



# 'It Doesn't Give Off the Gambling Vibes ... It Just Feels Like a Part of the Game': Adolescents' Experiences and Perceptions of Simulated Gambling While Growing Up

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## Abstract

This study explores the lived experience of simulated gambling as young people grow up. Qualitative research with 89 Australians aged 12–17 years explored their chronological experiences of simulated gambling and monetary gambling. Reflexive thematic narrative analysis identified common and contrasting themes amongst at-risk/problem gambling, non-problem gambling, and non-gambling participants. As young people grow up, they engage in simulated gambling more frequently, in more diverse settings, and on activities more akin to monetary gambling. Their motivations expand from valuing virtual prizes, to also valuing social benefits and opportunities to learn new gambling games, compete against other players and demonstrate skill. Simulated gambling becomes highly normalised from childhood and before young people realise its potential for gaming and gambling harm. Behavioural associations between simulated gambling and harmful gaming were evident, but those between simulated gambling and harmful monetary gambling were less clear. Restricting youth access to simulated gambling would help protect them from harm.

**Keywords** Simulated gambling · Gaming · Gambling · Gaming harm · Gambling harm · Adolescents · Qualitative methods

Simulated gambling games are digital games that include elements of gambling such as risk, chance, and reward, but do not offer real-world monetary prizes (Hing, Browne, et al., 2022a). In most countries, these games are not classified as gambling, nor subject to the same regulations or age restrictions. Minors can therefore legally access these activities. Approximately 40% of adolescents under the legal gambling age report past-year

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engagement in simulated gambling, most commonly involving (1) loot boxes, (2) games with mini gambling components, and (3) social casino games (González-Cabrera et al., 2022; Hayer et al., 2018; Hing, Browne, et al., 2022a). Loot boxes are in-game digital containers that contain a mystery item that gamers can purchase or win through in-game play (Drummond & Sauer, 2018; Rockloff et al., 2021; Zendle et al., 2019, 2020). These items can have functional, aesthetic, prestige, or material value, but prizes are not known in advance and are usually determined by chance. Games with mini gambling components, like wheel spinning, slots, and bingo, are secondary to the main game and provide opportunities to advance in the game and obtain in-game items or currency (Carran & Griffiths, 2015; Hayer et al., 2018; Hing, Browne, et al., 2022a). Social casino games directly replicate online gambling activities and can be accessed via apps, social networking sites, or as demo games on real-money gambling websites (Carran & Griffiths, 2015; Hing et al., 2023; King, 2018). Simulated gambling games allow players to win only in-game currency or virtual items, but some items (skins) can be sold or gambled on third-party websites as a form of currency with real-world value (Greer et al., 2019; Wardle, 2019). Players can also spend real money in games to purchase virtual credits to expedite continued play and to directly purchase loot boxes (Gibson et al., 2022; Kim et al., 2017; A. King et al., 2020; King & Delfabbro, 2020; Raneri et al., 2022; Zendle et al., 2020).

Most research into simulated gambling has been conducted with adults (usually 18+ years) and emerging adults (usually 16–24 years). This literature highlights positive associations of both gaming disorder and gambling disorder with engagement in loot box purchasing (Gibson et al., 2022; Raneri et al., 2022; Wardle & Zendle, 2021; Yokomitsu et al., 2021) and social casino games (Gainsbury et al., 2017; Li et al., 2020; Wohl et al., 2017). Furthermore, gamers with a gaming or gambling disorder are more likely to make and spend more on micro-transactions in simulated gambling, including on loot boxes and social casino games (Gibson et al., 2022; Kim et al., 2017; A. King et al., 2020; Raneri et al., 2022; Zendle & Cairns, 2019; Zendle et al., 2020). These micro-transactions are reportedly motivated by wanting game-play advantages, specific items and characters, fun and excitement, cosmetic enhancements, to support game developers, and to make a profit (Gibson et al., 2023; Nicklin et al., 2021; Puiras et al., 2023; Zendle et al., 2019).

Adolescent engagement in the three types of simulated gambling noted above is also associated with increased likelihood of disordered gaming, with the strongest effects found for social casino games and real-money expenditure on simulated gambling (González-Cabrera et al., 2022; Hing et al., 2023; Ide et al., 2021; Kristiansen & Severin, 2020). Adolescents who engage in any of these three simulated gambling forms also have a heightened risk of disordered gambling (Gainsbury et al., 2015; Hing et al., 2022b; Hing et al., 2022c; King et al., 2014; Rockloff et al., 2021; Veselka et al., 2018; Zendle et al., 2019). Again, the strongest effects have been found for social casino games and spending real money on these activities (Hing et al., 2022b; King et al., 2016). In contrast, adult studies tend to support a strong and clinically relevant association between loot box purchasing and disordered gaming and gambling (Garea et al., 2021; Gibson et al., 2022; Montiel et al., 2022; Raneri et al., 2022; Spicer et al., 2021; Yokomitsu et al., 2021). Two adolescent studies have also examined the use of skins acquired in digital games to gamble on esports and games of chance (Hing et al., 2021a; Wardle, 2019). Both studies found that adolescents who engage in skin gambling have higher rates of at-risk and problem gambling, but this association remained significant in only one study after controlling for engagement in other gambling forms (Hing et al., 2021a).

Both gaming and gambling disorders in adolescents are of concern because they can lead to decrements in well-being, and even non-clinical levels of impaired control

over these activities can diminish the health, relationships, finances, and school performance of adolescents, with legacy effects into adult life (Hing et al., 2022a). While causal relationships between simulated gambling, and harmful gaming and gambling, remain unclear, researchers have speculated on several features of simulated gambling that can nurture harmful psychosocial processes that may foster persistence, impaired control, real-money expenditure, erroneous gambling beliefs, and dependency (Armstrong et al., 2018; Carran & Griffiths, 2015; Hing et al., 2022a; Kim et al., 2017; King & Delfabbro, 2016, 2020; Yokomitsu et al., 2021; Zendle, 2020). These include the psychological attraction of acquiring items of monetary or prestige value, inflated odds of winning, randomised rewards of varying value, obfuscation of reward manipulation, monetisation, use of micro-transactions and virtual currency, and the normalisation and training that simulated gambling provides for real-world gambling.

At present, however, little in-depth knowledge exists about how children's and adolescents' experiences with simulated gambling games might change as they mature, and how their evolving experiences contribute over time to their gaming and gambling involvement. Quantitative longitudinal studies have found some migration from simulated to monetary gambling amongst adolescents (Australian Gambling Research Centre, 2022; Dussault et al., 2017; Hayer et al., 2018), but they provide few insights into how and why this occurs. Qualitative point-in-time research has illuminated young people's perceptions and experiences of simulated gambling. For example, in Carran and Griffiths' (2015) focus group study, UK students aged 14–19 made clear distinctions between simulated and monetary gambling, and did not display an inherent transition from one to the other, although a few students used demo games to practise for future gambling. In contrast, in a more recent focus group study (Rolando & Wardle, 2023), Italian gamers aged 14–17 years perceived in-game mechanisms including loot boxes and social casino games as gambling, even though real money could not be won, and that gaming posed similar risks of addiction as gambling.

To our knowledge, only one previous qualitative study has examined *changes over time* in adolescents' experiences of simulated gambling and its potential and evolving interrelationships with monetary gambling (Kristiansen et al., 2018). That study, conducted over three waves in Denmark, illuminated the meanings and motivations of young people engaged in simulated gambling, and how their related learning and socialisation experiences prepared them for monetary gambling. The current study extends on this line of research by providing insights into the experiences of Australian youth. It also offers more recent insights as Kristiansen et al. (2018) collected their data in 2011–2014. Since that time, simulated gambling has been further integrated into digital games and become increasingly monetised (Gibson et al., 2023; Johnson & Brock, 2020; King & Delfabbro, 2020; Raneri et al., 2022), with newer forms, such as loot boxes, now commonplace.

The present study aims to explore the lived experience of simulated gambling as young people grow up, including their behavioural trajectories and their perceptions of how simulated gambling relates to their gaming and gambling activities. It explores three main research questions: (1) How do the experiences of simulated gambling evolve amongst children and adolescents as they grow up?, (2) How do the perceptions of simulated gambling evolve amongst children and adolescents as they grow up?, and (3) How do adolescents perceive the role of simulated gambling in their gambling behaviour?

## Methods

This study (number 23445) was approved by the lead author's institutional ethics committee.

### Recruitment

Participants were aged 12–17 years and lived in New South Wales—60.6% in metropolitan areas and 39.4% in regional areas, with both types of locations potentially exposing adolescents to gambling and gambling advertising at suburban gaming machine venues, in betting outlets, and through traditional and digital media. All participants provided informed consent from themselves and their parent/guardian. To obtain a diverse sample, a screening process evaluated past-year gambling and problem gambling status. We administered the DSM-IV-MR-J (Fisher, 2000) to classify participants into non-problem, at-risk, or problem gambling categories, with the latter two groups combined for analysis. Participants were recruited over 12 weeks from March 2022, through three recruitment agencies and online advertising. Participants could participate in an individual interview or an online community.

### Data Collection

Forty-seven interviews were conducted online, each lasting around 45 min. These semi-structured interviews sought to understand the participants' experiences of simulated gambling and monetary gambling as they grew up, including exposure, attitudes, participation, motivations, facilitators, barriers, and impacts. The interviews took a chronological approach, starting from the participants' earliest memories of these activities during childhood and through their adolescence to the present. Participants were compensated with an AU\$60 shopping voucher.

Forty-seven participants completed the requisite five or more days of posting within online communities. Three 7-day online communities were conducted in April 2022. We used the Visions Live platform, which resembles a social media platform that allows participants to respond to activities, post comments, and interact with the moderators and other participants. Participants were asked to spend about 1 h each day completing questions, activities, and discussions that focused on the same topics and chronology as the interviews. Participants used the same anonymous avatar in all their responses, allowing us to assemble individual narratives. Compensation was up to AU\$140 in shopping vouchers, depending on the number of days they participated.

### Participants' Characteristics

The samples, detailed in Table 1, included slightly more females than males, and 34 scored in the at-risk/problem gambling category (ARPG), 41 in the non-problem gambling group (NPG), and 14 in the non-gambling group (NG). Five participants in the ARPG group participated in both an online community and interview. The samples were otherwise discrete.

**Table 1** Sample characteristics

		12–14 years		15–17 years			Total
		Male	Female	Male	Female	Other	
Interview	ARPG	4	4	5	4	1	18
	NPG	5	8	5	4	0	22
	NG	2	2	1	2	0	7
	Total	11	14	11	10	1	47
Online community	ARPG	3	6	6	5	1	21
	NPG	6	5	4	4	0	19
	NG	1	2	2	2	0	7
	Total	10	13	12	11	1	47
Total		21	27	23	21	2	94

## Analysis

The study used thematic narrative analysis to understand the participants' evolving simulated gambling experiences over time, and how they interpret its interrelationships with their gaming and monetary gambling involvement. This approach places the prominent themes derived from the participants' chronological stories within the overall sequence of events (Riessman, 2008; Rodriguez, 2016). We first grouped participants' accounts into the three groups (ARPG, NPG, NG) and created a temporal sequence of their simulated gambling experiences during childhood, early adolescence, and later adolescence.

We then used reflexive thematic analysis (Braun & Clarke, 2006, 2021) to identify common themes in the narratives both within and across each participant group. Braun and Clarke (2021) explain that reflexive thematic analysis involves the development of themes based on codes. These themes represent patterns of shared meaning that are supported by a central organising concept. Theme development requires significant analytical and interpretive work to bring together implicit or latent meaning in the data. Themes are generated through the researcher's engagement with the data, and influenced by their research values, skills, experience, and training. The coding process is flexible, unstructured, and necessarily subjective, allowing codes to evolve as the researcher's understanding deepens.

In the present study, after familiarisation with the data, the analysis process involved identifying relevant codes through open coding, and refining and grouping similar codes to generate broader themes. Major themes were driven by the research aim and questions and were therefore based on the main shared experiences apparent in each time period (childhood, early adolescence, later adolescence) and the participants' perceived associations between simulated gambling and gaming disorder, and simulated gambling and monetary gambling. Within each theme, several subthemes were generated and then refined from the coded data. For example, codes relating to 'enjoying the thrill of winning', 'acquiring skins', and 'obtaining rewards that could enhance in-game performance' were collapsed into the subtheme of 'enjoyment of simulated gambling'. This iterative process allowed the analysis to identify patterns in the data and present contrasting experiences where relevant.

The reflexive approach used is necessarily subjective and seeks to capture participants' interpretations of their experiences rather than an objectively accurate record of events. To enhance the trustworthiness of the research (Connelly, 2016), we collected data from

participants with lived experience, used mainly open-ended questions, and involved multiple researchers in the analytical stages. Data saturation was demonstrated, with no new themes emerging in the later interviews. Participants' quotes are used in the reporting to increase authenticity and are tagged by group (ARPG, NPG, NG), gender (male, female, other), age group in years (12–14, 15–17), and data collection method (IDI = interviews, OLC = online community).

## Results

Table 2 shows the themes and subthemes generated from the analysis, along with their approximate levels of endorsement.

### Simulated Gambling Is a Normal Part of Gaming During Childhood

#### Early Exposure to Simulated Gambling, Especially Loot Boxes, Mini Gambling Games, and In-Game Advertising

Most participants across all groups recalled engaging in video gaming from a young age and throughout childhood. Their gaming typically increased once they acquired their own digital device, often when aged 9 or 10. Participants were therefore exposed as young children to simulated gambling promotions and opportunities, since these features are embedded in many digital games that young people play.

I got a tablet ... about the age of eight ... off to the side [of the game] there'd be a roulette-style thing ... or a loot box-type thing. Usually, it was spending an in-game currency that you'd have to buy or you could watch ads [instead] ... which could end up with me wasting 4-5 hours watching ads in a day ... every third ad probably would be a gambling app. (#84, NPG, male, 15–17, IDI)

Childhood exposure to simulated gambling predominantly involved loot boxes, mini gambling games, and in-game advertising, and a few participants recalled spending in-game currency on mini gambling components such as wheel spinning, and on virtual casino games. Games with gambling components were easily accessible to children: 'there were heaps of them. It's so easy for kids to find these games' (#70, ARPG, female, 15–17, IDI).

#### Simulated Gambling Perceived as a Normal Part of Gaming and Not a Gambling-Like Activity

A consistent theme from childhood accounts was not perceiving simulated gambling as a gambling-like activity, but accepting these elements as a normal part of game-play, as 'part of the progression' (#78, NPG, male, 15–17, IDI). This reflects the participants' limited conceptual understanding of gambling at this age, but also the normalisation of these game features. Most participants reported being aware of many different gambling activities when they were a child, such as lotteries, scratch tickets, and casino games. However, most did not connect the chance element of gaining a reward of unknown value in simulated gambling with the mechanics used in monetary gambling.

**Table 2** Themes and subthemes

Themes and subthemes	Approximate endorsement*
<i>Theme 1. Simulated gambling is a normal part of gaming during childhood</i>	Most
Early exposure to simulated gambling, especially loot boxes, mini gambling games, and in-game advertising	Most
Simulated gambling perceived as a normal part of gaming and not a gambling-like activity	Most
Little parental guidance about simulated gambling	Most
Enjoyment of simulated gambling	Most
Only realised later that simulated gambling could groom children to gamble	Some
<i>Theme 2. Socialisation into simulated gambling in early adolescence</i>	Most
Increased engagement with simulated gambling as an intrinsic part of game-play	Most
Little perceived connection between simulated and real-money gambling	Most
Increased social rewards from simulated gambling	Most
From incidental to purposeful engagement with simulated gambling	Some
Spending real money on simulated gambling	Some
<i>Theme 3. Awareness during later adolescence about exploitation and harm from simulated gambling</i>	Most
Growing awareness of how simulated and monetary gambling differ	Most
Exploitative nature of simulated gambling	Most
Concerns that simulated gambling can lead to harmful gaming	Most
Concerns that simulated gambling can lead to monetary gambling	Most
<i>Theme 4. Symptoms of a gaming disorder associated with simulated gambling</i>	Some
Strong early attraction to simulated gambling	A few
Strong emotions from winning and losing	A few
Secrecy	A few
Chasing losses	A few
Emotional escape	A few
<i>Theme 5. Associations between simulated gambling and monetary gambling behaviour</i>	A few
Increased attraction to real-money gambling	A few
Excitement and erroneous beliefs	A few
Skin gambling	A few
Preferred monetary gambling over simulated gambling	A few

\*Descriptors: 'most' (50 or more participants), 'some' (20–49 participants), and 'a few' (fewer than 19 participants)

When you're a kid, you see a spinning wheel in a game and you don't immediately think, 'that's a gambling-like chance thing.' You see the spinning wheel in a game and think, 'random prize'. (#89, ARPG, other, 15–17, IDI)

### Little Parental Guidance About Simulated Gambling

Most participants reported little parental guidance that simulated gambling activities replicated gambling. While parents were said to limit the time and money their child spent on gaming, no additional restrictions applied to simulated gambling elements in games. Only

one participant recalled any parental concern: ‘It looked like a pokies machine. That’s why my mum was concerned with me playing it’ (#25, NG, female, 15–17, IDI).

### **Only Realised Later that Simulated Gambling Could Groom Children to Gamble**

It was only when reflecting on their childhood, once older, that some participants realised that simulated gambling could groom children to gamble in later life. One participant, who had been ‘obsessed with’ simulated gambling games when young, explained they could teach children how to gamble, demonstrate the fun aspects of gambling without any monetary risks, and be addictive.

Looking back on it, I’m like, ‘jeez, that was like bringing up kids to gamble’ ... children will find it fun ... ‘look my horse is winning’ ... when you’re a bit older, you’d be like, ‘I did this when I was a child,’ and then you’d kind of know what you’re doing ... you’re showing kids the good effects ... but you’re not showing where you’re actually losing money ... so many people play those games and start getting addicted at a young age. (#70, ARPG, female, 15–17, IDI)

### **Enjoyment of Simulated Gambling**

Participants invariably reported enjoying simulated gambling as a child because it provided a chance to experience the thrill of winning and the ability to win ‘cool’ skins and rewards that could improve competitive in-game performance. Simulated gambling could therefore have both hedonic and utilitarian value for children.

[It was] exciting, because when I’d win the golden car part it was like, ‘yes, I got it and now I can beat my brother even more in these games’. (#34, ARPG, male, 15-17, IDI)

I found that really fun ... It was the fact that you didn’t know what you were choosing and it’s just like the surprise. (#20, NPG, female, 12–14, IDI)

### **Socialisation into Simulated Gambling in Early Adolescence**

#### **Increased Engagement with Simulated Gambling as an Intrinsic Part of Game-Play**

Exposure to simulated gambling increased for most participants with more frequent gaming during early adolescence. Most participants reported they continued to enjoy the excitement and anticipation of being able to win in-game items and improve in-game performance: ‘It’s exciting not because I get to spin the wheel and get a random thing, but it’s like “this random thing could help me”’ (#89, ARPG, other, 15–17, IDI). The seamless integration of gambling elements could foster a perception that simulated gambling was not like gambling, but instead an intrinsic part of the game that players needed to engage with to continue playing or remain competitive.

In-game gambling is really well-disguised. It doesn’t look like a casino or some gaudy online poker simulation ... it doesn’t give off the gambling vibes ... it’s just like a function ... you just do it because – well, if you can improve your assets, then why not? It doesn’t really feel like gambling; it just feels like a part of the game. (#44, ARPG, female, 15–17, IDI)



## Little Perceived Connection Between Simulated and Real-Money Gambling

Most participants across all groups drew little connection between their simulated gambling and their attitude to real-money gambling during their early adolescence and saw the two activities as distinctly different. Only one participant reported being conscious that simulated gambling influenced her monetary gambling because wheel-spinning games distorted her beliefs about winning: ‘I thought it’s like that in real life where I can make heaps of money ... it was exciting and gave you a rush’ (#30, NPG, female, 12–14, IDI).

## Increased Social Rewards from Simulated Gambling

During early adolescence, gaming increasingly became a shared activity with friends. Most participants perceived that simulated gambling had social value, as it became a focal point for peer activities and discussion. Prizes from purchased loot boxes were compared in a competitive way: ‘if you get a good skin or something, that will cause someone to want to show off that item’ (#5, NG, male, 12–14, OLC). Having better in-game assets could increase in-group status, social cachet, and bragging rights, which could encourage persistence and expenditure for the chance to acquire prized items. One participant characterised his friend’s excessive loot box purchases as ‘a waste of money’, yet simultaneously expressed envy at the purchased skins, suggesting some cognitive dissonance about the costs and benefits of loot box purchases.

A lot of my friends have spent a lot of money on virtual games and always tell me like, ‘I just unboxed the blue hut and a knife,’ or something ... One friend spent like three grand on CS:GO skins; it’s crazy ... a waste of money, but then again I don’t have anywhere near as cool skins as he does, so I guess I’m kind of jealous. (#74, ARPG, male, 15–17, IDI)

## From Incidental to Purposeful Engagement with Simulated Gambling

During early adolescence, some participants transitioned from incidental engagement with simulated gambling during normal game-play to purposefully seeking it out. This could be motivated by wanting certain in-game items. One participant described spending in-game currency on FIFA packs to try to upgrade his players. Like a lucky dip, ‘you have a chance of getting a really good player, but you also have a really high chance of getting a really bad player’ (#22, NG, male, 12–14, IDI). Other participants transitioned from loot boxes to casino-style games. One participant described being attracted by the chance to earn in-game currency, the opportunity to play skill-based games where he could compete against other players, and the fun atmosphere that he felt emulated a real casino.

The video games I would play changed from loot box stuff to games where there were gambling mechanics ... Red Dead Redemption where there’s a mini game where you can play poker with other people ... it’s skill ... GTA [Grand Theft Auto] where there’s a whole casino you can go to and bet the in-game currency on lots of things; there’s a horseracing one, a few different card games, slot machines ... I’d do the slot machines because they had the biggest rewards... Sometimes it would make

me feel like I'm going to a real casino ... a very fun atmosphere ... everyone's winning ... like an amusement park almost. (#34, ARPG, male, 15–17, IDI)

### Spending Real Money on Simulated Gambling

These simulated experiences of real-world gambling further socialised some participants into gambling-like experiences. Some transitioned to spending real money to purchase in-game currency for simulated gambling, which further enhanced its similarity to monetary gambling. Like real gambling, this expenditure could be incentivised by rewards.

You have to pay real money to get GTA currency and you're going to go use that currency in the casino ... there was a reward if you went into the casino. So, every time ... I'd probably play a couple of slot machines. (#45, ARPG, male, 12–14, IDI)

### Awareness During Later Adolescence About Exploitation and Harm from Simulated Gambling

#### Growing Awareness of How Simulated and Monetary Gambling Differ

In later adolescence, most participants engaged in simulated gambling since it was embedded in the games they frequently played. However, a consistent theme across all participant groups was their growing awareness of how simulated and monetary gambling differed. Most participants now realised that simulated gambling outcomes were manipulated, unregulated, and more favourable compared to monetary gambling. Consequently, they reported that simulated gambling wins became less appealing, in contrast to gambling activities where skill could be applied.

Online games are based on random number generators that can be tweaked to make players play the game more to get the 'rare' items. Real-life cannot be tweaked in the same way and requires real skill to win card games. (#85, NPG, male, 15–17, OLC)

#### Exploitative Nature of Simulated Gambling

Most participants more critically considered the industry's profit motives for integrating simulated gambling elements into games, using manipulated wins to foster persistence, addiction, and expenditure. They increasingly considered it a waste to spend money on simulated gambling when they could win only virtual items. They also voiced frustration that most games are now pay-to-win and require real-money expenditure for any progress or worthwhile prizes. Furthermore, they typically resented that game developers exploited them and targeted them with prolific advertising: 'It's all about making money. Big companies don't care about protecting teenagers, so no rules or restrictions that I know of' (#60, ARPG, male, 15–17, OLC).

I don't mind getting prizes ... but the amount of these gambling things there are is ridiculous. The ads are endless and very enticing, using lots of colours and graphics of money or the prizes you'll win. Also, it being targeted at teens ... it gets them into these bad habits. (#16, NG, male, 15–17, OLC)

## Concerns that Simulated Gambling Can Lead to Harmful Gaming

Most participants shared concerns that simulated gambling can lead to harmful gaming. They took issue with the ‘addictive’ features of game design, even though the rewards were virtual: ‘Skins and tokens are addictive to young people in the same way as money’ (#87, ARPG, male, 15–17, OLC). They expressed cynicism about the gaming industry’s tactics to attract and exploit young people, particularly in relation to simulated gambling features.

Firstly, it is distributed as a game to young people, often for free. Designers of all these products know they are addictive ... Once they have their hooks in, they offer more, just out of reach. Money rather than effort takes over because you want what other kids have, and will beg, borrow and steal to get it. There is no laws or rules, as it’s not called ‘gambling’ just misspelt as ‘gaming’ (#88, ARPG, male, 15–17, OLC)

## Concerns that Simulated Gambling Can Lead to Monetary Gambling

Most participants from all groups expressed concern that simulated gambling could be a gateway to monetary gambling. The ‘easy’ simulated gambling wins gained without risk of monetary loss could instil false confidence that monetary gambling is fun, profitable, and harmless: ‘If they are winning with fake money on games, they think that they can win with real money’ (#85, NPG, male, 15–17, OLC); and ‘if they have played a game that has features like that...they might think gambling is fun and safe and positive’ (#65, ARPG, female, 12–14, OLC). Another concern was that, once they tired of virtual prizes, young people might engage in monetary gambling, ‘in hope they will actually win something’ (#14, NG, female, 15–17, OLC). Simulated gambling was also said to normalise gambling and teach young people how to gamble.

It’s literally like the same things but it’s not with real money, but it’s still putting this in kids’ minds where you’re teaching kids what to do; you’re basically just waiting until they get the money to spend it. (#70, ARPG, female, 15–17, IDI)

Nearly all participants in the NG and NPG groups insisted that their simulated gambling had not increased their interest in gambling, although they thought that other young people might be vulnerable. Associations between simulated gambling and monetary gambling in the ARPG group are discussed later.

## Symptoms of a Gaming Disorder Associated with Simulated Gambling

Some participants reported symptoms of a video gaming disorder in relation to their simulated gambling. All were in the ARPG group, although a few in the NPG group also described their excessive simulated gambling when younger. Importantly, not all those in the ARPG group engaged in frequent simulated gambling while growing up. Reported symptoms of a gaming disorder included persistence, loss-chasing, preoccupation, secrecy about their gaming, and gaming for emotional escape.

## Strong Early Attraction to Simulated Gambling

Symptoms of a video gaming disorder tended to develop following a strong early attraction to simulated gambling as one part of a few participants' overall gaming experiences. One participant recalled her instant excitement and being 'addicted to' gambling elements in games while in primary school (#70, ARPG, female, 15–17, IDI). Another recalled that his earliest gambling-related activities, when aged 10, were spending in-game currency in GTA's virtual casino.

I was curious so I tried it ... I put everything in and I lost a lot of money, because I didn't know the risk ... every time I lost, I tried to put more and more in until I could win something back, but I never won anything back ... Throughout the whole like 10 [years old] to now, it was always GTA with the casinos and the cards, the blackjack and poker, roulette, the slot machines. (#45, ARPG, male, 12–14, IDI)

## Strong Emotions from Winning and Losing

In this cohort, excessive behaviours were associated with strong emotions from both winning and losing. The hope of winning could encourage persistence with loot box purchasing and social casino games, and often involved real-money expenditure. One participant described her desire to keep playing and spending, reflecting insight that the activity was 'addictive'. She recalled the tension of being excited by the prospect of winning, yet simultaneously being deterred by the potential of further losses.

'Oh, maybe if I pay more, I might get another chance to win,' and then you want to keep going. It becomes addictive ... you just want to keep doing it and spend more money ... in my head I was like, 'But if I spend more, then I could win,' but then I was like, 'Yes, but if you spend more, you could lose again and then you'd be losing even more. So, is it worth the risk?' (#65, ARPG, female, 12–14, IDI)

A few participants recalled their excitement when seeing jackpots or credits accumulate, fuelling a sense of challenge and an eagerness to persevere. Escalating jackpots could foster preoccupation with a game: 'I'd want to play it all the time because ... the money's getting higher every time' (#70, ARPG, female, 15–17, IDI).

## Secrecy

One participant described how, during the COVID-19 lockdowns, he played excessively in GTA's virtual casino and kept this secret from his parents, presumably because they would not approve: 'I'd play all day, all night and get no sleep, without my parents knowing' (#39, ARPG, male, 12–14, IDI).

## Chasing Losses

A few participants in the ARPG group also described chasing losses in simulated gambling. This account of trying to recover losses suggests this participant was unable to

self-regulate his play, despite losing money. He was torn between chasing the thrill of winning and his awareness that continued play would risk more losses.

You get a lot of money, you get really excited, it's a thrill. But then, when you lose ... it makes you want to do it again to break even. And you say, 'if I can break even, I can keep getting more and more money,' and you keep and keep doing it. Then you just end up losing money. (#45, ARPG, male, 12–14, IDI)

## **Emotional Escape**

A few participants described using simulated gambling for emotional escape, as a coping mechanism. This participant described 'a traumatic experience and mental health issues which led to my gambling addiction' on social casino games that she played using real money. She described being initially drawn in by the promise of in-game currency, but later found it difficult to stop.

I was going through like a really, really, really rough time in my life so ... I used this game as an escapism for me ... but then I realised, 'oh, that's kind of a scam ... they want you to actually put in money.' And by then, I couldn't stop. Like, I felt like this game was an extension of me, and that gambling ... would help my real-life situation; would make me happy. Even though it hasn't. (#44, ARPG, female, 15–17, IDI)

## **Associations Between Simulated Gambling and Monetary Gambling Behaviour**

### **Increased Attraction to Real-Money Gambling**

A few participants in the ARPG group described specific ways in which their simulated gambling had increased their attraction to real-money gambling. One participant conveyed that his experiences in GTA's virtual casino instilled his perception of casinos as a place where everyone is having 'fun' and 'winning' in what looked like 'a big party' (#34, ARPG, male, 15–17, IDI). Another recounted how being able to practise different games in GTA had honed his gambling preferences and skills. This shaped his intentions to gamble on real-money card games where skill could be applied, which he felt optimised his control over gambling outcomes.

I've found interest in different types of gambling. So, blackjack; I really like that game. It's a game that I'll play when I'm older ... you get some fun out of it ... [because] you have the power ... if you put the wrong card down, it's your fault. But in the pokies, you press a button and it's the machine; it's not you who has the power. (#39, ARPG, male, 12–14, IDI)

### **Excitement and Erroneous Beliefs**

A few participants in the ARPG group recounted how the easy wins in social casino games fostered excitement and erroneous beliefs about the chances of winning. This created temptations to engage in monetary gambling and intentions to gamble when older: 'It gives you the rush at a young age ... look at me earning fake money ... when I'm older I can earn real money' (#70, ARPG, female, 15–17, IDI).

With the dummy games, a lot of the time you actually win ... you get boosted odds ... On some roulette table online ... I won every single time ... I had bet \$10,000 but obviously fake money ... I won 20 grand ... I was like, 'Shit, maybe I should bet. I reckon I'm getting a bit lucky'. (#74, ARPG, male, 15–17, IDI)

## Skin Gambling

About half of the ARPG group reported recent engagement in skin gambling, demonstrating another association between gaming and gambling. Several of these participants used skins acquired in games as currency to gamble on games of chance or to bet privately with friends. A few discussed their increasing desire to spend money on loot boxes to obtain better skins for gambling. One participant explained: 'My friend introduced me to betting and using skins and in-game items, when I would play with him on an online multiplayer game'. He subsequently developed a problem with skin gambling during early adolescence.

I had developed a gambling addiction where I had spent money on online skins, and I couldn't help myself but to gamble as many online skins as I could ... then I realised what I had been doing to myself and I stopped gambling for a while. (#1, ARPG, male, 12–14, OLC)

## Preferred Monetary Gambling Over Simulated Gambling

A few participants in the ARPG group reported waning interest in simulated gambling as they became older because they were no longer excited by virtual rewards and knew the wins were manipulated. Instead, they engaged only in monetary gambling because they had more control over game outcomes, could utilise their skills and knowledge, and 'you have the chance to win back real money. In games, you only have the chance to win something that is not tangible' (#56, ARPG, male, 15–17, OLC).

## Discussion

This study has explored the lived experience of simulated gambling as young people grow up, including their behavioural trajectories and their perceptions of how it relates to their gaming and gambling activities. The findings that address the three research questions support and extend upon previous research.

### RQ1. How Do the Experiences of Simulated Gambling Evolve Amongst Children and Adolescents as They Grow Up?

Simulated gambling opportunities were pervasive in most participants' gaming experiences while growing up. Consistent with previous research (Carran & Griffiths, 2015; González-Cabrera et al., 2022; Hayer et al., 2018; King et al., 2014; King et al., 2016; Rockloff et al., 2021; Zendle et al., 2019), loot boxes and mini gambling games such as wheel spinning were the most-played activities, since they were embedded in the digital games played from early childhood. During adolescence, most participants tended to increase their gaming, which further increased their exposure to simulated gambling activities. As also found in Kristiansen et al.'s longitudinal study (2018), these activities became a shared interest

in friendship groups, expanding their reach beyond the home environment to encompass school, recreational, online, and social media settings. As participants became older, they tended to transition from engaging in simulated gambling features during normal gameplay, to spending real and virtual money to help them win. In this sense, simulated gambling could shift from an incidental to a purposeful activity. Some participants also sought out virtual casinos and social casino games. Their simulated gambling became more akin to real-world gambling because these games have very similar structural characteristics and could involve spending real money. This transition also reflects the increased monetisation of digital games as these young people have grown up (Gibson et al., 2022; Kim et al., 2017; A. King et al., 2020; King & Delfabbro, 2020; Raneri et al., 2022; Zendle et al., 2020).

Motivations for simulated gambling tended to evolve while growing up. Throughout childhood and early adolescence, most participants valued the excitement, virtual items, and improved in-game performance from prizes. As simulated gambling became a social activity, comparing prizes provided opportunities for in-group status and peer bonding. However, by older adolescence, these participants' attraction to virtual prizes had often waned, with interest tending to shift towards competitive in-game progression, which could be expedited by engagement and real-money expenditure on simulated gambling. Those who engaged in virtual casinos and social casino games sought to learn different games, compete against other players, and demonstrate skill. Previous findings also identify motivations for simulated gambling as social interaction effects, learning how to gamble, skin acquisition, in-game progression, and excitement when winning prizes (Gibson et al., 2023; Hing, Russell, King, et al., 2021b; Kristiansen et al., 2018; Nicklin et al., 2021; Puiras et al., 2023; Rockloff et al., 2021; Zendle et al., 2019). The current study suggests that these motivations may not be static, but instead evolve as young people grow up.

Addiction can be a further driver of simulated gambling. Some participants reported symptoms of a gaming disorder related to their simulated gambling, including persistence, loss-chasing, preoccupation, secrecy, and playing for emotional escape. Adolescents who play and spend money on simulated gambling games show a heightened risk for gaming disorder, compared to other gamers and adolescents (González-Cabrera et al., 2022; Hing et al., 2023; Ide et al., 2021; Kristiansen & Severin, 2020). This study provides insights into the processes by which simulated gambling can foster persistence and impaired control in gaming amongst young people over time.

## **RQ2. How Do the Perceptions of Simulated Gambling Evolve Amongst Children and Adolescents as They Grow Up?**

Simulated gambling was highly normalised amongst most participants, since they considered it a taken-for-granted, natural, and socially accepted feature of their everyday life (Horwitz, 2016). Simulated gambling displays the key characteristics of a normalised activity—easy accessibility, high usage rates, attitudes that tolerate 'sensible' use, and societal accommodation (Parker et al., 1999). Most participants explained that simulated gambling is readily accessible to young people, and in fact constitutes an unavoidable, essential, and widely used component of many games, as found in earlier research (Brock & Johnson, 2021; Drummond & Sauer, 2018; Hayer et al., 2018; Hing, Browne, et al., 2022a; Johnson & Brock, 2020; Macey & Hamari, 2022; Zendle et al., 2019, 2020). The little parental intervention reported in this and previous research (King & Delfabbro, 2016), few

counter-messages, and lack of harm minimisation requirements reflect its broader acceptance as an appropriate activity for minors when done in moderation.

Participants' perceptions of simulated gambling provide further evidence of its normalisation. Until their early teens, nearly all participants reported being unaware that simulated gambling resembles gambling, reflecting the seamless integration of gambling mechanics into childhood games (Brock & Johnson, 2021; Johnson & Brock, 2020; Macey & Hamari, 2022). Instead, most participants accepted features such as spinning wheels and loot boxes as intrinsic elements of the game. However, usually during their mid-teens, most participants began to understand that certain gaming features mimicked gambling. Most also recognised that simulated gambling wins are manipulated to encourage persistence and expenditure. Similar to previous research on micro-transactions in games (Gibson et al., 2023; Petrovskaya & Zendle, 2020), most participants increasingly felt exploited by these practices, the growing predominance of pay-to-win games, and being targeted by simulated gambling advertisements. It was only when older that some participants recognised how the integration and promotion of simulated gambling had normalised it as part of their gaming while growing up, and that it could be potentially harmful for young people. Most participants discussed several features that can encourage persistence and impaired control, that were also endorsed by those reporting symptoms of a gaming disorder. These harmful features generally aligned with the literature, including the psychological attraction of acquiring prizes, behavioural conditioning through randomised rewards, manipulated outcomes that foster illusions of control, and encouragement of real-money expenditure (Armstrong et al., 2018; Carran & Griffiths, 2015; Hing, Browne, et al., 2022a; Kim et al., 2017; King & Delfabbro, 2016, 2020; Yokomitsu et al., 2021; Zendle et al., 2020).

### **RQ3. How Do Adolescents Perceive the Role of Simulated Gambling in Their Gambling Behaviour?**

Most participants reported that their simulated gambling had not affected their gambling attitudes and behaviour. However, these effects occur through subconscious psychosocial processes that accumulate over time, including normalisation, familiarisation, confidence-building, and behavioural conditioning (Hing, Dittman, et al., 2022b; King & Delfabbro, 2016, 2020; Kristiansen et al., 2018). Reflecting the 'third person effect' (Davison, 1983), most participants generally felt personally immune, but that simulated gambling could entice other young people into monetary gambling. This was because it can increase interest and provide a training ground for gambling, offer a taste of winning, make gambling-like activities look fun and safe, and foster erroneous gambling beliefs. Furthermore, if young people tired of virtual rewards, they might transition to gambling for a chance to win money.

Previous research has found that engagement in simulated gambling is associated with gambling disorder in adolescents (Gainsbury et al., 2015; Hing, Dittman, et al., 2022b; Hing, Rockloff, et al., 2022c; King et al., 2014; Rockloff et al., 2021; Veselka et al., 2018; Zendle et al., 2019). In the present study, a few participants in the ARPG group reported specific ways in which simulated gambling had increased their attraction to monetary gambling. These included that playing in virtual casinos had heightened their knowledge and interest in casino gambling, and that easy virtual wins had fostered excitement and erroneous cognitions. About half the ARPG group engaged in skin gambling and a few reported excessive skin gambling, demonstrating an association between simulated gambling, gambling, and harmful gambling in young people (Greer et al., 2019; Hing, Russell, Bryden,



et al., 2021a; Wardle, 2019). A few older participants in the ARPG group reported losing interest in simulated gambling because they no longer valued its virtual rewards and became sceptical about game integrity. Instead, they transitioned to monetary gambling because its rewards have real-world value. These experiences suggest that transitions from simulated gambling to gambling can vary as young people grow up and may not be evident until they approach or reach the legal gambling age (Delfabbro et al., 2009, 2014; Kristiansen et al., Kristiansen & Trajberg, 2017, Kristiansen et al., 2018). Future research should investigate adolescent participants as they transition from youth to adulthood in terms of their underlying changes in simulated and monetary gambling behaviours.

## Limitations

In line with an interpretive approach, the study prioritised collecting in-depth information over representative sampling. The results offer a rich understanding of the participants' experiences, but may not apply to all adolescents. The findings may be affected by recall and social desirability bias, particularly as we asked participants to reflect on childhood and adolescent experiences in their past, as well as the present. These recollections were collected only at one point in time. A longitudinal design with data collected during childhood, early adolescence, and later adolescence may have reduced any recall bias. Nonetheless, the study's main interest was to explore the participants' perceptions of their experiences and the meanings they ascribed to them, rather than obtaining a set of quantified 'concrete facts' about their experiences. Importantly, participants may not be aware of some important motivating factors that influence their gambling or gaming behaviours. Females were also slightly overrepresented in the sample.

## Conclusions

This is the first known qualitative exploration in Australia of changes in how adolescents experience and perceive simulated gambling as they are growing up, and the role they feel it plays in their gambling behaviour. Building on Kristiansen et al.'s (Kristiansen et al., 2018) study in Denmark which also focused on adolescents' experiences of simulated gambling over time, the current study observed similar motivations for engaging in simulated gambling, such as social, competitive, entertainment, and practice reasons, as well as similar ways by which simulated gambling can lead to a transition into monetary gambling through learning, confidence, and a desire to win real money. In addition to supporting these previous findings, the current study provides new insights into adolescents' evolving engagement in loot boxes and micro-transactions, which were not available when Kristiansen et al. (2018) collected their data. The study also provides some new insights into trajectories of simulated gambling amongst children and adolescents. The findings suggest that, as young people grow up, they engage in simulated gambling more frequently and in more diverse settings, and that the activities they seek out become more akin to monetary gambling. Their motivations for simulated gambling tend to expand, from initially valuing its virtual prizes, to then valuing its social benefits and the opportunity to learn new gambling games, compete against other players, and demonstrate skill. Simulated gambling becomes a highly normalised part of game-play from a young age, and before young people realise it resembles gambling and has potential for both gaming and gambling harm. Associations between simulated gambling and harmful gaming in adolescents were evident, but those

between simulated gambling and harmful monetary gambling were less clear in this under-age cohort, but may emerge as they become older. The findings imply that reducing the availability and normalisation of simulated gambling opportunities for young people, and educating them on the risks involved, are likely to help to contain related harm.

**Author Contributions** Nerilee Hing, Lisa Lole, Hannah Thorne, Kerry Sproston, and Nicole Hodge designed the study and research materials. Kerry Sproston and Nicole Hodge conducted and supervised the data collection. Nerilee Hing, Lisa Lole, Hannah Thorne, Kerry Sproston, and Nicole Hodge contributed to the analyses and interpretation. Nerilee Hing completed the first draft of the manuscript. All authors read, refined, and approved the submitted version of the manuscript.

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**Data Availability** Data are the property of the New South Wales Department of Customer Service and requests for data should be made to them.

## Declarations

**Materials** Materials used in this study are the property of the New South Wales Department of Customer Service and requests for project materials should be made to them.

**Ethics Approval** This study was approved by the CQUniversity Human Research Ethics Committee, approval number: 23445.

**Consent to Participate** All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5). Informed consent was obtained from all individual participants included in the study, and from their legal guardians.

**Conflict of Interest** The authors declare no competing interests.

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