An online gambling intervention using the realization effect

Ke Zhang[1], Alex Imas[2], Luke Clark[1]

[1]Centre for Gambling Research, Department of Psychology, University of British Columbia, Vancouver, Canada
[2]Booth School of Business, University of Chicago, Chicago, USA

INTRODUCTION

Objective

- To design and evaluate a gambling intervention to reduce loss-chasing, as a 'responsible gambling' tool.
- Does **'cashing out'** reduce risk-seeking behaviour after losses in experienced gamblers?

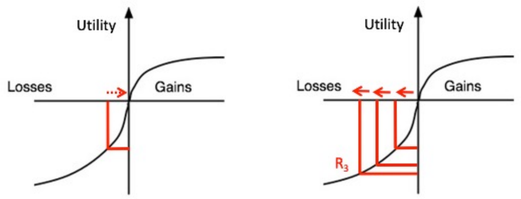
Background

Loss-chasing: the gambler continues betting in order to recover prior losses (e.g., increase bet size over the course of a losing session). It is a central clinical feature of disordered gambling (Zhang et al., 2020):

- At-risk gamblers: 50.7% are chasers
- Gamblers with problems: 75.9% are chasers (Toce-Gerstein et al., 2003).

When does loss-chasing occur?

According to Prospect Theory, increasing risk-seeking following losses could arise from a failure to 're-reference'. Successful re-referencing between successive decisions closes the mental account, and any losses are regarded as final or *realized*.



Re-reference: Success | *Re-reference: Failed*

How can chasing be stopped?

- Encouraging money exchange between (mental) accounts induces re-referencing and and reduce chasing losses, termed **the realization effect** (Imas, 2016; Merkel et al., 2021).
- In the gambling context, the process of cashing out (e.g. money transfer between gambler's wallet to the casino) is a natural driver of the realization effect (Flepp et al., 2021).

METHODS

Participants

	Gender	n
Non-problem	Female	118
	Male	109
At-risk	Female	123
	Male	116
Problem	Female	55
	Male	168

- Prolific participants in Canada and the US.
- Recruited from 2021 Nov 17 - Dec 17.
- Gambled at least once in the past 12 months.
- Median age was 31.
- Stratified by the Problem Gambling Severity Index.

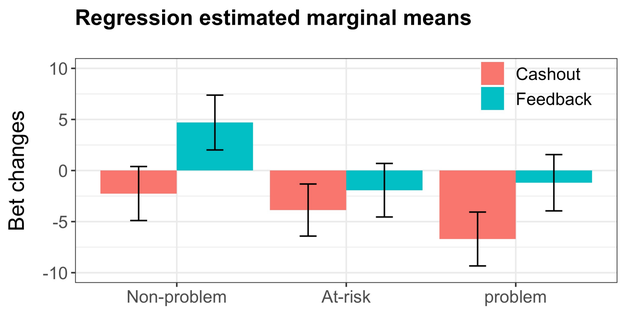
Procedure

Payoff	Probability		Payoff	Probability
Win 2.5 times your investment	1/3	OR	Lose all	2/3

- **Cash-out**: the participant cashed out from game 1 (e.g. '*PrimeMax*') and switch to game 2 ('*LottoLuck*') after the 3rd or 6th bet.
- **Feedback**: the participant received their account balance but did not switch games.

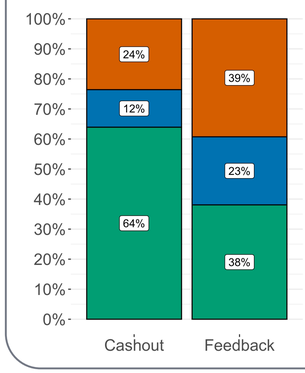
RESULTS

Did cash-out change loss-chasing?



- Non-problem gamblers bet significantly less after cashing out than after the feedback (B = -6.95, p = .020). Whereas the at-risk (B = -1.94, p = 0.5917) and the problem groups (B = -5.51, p = .207) did not differ significantly across the cash-out and the feedback conditions.
- Compared to non-problem gamblers, the cash-out effect did not different significantly in the at-risk (B = 5.00, p = .284) and the problem groups (B = 1.44, p = .785).

Did cash-out (vs. feedback) led to different degree of re-referencing?



What was the T6 balance?

- **Partial**: recalled > actual balance
- **Over**: recalled < actual balance
- **Fully**: recalled = actual balance

- More participants fully re-referenced after cashing out than the feedback ($\chi^2(2) = 45.77$, $p < .001$). This pattern was similar across gambling groups.
- Participants who over re-referenced (M = 5.55, SD = 24.35) *bet significantly* more than the fully (M = -3.16, SD = 29.809) and partially re-referenced groups (M = -4.35, SD = 27.74, $F(2, 680)$, p = .005).

CONCLUSION

- **'Cashing out'** between bets reduces risk-seeking behaviour after losses in non-problem gamblers, replicating the *realization effect* in the heathy samples (Imas, 2016). At-risk gamblers and gamblers with problems did not reduce loss chasing significantly after cashing out compared to after the feedback.
- Financial transactions ('cashing out') may be used as an online responsible gambling tool in non-problem gamblers. Our procedure shows some effectiveness even with digital and hypothetical cash transfers, although stronger manipulation may be needed in at-risk gamblers and people with gambling problems.
- Compared to the feedback condition, the cash-out condition induced were more more accurate in re-referencing, and the degree of re-referencing predicted reduced loss chasing. Thus, our new manipulation check indicates that successful re-referencing closes the mental account and reduces chasing, as predicted by the realization effect.

REFERENCES & DISCLOSURES

Toce-Gerstein, M., Gerstein, D. R., & Volberg, R. A. (2003). Addiction, 98(12), 1661-1672.

Imas, A. (2016). American Economic Review, 106(8), 2086-2109.

Zhang, K., & Clark, L. (2020). *Current Opinion in Behavioral Sciences*, *31*, 1-7.

Flepp, R., Meier, P., & Franck, E. (2021). *Organizational Behavior and Human Decision Processes*, *165*, 45-55.

Merkle, C., Müller-Dethard, J., & Weber, M. (2021). *Experimental Economics*, *24*(1), 303-329.

Ke Zhang holds the Graduate Fellowship in Gambling Research, a fellowship supported by the British Columbia Lottery Corporation (BCLC) and adjudicated by the UBC Faculty of Arts.

Luke Clark is the Director of the Centre for Gambling Research at UBC, which is supported by funding from the Province of British Columbia, Canada and the British Columbia Lottery Corporation (BCLC).

CONTACT

Ke Zhang: kezhang@psych.ubc.ca

Cash-out | **Feedback**

An online gambling intervention using the realization effect

Ke Zhang[1], Alex Imas[2], Luke Clark[1]

[1]Centre for Gambling Research, Department of Psychology, University of British Columbia, Vancouver, Canada
[2]Booth School of Business, University of Chicago, Chicago, USA

INTRODUCTION

Objective

- To design and evaluate a gambling intervention to reduce loss-chasing, as a 'responsible gambling' tool.
- Does **'cashing out'** reduce risk-seeking behaviour after losses in experienced gamblers?

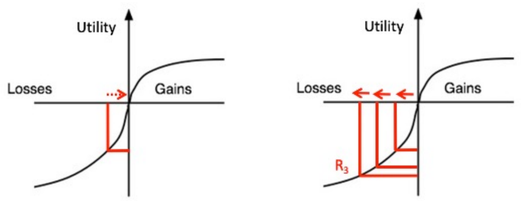
Background

Loss-chasing: the gambler continues betting in order to recover prior losses (e.g., increase bet size over the course of a losing session). It is a central clinical feature of disordered gambling (Zhang et al., 2020):

- At-risk gamblers: 50.7% are chasers
- Gamblers with problems: 75.9% are chasers (Toce-Gerstein et al., 2003).

When does loss-chasing occur?

According to Prospect Theory, increasing risk-seeking following losses could arise from a failure to 're-reference' and 'closes the associated mental account'. Successful re-referencing starts the next bet with a clean mental slate, any prior losses are regarded as final or *realized*.



Re-reference: Success | *Re-reference: Failed*

How can chasing be stopped?

- Encouraging money exchange between (mental) accounts induces re-referencing and and reduce chasing losses, termed **the realization effect** (Imas, 2016; Merkel et al., 2021).
- In the gambling context, the process of cashing out (e.g. money transfer between gambler's wallet to the casino) is a natural driver of the realization effect (Flepp et al., 2021).

METHODS

Participants

	Gender	n
Non-problem	Female	118
	Male	109
At-risk	Female	123
	Male	116
Problem	Female	55
	Male	168

- Prolific participants in Canada and the US.
- Recruited from 2021 Nov 17 - Dec 17.
- Gambled at least once in the past 12 months.
- Median age was 31.
- Stratified by the Problem Gambling Severity Index.

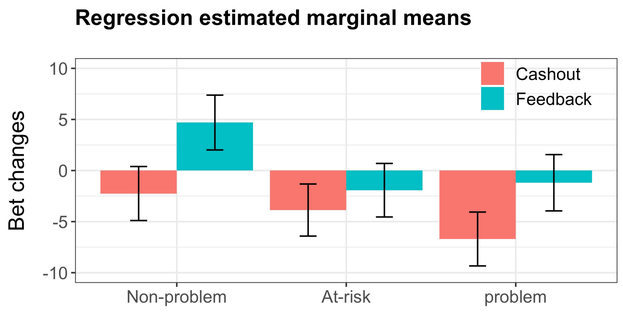
Procedure

Payoff	Probability		Payoff	Probability
Win 2.5 times your investment	1/3	OR	Lose all	2/3

- **Cash-out**: the participant cashed out from game 1 (e.g. '*PrimeMax*') and switch to game 2 ('*LottoLuck*') after the 6th bet.
- **Feedback**: the participant received their account balance but did not switch games.

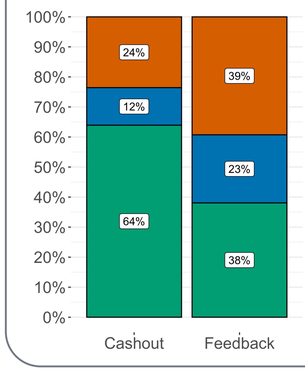
RESULTS

Did cash-out change loss-chasing?



- Non-problem gamblers bet significantly less after cashing out than after the feedback (B = -6.95, p = .020). Whereas the at-risk (B = -1.94, p = 0.5917) and the problem groups (B = -5.51, p = .207) did not differ significantly across the cash-out and the feedback conditions.
- Compared to non-problem gamblers, the cash-out effect did not different significantly in the at-risk (B = 5.00, p = .284) and the problem groups (B = 1.44, p = .785).

Did cash-out (vs. feedback) led to different degree of re-referencing?



What was the T6 balance?

- **Partial**: recalled > actual balance
- **Over**: recalled < actual balance
- **Fully**: recalled = actual balance

- More participants fully re-referenced after cashing out than the feedback ($\chi^2(2) = 45.77$, $p < .001$). This pattern was similar across gambling groups.
- Participants who over re-referenced (M = 5.55, SD = 24.35) *bet significantly* more than the fully (M = -3.16, SD = 29.809) and partially re-referenced groups (M = -4.35, SD = 27.74, $F(2, 680)$, p = .005).

CONCLUSION

- **'Cashing out'** between bets reduces risk-seeking behaviour after losses in non-problem gamblers, replicating the *realization effect* in the heathy samples (Imas, 2016). At-risk gamblers and gamblers with problems did not reduce loss chasing significantly after cashing out compared to after the feedback.
- Financial transactions ('cashing out') may be used as an online responsible gambling tool in non-problem gamblers. Our procedure shows some effectiveness even with digital and hypothetical cash transfers, although stronger manipulation may be needed in at-risk gamblers and people with gambling problems.
- Compared to the feedback condition, the cash-out condition induced were more more accurate in re-referencing, and the degree of re-referencing predicted reduced loss chasing. Thus, our new manipulation check indicates that successful re-referencing closes the mental account and reduces chasing, as predicted by the realization effect.

REFERENCES & DISCLOSURES

Toce-Gerstein, M., Gerstein, D. R., & Volberg, R. A. (2003). Addiction, 98(12), 1661-1672.

Imas, A. (2016). American Economic Review, 106(8), 2086-2109.

Zhang, K., & Clark, L. (2020). *Current Opinion in Behavioral Sciences*, *31*, 1-7.

Flepp, R., Meier, P., & Franck, E. (2021). *Organizational Behavior and Human Decision Processes*, *165*, 45-55.

Merkle, C., Müller-Dethard, J., & Weber, M. (2021). *Experimental Economics*, *24*(1), 303-329.

Ke Zhang holds the Graduate Fellowship in Gambling Research, a fellowship supported by the British Columbia Lottery Corporation (BCLC) and adjudicated by the UBC Faculty of Arts.

Luke Clark is the Director of the Centre for Gambling Research at UBC, which is supported by funding from the Province of British Columbia, Canada and the British Columbia Lottery Corporation (BCLC).

CONTACT

Ke Zhang: kezhang@psych.ubc.ca