

The Effect of Personal-Situational Locus of Control on the Amount of Betting in a Private University

Ramasamy, S. *, Calvin, C. S. K., Sii, H. E., Chan, H. S. and Tan, Y. S.

UCSI University, No.1, Jalan Menara Gading, Taman Connaught, 56000, Kuala Lumpur, Malaysia

ABSTRACT

This research employed an experimental design to study the issue of gambling to determine the main and interaction effects of Rotter's personal locus of control and situational locus of control on the amount of betting in a simulated blackjack card game. A total number of 53 undergraduates from a private university in Kuala Lumpur participated in this research. A two-way factorial ANOVA was employed and showed no significant main effects of personal and situational locus of control on the amount of betting. The findings also suggested no significant interaction effect between both measures. With current statistics showing an increase in the number of gamblers, especially among youths in Malaysia, the findings of this research could provide insights into the possible factors contributing to gambling behaviour despite the non-significant effects of personal and situational locus of control.

Keywords: Betting, blackjack card, gambling, locus of control, personal locus of control, situational locus of control

INTRODUCTION

Gambling is defined as the wagering of items of significant value, either money or belongings, upon an outcome determined by probabilities (Rickwood, Blaszczyński, Delfabbro, Dowling & Heading, 2010). Gambling activities such as poker, lottery, slot machines, scratch cards, roulette, blackjack, bingo, sports betting and online gambling all share one commonality, which is that they can lead to losses for the players (Rickwood et al., 2010). Losses may trigger

ARTICLE INFO

Article history:

Received: 30 September 2015

Accepted: 8 August 2016

E-mail addresses:

rshamala3012@gmail.com, r_shamla@yahoo.com (Ramasamy, S.),

calvinchan1993@hotmail.com (Calvin, C. S. K.),

ee_166@hotmail.com (Sii, H. E.),

chan.hs@hotmail.com (Chan, H. S.),

hallo.shing@gmail.com (Tan, Y. S.)

* Corresponding author

those who participate in gambling activities to indulge even more in such activities to regain money lost; this pattern of behavior can eventually develop into gambling addiction.

Gambling addiction, which is termed as gambling disorder in the *Diagnostic and Statistical Manual of Mental Disorders 5*, is classified under the category of non-substance-related disorders. Gambling disorder highlights the severity of its negative consequences, which include physiological and psychological disorder (Australian Psychological Association [APS], 2010; Reilly & Smith, 2013). Heavy gamblers tend to suffer from hypertension, lack of sleep, heart problems, peptic ulcers, mood disorders, neuroticism, illusion of control, suicidal thoughts, substance abuse, stress guiltiness, indignity, deception and weakened decision-making ability and lower life satisfaction (Blaszczynski & Nower, 2002; Griffiths, 2003; Fong, 2005; Taormina, 2009). Additionally, gambling disorders also bring adverse effects to society such as higher rate of crime, lower work productivity and impaired interpersonal relationships.

According to Blinn-Pike, Worth and Jonkman (2010), adolescent participation in gambling activities across the world vary from 44% to 80%. In Malaysia, therefore, the Ministry of Health and Non-Governmental Organizations (NGOs) have shown concern for the negative consequences of gambling. The Gamblers Rehab Centre Malaysia (GRC) has found that 89% of 5,000 secondary students have

gambled, 45% of them had financial issues and 36% have experienced disruption of their studies due to gambling (Lee, 2014). Rising numbers of Malaysian youths engaging in online gambling and increasing incidences of secondary school students receiving sports bets in school (Yuen, 2013) have also been reported.

As Malaysian young adults embark on employment, most of them begin to acquire high financial commitments. If they are engaging in gambling activities, the losses from these activities are likely to pile on them will only amplify the financial strain they are experiencing and this may press them to resort to borrowing money from loan sharks or to commit theft or fraud. Such a constrained situation may hinder personal, family and employment relationships and induce psychological conditions such as depression and suicide (Reith, 2006).

The main aim of this research was to determine the factors i.e. external or internal locus of control, that may influence young gamblers in the amount of money they spend on gambling activities and also to determine whether they believed in luck or skill (situational locus of control) as the drive that provoked them to gamble.

It is believed that this study will serve to benefit young adult gamblers in comprehending the types of attributional styles and situational locus of control that could propel them towards heavy gambling. This study can also act as a guide for mental health professionals in generating support for gamblers possessing different spectra of locus of control. The Ministry of Health and

NGOs may also, hopefully, intervene in the psychological concerns of young gamblers by building on the results of this study in order to curb gambling activities.

Gambling

Gambling has existed as early as 4000BC and has been practised around the world from then right up to today (Segal, Smith & Robinson, 2007; Ferentzyn & Turner, 2013). Psychologists have tried to explain the factors behind gamblers' motivation from various perspectives. In the perspective of behaviourism, gambling is viewed as a process of learning and reinforcement that can be conditioned, as gamblers associate intrinsic and extrinsic rewards with gambling and experience negative reinforcement from escaping emotional pain and stress (Smith, Hodgins, & Williams, 2007).

From the cognitive perspective, gamblers hold superstitions to rationalise their wins or losses from games (Smith et al., 2007). Distorted cognition, poor decision-making and persistent irrational beliefs reinforce gambling behaviour as gamblers are capable of finding meaning in random events to justify the outcomes of their games (Blaszczynski & Nower, 2002; Smith, et al., 2007).

Studies have found different sources of motivation for gambling including entertainment, desire for winning money, stress relief and sensation seeking (Coventry & Brown, 1993; Zangeneh et al., 2008; Fortune & Goodie, 2010; Centre for Addiction and Mental Health [CAMH], 2012). Previous studies have revealed no

statistical significant results between locus of control and gambling behaviour (Zhou, Tang, Sun, Huang, Rao, Liang & Li, 2011). However, studies have shown an association between perceived control (i.e. belief in luck or illusion of control and belief in skill) and gambling frequency (Moore & Ohtsuka, 1999; Joukhador, Blaszczynski, & Maccallum, 2004; Zhou et al., 2011). Zhou et al. discovered that belief in luck predicts gambling frequency in baccarat and lottery, whereas belief in skill predicts gambling frequency in stud poker. There are also studies that investigate the congruency between personal and situational locus of control and its effect on risk-taking with regards to the amount of money spent on betting (Lefcourt, 1965; Karabenick & Addy, 1979).

Locus of Control

Despite the anticipation of long-term losses, many individuals continue to gamble because of the expectation of winning. An explanation for why people continue to gamble is that they may have positive expectations about their ability to influence outcomes, and this is related to their locus of control.

Locus of control, developed by Rotter, is divided into internal and external and refers to the general expectancy that individuals hold for the outcome of an event, and which guides their future attitudes and behaviour that are included as an aspect of their personality (Rotter & Mulry, 1965; Rotter, 1966; Neill, 2006). Locus of control reflects the degree of control that individuals

perceive towards life events (Wolfe, 2011). There are two spectra assumed in this theory, the internal and external locus of control; individuals fall somewhere in between the two spectra (Lefcourt, 2014). Those who rely on an internal locus of control attribute outcomes to internal factors (e. g. ability or skill), whereas those whose locus of control is external attribute outcomes to external factors (e. g. fate and luck) (Moore & Ohtsuka, 1999; Wolfe, 2011; Wise, 2014). Internal and external locus of control have their influence in latent learning performance such as verbal conditioning tasks (Getter, 1966), achievement-related activities (Lefcourt, 1966; Julian & Katz, 1968) and risk taking (Liverant & Scodel, 1960; Lefcourt, 1966).

Since gambling involves both achievement-related and risk-taking behaviour, it can be investigated using the construct of internal versus external locus of control. Gamblers with a high internal locus of control ('internals') would attribute the outcome of gambling to personal skill. Gamblers who believe that they have competitive skills in a particular gambling area may gamble more frequently. Gamblers who have a high external locus of control ('externals') believe that the outcome of the gambling activity is determined by chance, and may indulge in more gambling when they believe that luck favours them.

Rotter used locus of control to assess individual differences, but later pointed out that increment and decrement in expectancy towards outcomes vary systematically (Rotter & Mulry, 1965). This variation

depends not only on the consistent characteristics of the individual, but also on the nature of the situation. According to Rotter and Mulry (1965), externals are more concerned about their performance and the outcome when luck is involved in a task, whereas internals are more concerned about their performance and outcome when skill is the determinant of the task. Karabenick and Addy (1979) supported Rotter's idea, claiming that locus of control is both a personality and situational dimension.

The concept of locus of control has been expanded to include being situation-specific; this is known as situational locus of control (Scrull & Karabenick, 1975). Researchers have noted that locus of control is the result of interaction between an individual's disposition and the environment (Karabenick & Addy, 1979; Mearns, 2014). Congruency occurs when the individual's personal locus of control is similar to environmental factors, leading to better individual performance (Rotter & Mulry, 1965; Scrull & Karabenick, 1975; Karabenick & Addy, 1979).

There are many different types of gambling game; some are skill-based, such as sport betting, whereas others are luck-based, such as slot machine games (APS, 2010). In gambling situations, congruency between personal and situational locus of control occurs when internals participate in gambling games that are determined by skill, whereas externals participate in gambling games that are determined by chance; this leads to better gambling performance (Zhou et al., 2011).

Rotter and Mulry (1965), using an angle-matching task, investigated the effect of personal-situational control congruency on the value placed upon the task outcome (i.e. length of decision-making time). There was a statistically significant interaction between internal-external control and chance versus skill instructions (Rotter & Mulry, 1965). Internals placed more emphasis on their performance when believing that skill was involved in the task, whereas externals placed greater emphasis on their performance when believing that chance was involved.

Karabenick and Addy (1979) conducted an experiment using different tasks to represent different situational parameters (i.e. puzzle for skill condition or random number guessing for chance condition). This experiment was well-designed as participants were given the option to choose the tasks with different difficulty levels across 10 trials. From the result yielded, Karabenick and Addy (1979) proposed that individuals tended to put greater emphasis on accomplishments when there was congruency between person-situational locus of control. Internals tended to have moderate risk-taking in skill conditions and low risk-taking in chance conditions, whereas externals had lower risk-taking in skill conditions but higher risk-taking in chance situations. Nevertheless, there have been contradicting results as some researchers discovered that internals exposed to skill situation displayed lower risk-taking behaviour in a betting game, which involved dice throwing

(Lefcourt, 1965; Lefcourt & Ladwig, 1965). To explain these findings, the researchers argued that internals were more sensible in setting their goals. Externals exposed to chance situations were also more careful in making choices and shifts in decisions; hence portrayed low risk-taking behaviour (Lefcourt, 1965; Lefcourt & Ladwig, 1965). Different risk-taking behaviours may be due to different outcome expectancies, as high risk takers were concerned about the performance level while low risk takers were concerned about the success or failure in the tasks.

A study conducted by Stadelhofen, Aufrere, Besson and Rossier (2008) found that locus of control tends to affect the severity of gambling. Internals have lower severity of gambling while externals have higher severity of gambling.

In terms of risk-taking, the study by Liverant and Scodel (1960) used a dice betting game and found that internals placed higher bets on the safest categories rather than the riskiest ones. Comparatively, externals were less likely to place more bets on the safest categories. Another study by Strickland, Lewicki and Katz (1966) found opposing results, whereby externals placed in chance tasks preferred bets that gave them a higher probability of winning and preferred having more variability in their selection of bets.

Since gambling is associated with the expectation of learning, which is influenced by the locus of control, there could be an interaction between personal and situational locus of control that affects gambling

behaviour. Therefore, this study aimed to investigate how personal and situational locus of control could affect risk-taking measured by the amount of betting in a gambling activity.

OBJECTIVE AND METHOD

This research aimed to determine the main effect of personal and situational locus of control on gamblers' amount of betting as well as the interaction effect between person-situational locus of control in affecting risk-taking behaviour i.e. amount of money spent in betting.

An experimental research design was employed in this study. Two-way factorial ANOVA was conducted by using IBM SPSS Statistics Version 20 to analyse the data collected and generate related statistical results.

Materials

Rotter's Internal-External Locus of Control Scale was used as the main instrument to identify the participants' locus of control before proceeding with the experiment. The scale has been validated across several studies, and shows moderate internal consistency ranging from 0.65 to 0.79 and a maximum test-retest reliability of 0.83 (Rotter, 1966).

Studies conducted in Malaysia that utilised Rotter's Internal-External Locus of Control Scale have reported low-to-moderate reliability, with $\alpha = 0.44$ (Alias, Akasah, & Kesot, 2012) and $\alpha = 0.53$ (Lashari, Alias, Kesot, & Akasah, 2014).

The scale has been used in more than 43 countries. Average reliability is $\alpha = 0.85$, indicating a reliable instrument with a strong tolerance for cultural differences (Alias et al., 2012).

Materials used in the experiment included a deck of 52 poker cards, tokens and cash vouchers. As blackjack is a game that involves both skill and chance (Lefcourt, 1965), it was chosen as the gambling activity for this study as it can be used to manipulate situational locus of control (skill or chance). Tokens were used to measure the amount of betting by the participants. Amount of betting can be operationally defined as the cash to be placed for betting purposes and is measured using tokens. Ten tokens were given to each participant as their cash in hand. Tokens were held constant between two conditions. Due to ethical concerns, vouchers with different cash values instead of real cash were given as rewards.

Participants

Fifty-three participants from a private university in Kuala Lumpur were selected. The mean age was 22.4 years old. Random sampling was used in this study. As blackjack was the gambling activity, the first inclusion criterion was to ensure that the participants knew how to play blackjack and did not have religious prohibition towards gambling. For screening purposes, they were required to rate their familiarity with blackjack on a 5-point Likert scale, where 1 is 'very unfamiliar' and 5 is 'very familiar'. Only those who obtained the ratings of 3 and above were included.

Procedure

A total of 100 Rotter's Internal-External Locus of Control Scale was distributed inclusive of informed consent to ensure voluntary participation. Demographic data was also collected. Participants were screened based on the inclusion criteria; they were classified as internals or externals according to their score and were randomly assigned to either skill or chance group. Fifty-three participants were divided into four conditions according to their personal locus of control (internal and external) and the situational locus of control (skill and chance). Thirteen participants were placed in the internal-skill condition group, 16 participants in the internal-chance group, 13 participants in the external-skill group and 11 participants in the external-chance group. All four conditions presented normal distribution.

Prior to the experiment, participants were briefed on the procedures of the experiment as well as the rules of blackjack according to both conditions. However, the situational locus-of-control condition was manipulated by giving different information to the participants based on group membership. Participants in the skill condition group were deceived that blackjack was a game in which success depends entirely on skill, whereas in the chance condition, participants were told that blackjack is a game based entirely on chance or luck.

For each session, a group of four to six participants with both internal and external locus of control were included, together

with a dealer. This structure was used to simulate a real gambling environment, where gamblers do not necessarily possess the same locus of control.

Participants gambled for five rounds for each session in both conditions. For every round, each player was given 10 tokens, as a means of holding a variable constant. Participants could bet any amount of tokens with the limit of 10 tokens per round. The remaining tokens and the accumulated tokens gained or lost were kept by the participants. At the end of the experiment, participants exchanged the remaining tokens with the rewards and were debriefed about the objectives of the study.

Internal validity was enhanced by controlling extraneous variables, for example, the use of the same venue; in this case, the psychological lab was used for both conditions. The 'dealer' was the same confederate used in both conditions. No subject loss was found in this experiment.

Demographic Profile

Out of the 53 participants, 21 were males (39.6%) and 32 were females (60.4%). The number of males and females in the experiment was collected based on the ratio of 40:60 male and female graduates in the private university. Twenty-nine participants had internal locus of control (54.7%) while 24 possessed external locus of control (45.3%). For nature of the game, 26 participants were placed in the skill group (49.1%), while 27 participants were placed in the chance group (50.9%).

RESULTS

Table 1 shows the descriptive statistics for personal-situational locus of control, whether skill or chance based.

Factorial ANOVA was carried out to determine the main effect of personal locus of control (internal and external) on the amount of betting. The α level was set to be 0.05. Levene’s test for equality of variances showed no significant difference between the three groups’ variance, $F(3,49)=1.76$, $p=0.168$. Therefore, the assumption of homogeneity of variance was met. Analysis of the variance test revealed that there was no significant main effect of personal locus of control on the amount of betting among young adults, $F(1,49)=1.97$, $p=0.169$. There was also no significant main effect of situational locus of control (skill and chance) on the amount of betting, $F(1,49)=3.03$, $p=0.088$.

This study tested for an interaction effect between personal and situational locus of control on the amount of betting. There was no significant interaction effect between personal locus of control (internal and external) and situational locus of control (skill and chance) on the amount of betting, $F(1,49)=0.32$, $p=.575$.

DISCUSSION

The results showed that the main effect of personal locus of control on the amount of betting was consistent with previous research, whereby there was no significant difference between internal and external locus of control on problem gambling (Spratt et al., 2001; Clarke, 2004). However, one study did present opposing results, where problem gamblers scored higher in external locus of control (Ohtsuka & Hyam, 2003). Since problem gamblers in this study tended to bet with increasing amounts of money, it could be implied that externals tend to bet more than internals. In this study, it was found that there were no significant differences between internals and externals in the amount of betting. This inconsistent result might have emerged because the participants believed that blackjack was a game that involved more luck than skill. Since internals believe that they cannot control the game outcomes, they may have been influenced to simply place larger bets in order to try their luck (Ohtsuka & Hyam, 2003); hence, it could be implied that externals placed more bets than internals because problem gamblers tend to bet with increasing amounts of money. Yet, this

Table 1
Mean Score and Standard Deviation of Personal-Situational Locus of Control Scores (Internal/External-Skill/Chance)

		<i>n</i>	<i>M</i>	<i>SD</i>
Groups	Internal-skill	13	8.38	3.55
	Internal-chance	16	8.06	3.30
	External-skill	13	14.46	1.71
	External-chance	11	15.09	1.81

Note. *M*=mean, *SD*=standard deviation.

contrasted with the results of this study as no significant differences were found between internals and externals in the amount of betting.

The non-significant results could also be attributed to the differences in methodology. Ohtsuka and Hyam (2003) utilised self-report questionnaires that allowed participants to respond to items based on their own experience, interpreting the word 'gamble' to refer to any gambling games in which they were interested. However, in this study, only one type of gambling game (blackjack) was included. Given this singular selection, it is possible that not every participant was interested in blackjack. Therefore, some participants might have felt bored and may have placed the betting amount indifferently, just to finish the five rounds of the game.

Alternatively, the lack of attractiveness of the reinforcements to the participants might also have affected the results in this experiment. Since the tokens were not real money, and the participants were informed that no cash would be involved, they might not have been motivated to keep the tokens in order to exchange them for rewards. It is possible that some participants were not interested in the rewards; hence, they may have simply placed any betting amount to finish the game.

The results of this study also showed that the main effect of situational locus of control on amount of betting was statistically insignificant. In contrast to previous research using various games such as dice betting, puzzles, number guessing and card matching

(Liverant & Scodel, 1960; Rotter & Mulry, 1965; Schneider, 1968; Karabenick & Addy, 1979), findings confirming the concept of congruency in person-situation control combinations did not predict nor explain the results in the present study. Even though the participants were manipulated on situational locus of control, whereby they were briefed on the nature of blackjack (i.e. skill-based or chance-based), it did not influence the amount that they bet. The manipulation of the situational locus of control could have failed to generate the appropriate perceptions among the participants, resulting in the insignificant findings.

Data analysis also revealed that there was no significant interactional effect of personal and situational locus of control on the amount of betting. This finding implies that situational locus of control does not influence personal locus of control in terms of amount of betting. The non-significant results of the interactional effect between person-situational locus of control might also have been influenced by other variables. In the present study, the strength of expectancy towards winning the game, the relative attractiveness of rewards provided for the winners, as well as the capacity of satisfaction in the attainment of success in the game, were possible factors influencing the relationship between locus of control and the amount of betting. This study could be an insight into the betting behaviour of young adult gamblers in lieu of the fact that neither personal nor situational locus of control played any significant role on how much they bet.

It should be noted that the participants of this study were undergraduates from a private university. Hence, the results of this study may not be applicable to young adult gamblers as well as gamblers from other age groups. Secondly, only blackjack, the card game, was used in this study, implying that other gambling games may result in different findings. Thus, this study could be a reference base for further studies to determine the influence of personal and situational locus of control in other gambling activities among problem gamblers.

Therefore, it can be implied from this experiment, that if this kind of gambling behaviour continues, impairment of the mental health among the younger generation may persist. This study suggests that it is good practice for the Ministry of Health and NGOs to advocate harm reduction or harm minimisation to gamblers, especially young gamblers, regardless of personal or situational locus of control.

CONCLUSION

In conclusion, the amount of cash young adults placed when playing blackjack, the card game, was not influenced by either personal locus of control (internal and external locus of control) or situational locus of control (skill and chance conditions). In other words, in reference to the gamblers' attribution style i.e. possessing external or internal locus of control did not contribute to how much cash they placed on the betting table. Neither did the amount of betting influence their situation locus of control.

Whether gamblers in this study believed in skill in wagering or in pure luck did not affect the money that they placed as bets. In addition, there was no interaction between personal and situational locus of control in the amount of betting.

REFERENCES

- Alias, M., Akasah, Z. A., & Kesot, M. J. (2012). *Self-efficacy, locus of control and attitude among engineering students: Appreciating the role of affects in learning efforts*. Retrieved from https://www.academia.edu/2439950/Self_efficacy_Locus_of_Control_and_Attitude_among_Engineering_Students_Appreciating_the_Role_of_Affects_in_Learning_Efforts
- Australian Psychological Society [APS]. (2010, December). The psychology of gambling. *In Psych*, 32(6), 11–21. Retrieved 2014, May 28 from <http://www.psychology.org.au/assets/files/the-psychology-of-gambling.pdf>
- Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction*, 97, 487–499. Retrieved 2014, July 11 from <https://www.uv.es/~choliz/ModeloJuego.pdf>
- Blinn-Pike, L. Worth, S., & Jonkman, J. (2010). Adolescent gambling. A review of the emerging field of research. *Journal of Adolescence Health*, 47(3), 223–236.
- Centre for Addiction and Mental Health [CAMH]. (2012). *Problem gambling: The issues, the options*. Canada: Institute of Ontario.
- Clarke, D. (2004). Impulsiveness, locus of control, motivation and problem gambling. *Journal of Gambling Studies*, 20(4), 319–345.
- Coventry, K. R., & Brown, R. I. F. (1993). Sensation seeking, gambling and gambling addictions. *Addiction*, 88(4), 541–554. Retrieved 2014,

- July 4 from <http://www.kennycoveentry.org/pdfs/coventrybrown.pdf>
- Ferentzyn, P., & Turner, N. E. (2013). The history of gambling and its intersection with technology, religion, medical science, and metaphors. *The history of problem gambling* (pp. 5–28). New York: Springer.
- Fong, T. W. (2005). The biopsychosocial consequences of pathological gambling. *Psychiatry*, 2(3), 22–30. Retrieved 2014, June 18 from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3004711/>
- Fortune, E. E., & Goodie, A. S. (2010, September). The relationship between pathological gambling and sensation seeking: The role of subscale scores. *The Journal of Gambling Studies*, 26(3), 331–346.
- Griffiths, M. (2003). Problem gambling. *The Psychologist*, 16(11), 582–585. Retrieved 2014, June 21 from http://www.thepsychologist.org.uk/archive/archive_home.cfm/volumeI_D_16-editionID_100-ArticleID_622_getfile_getPDF/thepsychologist%5Cnov03gri.pdf
- Joukhador, J., Blaszczynski, A., & Maccallum, F. (2004). Superstitious beliefs in gambling among problem and non-problem gamblers: Preliminary data. *Journal of Gambling Studies*, 20(2), 171–180.
- Julian, J. W., & Katz, S. (1968). Internal versus external control and the value of reinforcement. *Journal of Personality and Social Psychology*, 8(1), 89–94.
- Karabenick, S., & Addy, M. M. (1979). Locus of control and sex differences in skill and chance risk-taking conditions. *The Journal of General Psychology*, 100(2), 215–228.
- Lashari, T. A., Alias, M., Kesot, M. J., & Akasah, Z. A. (2014). The effect of an integrated affective-cognitive teaching and learning approach on academic achievement, self-efficacy, locus of control and attitude towards engineering. *Journal of Technical Education and Training*, 6(11), 1–19. Retrieved from <http://penerbit.uthm.edu.my/ojs/index.php/JTET/article/viewFile/883/579>
- Lee, I. (2014, February 26). *Young students exposed to gambling*. *Free Malaysia Today*. Retrieved 2014, May 17 from <http://www.freemalaysiatoday.com/category/leisure/2014/02/26/the-gambling-problem/>
- Lefcourt, H. M. (1965). Risk taking in Negro and white adults. *Journal of Personality and Social Psychology*, 2(5), 765–770.
- Lefcourt, H. M. (1966). Internal versus external control of reinforcement: A review. *Psychological bulletin*, 65(4), 206.
- Lefcourt, H. M. (2014). *Locus of control: Current trend in theory and research* (2nd ed.). NY, USA: Psychology Press.
- Lefcourt, H. M., & Ladwig, G. W. (1965). The American Negro: A problem in expectancies. *Journal of Personality and Social Psychology*, 1(4), 377–380.
- Liverant, S., & Scodel, A. (1960). Internal and external control as determinants of decision making under conditions of risk. *Psychological Reports*, 7, 59–67.
- Moore, S. M., & Ohtsuka, K. (1999). Beliefs of control over gambling among young people, and their relation to problem gambling. *Psychology of Addictive Behaviors*, 13(4), 339–347. Retrieved 2014, June 12 from <http://vuir.vu.edu.au/361/1/control2.pdf>
- Neill, J. (2006). What is locus of control? Retrieved 2014, June 29 from <http://wilderdom.com/psychology/loc/LocusOfControlWhatIs.html>
- Ohtsuka, K., & Hyam, P. (2003). Internal and external attribution of success and failure in a gambling and non-gambling situation. Retrieved 2014, June 4 from <http://vuir.vu.edu.au/257/1/OhtsukaHyam%5B1%5D.pdf>

- Reith, G. (2006). The social impacts of gambling. In *Research on the social impacts of gambling* (pp. 42–63). Edinburgh: Crown.
- Rickwood, D., Blaszczynski, A., Delfabbro, P., Dowling, N., & Heading, K. (2010). *The psychology of gambling*. Retrieved 2014, May 18 from <https://www.psychology.org.au/Assets/Files/APS-Gambling-Paper-2010.pdf>
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 80(1), 1–28.
- Rotter, J. B., & Mulry, R. C. (1965). Internal versus external control of reinforcement and decision time. *Journal of Personality and Social Psychology*, 2(4), 598–604.
- Schneider, J. M. (1968). Skill versus chance activity preference and locus of control. *Journal of Consulting and Clinical Psychology*, 32(3), 333–337.
- Scroll, T. K., & Karabenick, S. A. (1975). Effects of personality-situation locus of control congruence. *Journal of Personality and Social Psychology*, 32(4), 617–628.
- Segal, J., Smith, M., & Robinson, L. (2013). *Gambling addiction & problem gambling*. Retrieved 2014, June 3 from http://www.helpguide.org/mental/gambling_addiction.php
- Smith, G., Hodgins, D. C., & Williams, R. J. (2007). *Research and measurement issues in gambling studies*. California, CA: Elsevier.
- Sprott, D. E., Brumbaugh, A. M., & Miyazaki, A. D. (2001). Motivation and ability as predictors of play behavior in state-sponsored lotteries: An empirical assessment of psychological control. *Psychology & Marketing*, 18(9), 973–983.
- Stadelhofen, F. M., Aufrere, L., Besson, J., & Rossier, J. (2008). Somewhere between illusion of control and powerlessness: Trying to situate the pathological gambler's locus of control. *International Journal of Clinical and Health Psychology*, 9(1), 117–126. Retrieved 2014, July 2 from <http://www.redalyc.org/pdf/337/33712020008.pdf>
- Strickland, L. H., Lewicki, R. J., & Katz, A. M. (1966). Temporal orientation and perceived control as determinants of risk-taking. *Journal of Experimental Social Psychology*, 2(2), 143–151.
- Taormina, R. J. (2009). *Journal of Social and Personal Relationships*, 26(8), 1047–1071.
- Wise, M. (2014). *How the concept of control impacts the social world. Locus of control in our daily lives*. Retrieved 2014, June 13 from <http://www.units.miamioh.edu/psybersite/control/overview.shtml>
- Wolfe, J. F. (2011). The effects of perceived success or failure on locus of control orientation in college students. *Sentience*, 4, 11–16. Retrieved 2014, June 21 from https://www.psych.umn.edu/sentience/files/Wolfe_2011.pdf
- Yuen, M. K. (2013, May 29). Betting among youths more popular with rise of Internet casinos. *The Star Online*. Retrieved 2014, May 17 from <http://www.thestar.com.my/News/Nation/2012/06/11/Betting-among-youths-more-popular-with-rise-of-Internet-casinos/>
- Zangeneh, M., Blaszczynski, A., & Turner, N. E. (2008). Explaining why people gambling. *The pursuit of winning: Problem gambling theory, research and treatment* (pp.11–33). Toronto: Springer.
- Zhou, K., Tang, H., Sun, Y., Huang, G. H., Rao, L. L., Liang, Z. Y., & Li, S. (2011). Belief in luck or in skill: Which locks people into gambling? *Journal of Gambling Study*, 28(3), 379–391.