vie* [Gambling: luck or strategy? Freely choose the place the gambling in your life]. Montréal, QC: Les Editions de l'Homme ed.

Chevalier, S., Hamel, D., Ladouceur, R., Jacques, C., Allard, D., & Sevigny, S. (2004). *Comportements de jeu et jeu pathologique selon le type de jeu au Québec en 2002* [Gambling behavior and pathological gambling according to the type of game in Quebec in 2002]. Montréal, QC: Institut National de Santé Publique du Québec et Université Laval.

Dedonno, M. A., & Detterman, D. K. (2008). Poker is a skill. *Gaming Law Review*, *12*, 31–36. doi:10.1089/glr.2008.12105

Griffiths, M., Wardle, H., Orford, J., Sproston, K., & Erens, B. (2009). Sociodemographic correlates of Internet gambling: Findings from the 2007 British Gambling Prevalence Survey. *CyberPsychology & Behavior*, *12*, 199–202. doi:10.1089/cpb.2008.0196

Hopley, A., Dempsey, K., & Nicki, R. (2011). Texas Hold'em Online Poker: a further examination. *International Journal of Mental Health and Addiction*, published online 27 August 2011. doi: 10.1007/s11469-011-9353-2

Ladouceur, R., Jacques, C., Chevalier, S., Sevigny, S., & Hamel, D. (2005). Prevalence of pathological gambling in Quebec in 2002. *Canadian Journal of Psychiatry*, *50*, 451–456.

Laplante, D. A., Kleschinsky, J. H., Labrie, R. A., Nelson, S. E., & Shaffer, H. J. (2009). Sitting at the virtual poker table: A prospective epidemiological study of actual Internet poker gambling behavior. *Computers in Human Behavior*, *25*, 711–717. doi:10.1016/j.chb.2008.12.027

National Institute of Health and Medical Research. (2008). *Jeux de hasard et d'argent. Contextes et addictions* [Gambling. Contexts and addictions]. Paris, France: Author.

McCormack, A., & Griffiths, M. (2011). What differentiates professional poker players from recreational poker players? A qualitative interview study. *International Journal of Mental Health and Addiction*, doi: 10.1007/s11469-011-9312-y

Mitrovic, D. V., & Brown, J. (2009). Poker mania and problem gambling: A study of distorted cognitions, motivation and alexithymia. *Journal of Gambling Studies*, *25*, 489–502. doi:10.1007/s10899-009-9140-1

Parke, A., Griffiths, M., & Parke, J. (2005). Can playing poker be good for you? Poker as a transferable skill. *Journal of Gambling Issues*, *14*. doi:10.4309/jgi.2005.14.12

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd rev. ed.). Thousand Oaks (California), USA: Sage.

Petry, N. M., Stinson, F. S., & Grant, B. F. (2005). Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry*, *66*, 564–574.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological monographs*, *80*(1), 1–28.

Sevigny, S., Ladouceur, R., Dufour, J., & Lalande, D. (2008). *Poker par Internet: le résultat dépend-il principalement du hasard?* [Poker on the Internet: is the result depending mainly on the chance?]. Paper presented at the 76e congrès de l'ACFAS, Québec, QC.

Shead, N. W., Hodgins, D. C., & Scharf, D. (2008). Differences between poker players and non-poker-playing gamblers. *International Gambling Studies*, *8*, 167–178. doi:10.1080/14459790802139991

Siler, K. (2009). Social and psychological challenges of poker. *Journal of Gambling Studies*, *26*, 401–420. doi:10.1007/s10899-009-9168-2

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research techniques and procedures for developing grounded theory* (2nd ed.). London, UK: Sage.

Suler, J. (2004). The online disinhibition effect. *CyberPsychology & Behavior*, *7*(3), 321–326. doi: 10.1089/1094931041291295

Toneatto, T. (1999). Cognitive psychopathology of problem gambling. *Substance Use & Misuse*, *34*, 1593–1604. doi:10.3109/10826089909039417

Toneatto, T., & Millar, G. (2004). Assessing and treating problem gambling: Empirical status and promising trends. *Canadian Journal of Psychiatry*, *49*, 517–525.

Turner, N. E., & Fritz, B. (2001). The effect of skilled gamblers on the success of less skilled gamblers. *Journal of Gambling Issues*, *5*. doi:10.4309/jgi.2001.5.10

Wood, R. T., Griffiths, M. D., & Parke, J. (2007). Acquisition, development, and maintenance of online poker playing in a student sample. *CyberPsychology & Behavior*, *10*, 354–361. doi:10.1089/cpb.2006.9944

Yee, N. (2006). Motivations for play in online games. *Cyberpsychology & behavior*, *9*(6), 772–775. doi: 10.1089/cpb.2006.9.772

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