The perceived risk and return, curiosity, and control analysis of online gambling intention among Gen Z and Millennials using extended UTAUT3

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A B S T R A C T

The rapid ascent of online casino gaming has become a game changer for the gambling industry in the Philippines. This trend poses challenges for traditional casinos in the Philippines, requiring adaptation to attract younger players for business sustainability. Moreover, there is a lack of studies when it comes to diversity in culture, initiation and maintenance, as well as analysis on individual stimulation and triggers for gambling, which this study aimed to fill. This study analyzed key factors influencing online gambling intentions among Generation Z and Millennials using higher-order Structural Equation Modeling with the extended higher-order reflective construct of the Unified Theory of Acceptance and Use of Technology 3 (UTAUT3) framework to effectively explained online gambling behavior. Testing the causal relationship among 408 valid responses using the SMART-PLS v4 software, it was seen that performance and effort expectancy, habit, social influence, hedonic motivation, personal innovativeness, price value, and facilitating conditions showed significant relationships with online gambling behavioral intentions. It has been presented that control have no significant relationship on online gambling behavioral intention of consumers, revealing that respondents may have no self or financial control while using online gambling platforms. Moreover, curiosity alone is not a strong motivator for consumers to participate in online gambling activities. Based on the results, the respondents do not perceive curiosity as a primary driver for their intent to engage in online gambling activities. This study provides valuable theoretical insights into the motivations and perceptions driving online gambling among younger generations, offering a comprehensive understanding of the market dynamics and potential policy implications for regulating online gambling activities. Moreover, practical implications were created for developers to clearly depict and align behavioral intention for online gambling.

1. Introduction

Gambling, as defined by Article 2013 of the Civil Code of the Philippines, is a game of chance that which depends more on chance or hazard than skill or ability. Since its legalization in 1976, the Philippines has emerged as a prominent casino destination in Asia. Overseen by the Philippine Amusement and Gaming Corporation (PAGCOR), it is tasked with the regulation and revenue distribution of gambling[52]. Conversely, online gambling involves betting or playing games of chance or skill for money via remote devices with internet connectivity. Its popularity surged particularly during the pandemic due to its

accessibility and convenience through various digital platforms like applications and websites[66]. This significantly impacts economic growth in the country as it is a major revenue generator and source of employment[52]. This is because traditional casinos offer a social experience with a variety of games, while online gambling provides convenience and accessibility from home. Both offer bonuses and rewards, but online platforms often provide more generous incentives due to available competition[73].

According to Fromm [30], Gen Zs and Millennials in particular are considered as significant demographic groups, spending a considerable amount of time and money on gaming. The focus on gaming preferences

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and trends among them suggests that they may be more inclined towards digital and mobile gaming experiences rather than traditional forms of gambling such as slot machines. This trend poses challenges for traditional casinos in the Philippines, requiring adaptation to attract younger players for business sustainability[8]. It could also be posited that Gen Zs and Millennials are into exploring online gambling is because of the privilege of enjoying the game while earning money, or also known as the play-to-earn model[76].

By participating in these games, players have the opportunity to accumulate valuable virtual assets which can be traded or sold for actual money. As explained by Raylu and Oei [79], there is a lack of studies when it comes to diversity in culture, initiation and maintenance, as well as analysis on individual stimulation and triggers for gambling. That is, generation and overall assessment of gambling activities, intention, and literatures on gambling are scarce based on their literature study. It was suggested that etiological processes should be assessed on a specific perspective to deduce different factors affecting gambling. Additionally, the rise of online sports betting among these demographics may further negatively impact traditional gambling venues. This aspect of online gambling appeals to younger generations who are increasingly interested in alternative forms of income generation and digital ownership while being entertained.

The primary objective of this study was to utilize higher-order structural equation modeling (SEM) to forecast the determinants influencing the inclination towards utilizing online gambling platforms among Generation Z and Millennials in the Philippines. Specifically, the study aimed to (1) employ the extended Unified Theory of Acceptance and Use of Technology 3 (UTAUT3) model to anticipate the intention to engage in online gambling activities, (2) identify the most prominent factors contributing to the intention to use online gambling platforms, and (3) propose theoretical and practical implications for utility of online gambling among users and governing bodies based on the findings of this study.

This study is beneficial as it aims to address the prevalence of online gambling among youths, particularly the Gen Zs and Millennials. Understanding the underlying factors influencing the intention and behaviors of users in online gambling can help policymakers create and implement targeted regulations to protect the vulnerable population and promote responsible gambling practices. Moreover, mental health professionals and educators can utilize the insights from this research to develop educational programs and support systems to mitigate the negative consequences associated with excessive gambling behavior among young adults in the country. Specifically, the significance of this study is held within the framework of Sustainable Development Goal (SDG) 3: Good Health and Well-being. By delving into the theory-based factors, the study proposed to illuminate potential risks and hazards linked to excessive gambling activities among the youth, thereby facilitating the formulation of targeted interventions to promote responsible gambling practices and mitigate adverse effects on individuals' overall well-being. With the exploration of the determinants influencing the inclination towards online gambling among young populations and evaluate their subsequent gambling behaviors[24], this study has the potential to inform public and suggest policies and initiatives designed to safeguard the mental and financial health among young adults; thereby contributing to the overarching objective of advancing good health and well-being for all.

This study is particularly novel as it is one of the first studies that was conducted on the behavioral intention of online gambling, particularly analyzing specific cohort in a developing country. Since online gambling is particularly new and that it was only recently when this was established, the analysis holds as a benchmark study. Moreover, this study is one of the first to apply the framework outside the educational context where it was established to test out technology acceptance, with psychological assessment and implication build up. Alongside the establishment of framework used, this study provides several implications which could be capitalized on, build, and extended among governing bodies. On a theoretical standpoint, this study implies that the proven extended higher-order construct framework could be applied and extended among other entertainment technology-related systems.

2. Literature review and conceptual framework

2.1. Theory development

In today's digital era, online gambling has gained significant traction, particularly among Gen Z and Millennials. Understanding the complex interplay between individuals' intentions to engage in online gambling is crucial for both academia and industry. To this end, the modified and extended UTAUT3 as a higher-order reflective construct (Fig. 1) was utilized to analyze online gambling behaviors among Gen Z and Millennials holistically. In essence, the UTAUT3 model is an extended version of its earlier model, UTAUT and UTAUT2. From its original construct (UTAUT), Venkatesh et al. [89] expressed that intention and actual adoption of technology are measured by four constructs: performance and effort expectancy, social influence, and facilitating conditions. It was expressed that these domains primarily assess the usefulness and ease of use, influence by surrounding people, and adoption. However, it was later extended (UTAUT2) to consider constructs like hedonic motivation, habit, and price value as explained to be determinants of why individuals would adopt with the system or technology. Whether its enjoyment in using, adaptability, and reasonable price or investment is present [89]. The models were adopted from several theories established early on.

For example, one of the inspirations was the technology acceptance model (TAM) by Davis [23]. However, TAM only assessed usefulness
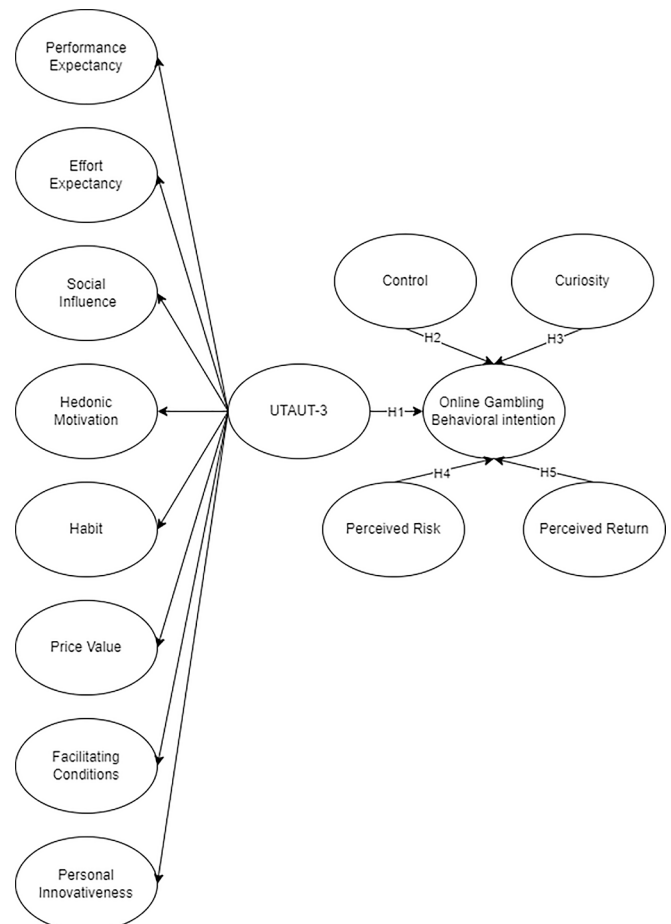

Fig. 1. Conceptual Framework.

and ease of use as perceived by users, deeming it to need extensions. In accordance, models such as the DeLone and McLean IS Success model which assesses the quality of technology only had three domains (service, information, and system quality). Prasetyo et al. [78] expressed that this does not holistically measure adoption behavior as individuals pertained to only the overall system and not the actual utility. On the other hand, theories like the generic theory of planned behavior have also been used in past studies to assess technology [14]. However, it could be posited that this assesses the general perception and behavior of individuals, but not specific to the technology itself. Moreover, Yuduang et al. [94] explained that the earlier versions of technology adoption assessment models and theories could only be highly considered for established technology and people's habitual use. Therefore, models like the UTAUT2 could be used for newly developed technologies, ones that are not yet widely used. This is especially true for emerging technologies.

With the aforementioned reason, the UTAUT development has been widely considered by related studies as it holistically measures the adoption and intention to use of technology. To which, the recent development of UTAUT3 where an additional variable (personal innovativeness) was considered. This was established by Farooq et al. [29] to be highly probable in overall assessment, reaching until the cognitive perception of individuals and not only the behavior and adoption to technology. However, recent studies detailed in the next section have used this for education, online games, and overall technology perception. No studies have yet extended and tested the utility of the theory in the aspect of entertainment and actual gaming intention, an area where this study adopted the theory in.

2.2. Hypotheses development

The study formulated five hypotheses to underpin the integration, illustrating the emerging connections among latent variables. These hypotheses consider the concepts of control, curiosity, perceived risk, and perceived return to understand their impact on online gambling behavioral intention. The relationships between these variables are crucial for comprehending how individuals make decisions in the context of online gambling.

Control and curiosity are posited to directly influence perceived risk and perceived return, which in turn affect behavioral intentions towards online gambling. By analyzing these interconnections, the study aims to provide a comprehensive understanding of the factors driving online gambling behavior. In this study, online gambling intention was measured based on the study by Agag et al. [1], Chaveesuk et al. [13], and Konietzny and Caruana [59]. That is, if the consumers would utilize and be engaged in the system/game in the upcoming month as means of measuring foregoing intention, continue to play in the upcoming future, and if they would recommend it to other people. As their study reflected, these items could be utilized for assessment of current and future intention. These same inputs are also seen in a technological behavioral intention to use and adoption measurement by Venkatesh et al. [90] and Yuduang et al. [94].

In the study conducted by Gunasinghe et al. [36], the UTAUT3 framework assessed the factors influencing individuals' intentions to adopt and use technology. The factors included were performance expectancy (the belief that technology will improve performance), effort expectancy (perceived ease of use), social influence (peer pressure or societal norms), facilitating conditions (availability of resources), hedonic motivation (pleasure derived from using the technology), price value (benefits compared to costs), and habit (routine behaviors). As a measurement, social influence was measured as adapted from Konietzny and Caruana [60] and Nikolopuolou et al. [72]. That is, if friends, family, significant other, and surrounding people support the individual in playing, if the surrounding people also engage in playing, and if people suggest using the technology. Furthermore, Chen et al. [15] presented that UTAUT3 provides a structured framework to evaluate the

factors influencing consumers' behavioral intentions toward playing online games via mobile phones. As mentioned, the domains of the theory allow researchers to systematically assess consumers' perceptions and attitudes regarding gaming, providing valuable insights into their acceptance of this technology.

The study undertaken by Akbar [4] showed that by utilizing UTAUT and its extension, factors such as effort expectancy, performance expectancy, social influence, and facilitating conditions influencing students' e-learning intentions helped find the correlation between intentions and adoption behavior, offering valuable insights to the overall adoption. Emphasizing how UTAUT domains have a significant effect on online gambling behavioral intention, Lowrey et al. [63] conducted a study which posited that UTAUT domains significantly influence users' engagement in gaming activities. This study suggested that when users perceive gaming technology as enjoyable (hedonic motivation), perceive it as easy to use (effort expectancy), and expect it to enhance their gaming experience (performance expectancy), they are more likely to engage in gaming activities. Similarly, this study measured how engaging in online gambling is perceived to be fun, enjoyable, highly entertaining, and interesting [63,67].

These domains collectively shape individuals' intentions toward online gambling. Effort expectancy, hedonic motivation, and facilitating conditions of gaming experience positively affect behavioral intention [57]. Additionally, the domains further impacted individuals' likelihood of engaging in online gambling. The highlight of UTAUT3 is the personal innovativeness. Relating to Farooq et al. [29], they explained that the current generation is acceptable and is widely utilized in different aspects or activities. This means that there may be an influence on behavioral intention and/or actual acceptance. Reflecting on the study of Agarwal and Prasad [2] and Farooq et al. [29], personal innovativeness was measured whether a person would find ways to test out a newly developed/established technology, being the first among surrounding people to test out newly established technology, eager, encouraged, and/or tempted to test it out. As presented by Sanmukhiya [86], UTAUT was proposed as a higher-order reflective construct since most studies employing this presents only number of variables being significant. Thus, given the significant effects of the domains, the following hypotheses were formulated:

H1. UTAUT3 and its domains have a significant effect on online gambling behavioral intention.

Cowley et al. [18] found that gamblers' perception of control significantly influences their intention to continue gambling online. They noted that the illusion of control leads individuals to focus on moments that support their belief in influencing outcomes, particularly their highest wins, despite overall losses. This selective attention reinforces their sense of control and positively influences their evaluation of gambling sessions, contributing to their intention to continue gambling online. Similarly, Gainsbury et al. [32] observed that perceived control affects behavioral intentions in online gambling. They highlighted a correlation between gambling severity and the frequency of online and venue-based gambling, especially with activities involving electronic gaming machines and sports betting. Individuals perceiving more control over their gambling are prone to deeper engagement, potentially leading to gambling problem behavior, and are more likely to engage frequently in online gambling. Therefore, it was hypothesized that:

H2. Control has a significant effect on online gambling behavioral intention.

Budiman et al. [9] defined curiosity as a key motivator for online gambling, with curious individuals actively seeking information and showing a desire to understand the activity. This intrinsic motivation leads them to seek new information, experiences, or stimuli. Kumar [58] supported this, suggesting that curiosity significantly influences behavioral intentions related to online gambling. Additionally, being and staying informed about the latest trends in online gaming was seen to be crucial for gamblers. Dahabiyeh et al. [21] found that despite being

aware of cybersecurity risks, individuals' curiosity about online games drives deep engagement in virtual gaming environments. This curiosity enhances their involvement and enjoyment despite potential risks, indicating that it also plays a role in driving participation in online gambling. Thus, it was hypothesized that:

H3. Curiosity has a significant effect on online gambling behavioral intention.

According to Smelster and Baltes [83], perceived risk in gambling involves two key elements: the likelihood and severity of negative outcomes. This encompasses an individual's subjective evaluation of potential adverse consequences related to gambling activities[11]. Conversely, perceived return as defined by Murphy [70], refers to the anticipated benefits of gambling, such as financial gains or entertainment. Understanding these perceptions is crucial as they influence attitudes towards gambling risk, subsequently affecting outcomes like symptoms of gambling disorder in adolescents[26].

In addition, research indicates that perceived risk significantly impacts the intention to engage in online gambling. When individuals perceive gambling as risky, with potential negative outcomes like financial losses, they are less inclined to participate[91]. Afifi et al. [3] likewise stated that perceived risk encompasses concerns about various negative consequences of gambling, including financial losses and psychological distress. These perceptions are shaped by personal experiences, social norms, and cultural factors. On the other hand, perceived return is a motivational factor driving individuals to gamble, as they weigh potential rewards against associated risks. To which, higher perceived return increases willingness to gamble, potentially leading to more frequent or intense gambling behaviors [92]. Moreso, perceived return, such as the expected benefits of gambling, influences the intention to gamble online. For instance, if young adults view gambling as a means to gain money, they may be more likely to intend to participate in online gambling activities[12]. Moreover, perceived risk influences individuals' behavioral intentions towards online gambling, with high levels potentially deterring participation due to concerns about potential losses. Conversely, perceived return appeals to individuals' expectations of financial gain, influencing their willingness to engage in online gambling activities [80]. Thus, the following were hypothesized:

H4. Perceived risk has a significant effect on online gambling behavioral intention.

H5. Perceived return has a significant effect on online gambling behavioral intention.

3. Methodology

3.1. Measure items

Appended in the supplementary file outlines the extensive set of 57 measure items sourced from various research, which served as the foundation for investigating users' behaviors and intention within online gambling platforms. Utilizing a 5-point Likert scale, these measures span across various dimensions including performance expectancy, effort expectancy, social influence, hedonic motivation, habit, price value, facilitating conditions, personal innovativeness, online gambling behavioral intention, control, curiosity, perceived risk, and perceived return. By encompassing these diverse aspects, the study aimed to delve into the intricacies of user behavioral intention with online gambling platforms, shedding light on their intentions and experiences.

Prior to the full analysis, significant initial reliability tests and validity tests on the data collected were ensured. Following the suggestion of Podsakoff et al. [77] and Hair et al. [38], the Harman's Single Factor test could be considered to check the common method bias among collected data. It was explained that the total variance should be less than 50 % for it to be acceptable as no bias, and this study results to have a total variance of 32.53 %. In accordance, the Shapiro-Wilk test for normality was considered. The quotient between kurtosis and skewness should be within the threshold of $\pm$ 1.96, which this study was able to

achieve as depicted in Table 1.

To further validate the output, a clustering analysis using Ward's method was employed[61]. The raw output is presented alongside the supplementary material (Agglomeration Schedule All Clusters), which presents that there are only six clusters – implicating that the factors are distinctly separated from each other, showing only 535.9 error point reduction which is consistent throughout increasing cluster k ($k = 7$ onwards) as seen in the supplementary material (Agglomeration Schedule Six Clusters). Analysis of variance (ANOVA in the supplementary material) was then employed to decipher significant difference of the output. It presents that the output all has significant differences.

Table 1
Shapiro-Wilk Test.

Factors	Kurtosis	Skewness	Normality
PE1	−0.889	−0.338	0.380
PE2	7.522	2.909	0.387
PE3	6.983	2.813	0.403
PE4	−0.690	−0.428	0.620
EE1	−0.404	0.062	−0.153
EE2	33.011	−5.341	−0.162
EE3	28.203	−4.971	−0.176
EE4	19.840	−4.324	−0.218
SI1	10.734	−3.261	−0.304
SI2	13.602	−3.657	−0.269
SI3	14.213	−3.686	−0.259
SI4	3.505	1.724	0.492
SI5	6.843	−2.752	−0.402
HM1	17.430	−4.080	−0.234
HM2	19.279	−4.213	−0.219
HM3	20.884	−4.388	−0.210
HM4	17.829	−4.194	−0.235
H1	10.531	−3.383	−0.321
H2	7.285	−2.891	−0.397
H3	8.676	−3.100	−0.357
H4	9.568	−3.249	−0.340
PV1	12.988	−3.666	−0.282
PV2	12.380	−3.587	−0.290
PV3	11.157	−3.454	−0.310
FC1	20.929	−4.435	−0.212
FC2	22.600	−4.583	−0.203
FC3	17.432	−4.103	−0.235
FC4	17.460	−4.072	−0.233
PI1	9.693	−0.407	−0.042
PI2	1.833	1.311	0.715
PI3	6.972	−2.790	−0.400
PI4	8.225	−2.964	−0.360
PI5	7.729	−2.927	−0.379
BI1	11.182	−3.469	−0.310
BI2	10.416	−3.381	−0.325
BI3	9.609	−3.281	−0.341
BI4	8.010	−3.056	−0.382
CTL1	4.380	1.408	0.321
CTL2	16.663	−4.055	−0.243
CTL3	2.492	1.207	0.484
CTL4	−0.591	0.484	−0.819
CTL5	16.913	−4.081	−0.241
CUR1	−0.940	−0.925	0.984
CUR2	16.491	−4.054	−0.246
CUR3	17.563	−4.170	−0.237
CUR4	15.948	−3.949	−0.248
CUR5	1.713	1.645	0.960
P-Risk1	33.298	−5.640	−0.169
P-Risk2	27.395	−5.126	−0.187
P-Risk3	26.116	−4.993	−0.191
P-Risk4	7.028	−2.219	−0.316
P-Risk5	18.269	−4.132	−0.226
P-Return1	6.724	−1.191	−0.177
P-Return2	7.984	−1.888	−0.236
P-Return3	10.334	−3.095	−0.299
P-Return4	1.298	1.370	1.055
P-Return5	1.308	1.327	1.015

3.2. Participants

The questionnaire was voluntarily answered by 408 respondents. Data collection utilized purposive sampling to specifically target individuals within the Gen Z and Millennial age groups who engage in online gambling. The collection period spanned from February 2024 to July 2024, focusing on residents of the Philippines who participate in any form of online gambling. The survey was conducted online via Google Forms, offering a convenient and accessible platform for participants to share their insights and experiences.

Prior to distribution, the university ethics committee board approval was obtained (FM-RC-23–01–89) and written consent form among respondents were obtained and stored (FM-RC-23–02–89). Table 2 presents the descriptive statistics of the demographic profiles of the respondents, where majority of the respondents are male, accounting for 70.3 %, while females make up 27.9 %, and 1.7 % preferred not to

Table 2
Demographic Profile.

Characteristics	Category	N	%
Sex	Male	287	70.3
	Female	114	27.9
	Rather not say	7	1.7
Age	18–22 years old	151	37
	23–27 years old	218	53.4
	28–35 years old	34	8.3
	36–43 years old	5	1.2
Education Attainment	Elementary Graduate	0	0
	Highschool Graduate	45	11.1
	College/Undergraduate	266	65.7
	College Graduate	90	22.2
	Master's Degree	3	0.7
Occupational Status	Student	285	69.9
	Employee/Self-employed	107	26.2
	Employer/Business Owner	15	3.7
	Unemployed	0	0
Monthly Allowance/Income	Less than 5,000 PHP	18	4.4
	5,001–10,000 PHP	182	44.6
	10,001–20,000 PHP	113	27.7
	20,001–30,000 PHP	51	12.5
	30,001–40,000 PHP	15	3.7
	40,001 PHP and higher	29	7.1
What online casino brand have you used (select all that apply):	1x Bet	231	56.6
	22 Bet	81	19.9
	Ok Bet	56	13.7
	Casino Plus	201	49.3
	Arena Plus	90	22.1
	Sports Plus	22	5.4
	Bingo Plus	52	12.7
	747	5	1.2
How often do you use online casino in a week?	Rarely (once a week or less)	22	5.4
	Occasionally (2–3 times a week)	241	59.1
	Regularly (4–6 times a week)	109	26.7
	Daily, but only for a short period per day	33	8.1
	Daily, and I play for an extended period per day	3	0.7
How much are you willing to spend for online gambling every game?	100 PHP – 500 PHP	282	69.3
	500 PHP – 1,000 PHP	84	20.6
	1,000 PHP – 5,000 PHP	27	6.6
	5,000 PHP and above	14	3.4
What type of Gambling activities do you play? (Select all that apply):	Sports Betting	232	56.9
	Baccarat	177	43.4
	Bingo	105	25.7
	Mines	103	25.2
	Poker	123	30.1
	BlackJack	108	26.5
	Online Slot Machine	85	20.8
	Color Game	8	2
	Dice	1	0.2
	Sabong	1	0.2
	E-sports betting	1	0.2

disclose their gender. Evidenced by the study of Evangelista et al. [28], younger generations are on the rise as gamblers, especially since this was made available online with easy access among tech-savvy consumers. As explained from the report by capstone-intel, 24 % of online gamblers are 18 years old until 20 years old who bet about once a month. As reported by the Philippine Statistics Authority (PSA), there are 12.8 % millennials and 28.7 % Gen Z. Considering a total of 118,200,000 Filipinos, approximately 400 respondents would represent the public[53].

In terms of age distribution, the respondents were predominantly between 23–27 years old, representing 53.4 % of the sample. Those aged around 18–22 years old constituted 37 %, while 8.3 % were between 28–35 years old, and a smaller proportion of 1.2 % were aged 36–43 years old. Regarding educational attainment, the largest group of respondents were those with some college education or currently undergraduates, making up 65.7 %. college graduates were 22.2 %, and high school graduates constituted 11.1 % of the sample. Only 0.7 % of respondents had attained a master's degree. Moreover, occupational status revealed that 69.9 % of respondents were students, 26.2 % were employees or self-employed, and 3.7 % were employers or business owners. There were no respondents who reported being unemployed. The monthly allowance or income of respondents varied, with the majority (44.6 %) earning between 5,001–10,000 PHP. Other income brackets included 27.7 % earning 10,001–20,000 PHP, 12.5 % earning 20,001–30,000 PHP, 7.1 % earning 40,001 PHP or higher, 4.4 % earning less than 5,000 PHP, and 3.7 % earning 30,001–40,000 PHP.

When asked about online casino they have/had used, 56.6 % of respondents reported using 1x Bet, followed by 49.3 % who used Casino Plus. Other brands included 22 Bet (19.9 %), Arena Plus (22.1 %), Ok Bet (13.7 %), Bingo Plus (12.7 %), Sports Plus (5.4 %), and 747 (1.2 %). Frequency of online casino use varied, with 59.1 % using it occasionally (2–3 times a week). Those who used it regularly (4–6 times a week) comprised 26.7 %, while 8.1 % used it daily for a short period, 5.4 % rarely used it (once a week or less), and 0.7 % used it daily for an extended period. In terms of spending per game, the majority (69.3 %) spent between 100 PHP and 500 PHP. Others spent 500 PHP – 1,000 PHP (20.6 %), 1,000 PHP – 5,000 PHP (6.6 %), and 5,000 PHP and above (3.4 %). Finally, the types of gambling activities played by respondents varied, with 56.9 % participating in sports betting, 43.4 % in baccarat, 30.1 % in poker, and 26.5 % in blackjack. Other activities included bingo (25.7 %), mines (25.2 %), online slot machines (20.8 %), color game (2 %), dice (0.2 %), Online Sabong (0.2 %), and e-sports betting (0.2 %).

3.3. Structural equation modeling

This study utilized the structural equation modeling (SEM) approach to examine how control, curiosity, perceived risk, perceived return and other constructs from the UTAUT3 model influence online gambling intention and behavior among Gen Z and Millennials in the Philippines. Specifically, the partial least squares SEM (PLS-SEM) utilizing the software, SMART-PLS v4.0 was used in this study. SEM is a widely used statistical method used to explore both direct and indirect associations among observed and latent variables[34]. The holistic and sensitive assessment using PLS-SEM was proven to be effective, especially when higher-order constructs are considered[81,33]. It was depicted that the use of higher-order SEM is beneficial since it delimits the path needed to be taken, reducing the errors throughout the calculation process. This is because it focuses on explaining variance in dependent variables through a causal-predictive approach. PLS-SEM is a method used for examining connections between theoretical concepts, addressing intricate constructs characterized by higher levels of abstraction[22]. Other studies posited that SEM simplifies intricate variable relationships through path models, clarifying cause-and-effect relationships and generalizing Confirmatory Factor Analysis models to understand how latent variables interact and influence each other[5]. It also provides a more precise measurement of theoretical concepts, offering a more

accurate understanding of relationships among variables[39].

3.4. Higher-order PLS-SEM

PLS-SEM is a standard approach for analyzing complex inter-relationships between observed and latent variables[40]. This study utilized reflective-reflective higher-order construct. Reflective-Reflective Higher-order PLS-SEM is an advanced statistical technique that extends traditional PLS-SEM by allowing the inclusion of higher-order constructs as a reflection in the model. In this reflective higher order, the construct is perceived as the underlying cause, while its indicators represent observable manifestations[25,27]. Through this reflective higher order, the construct dictates the presence of indicators, and the said indicator can be excluded should it lack statistical significance.

Among the four types of higher-order models, the Reflective-Reflective Model is the most frequently applied in SEM as it allows researchers to capture hierarchical relationships among latent constructs, which is often observed in complex phenomena[20]. In this model, the higher-order factor influences lower-order factors, which in turn influence observed variables. This was also utilized due to its suitability for capturing complex relationships among latent constructs. In this study, reflective higher-order PLS-SEM under UTAUT3 offers a comprehensive understanding of online gambling behavior among Gen Z and Millennials in the Philippines. By employing the said model, the different factors contributing to the formation of online gambling intention among Gen Zs and Millennials can be systematically determined.

4. Results

4.1. Results of initial SEM

The initial SEM for determining online gambling behavioral intention is presented in Fig. 2. In accordance with the suggestion by Hair et al. [38], a threshold of 0.70 for the measurement items was used. It is evident that PE2, PE3, EE1, SI4, PI1, PI2, CTL1, CTL3, CTL4, CUR1, CUR5, P-Return4, and P-Return5 fall below the specified threshold (>0.70) when PLS-SEM was used. To refine the model fit, these factors were removed to depict the final SEM[22,39]. Following the exclusion of insignificant latent variables, namely Control and Curiosity, with p-values greater than 0.05 and low measurement items, the PLS-SEM analysis was performed to present the final model.

In the interpretation and model setting explored by Kang and Ahn [51], it was deduced that larger model may need to be interpreted in a separate manner. That is, the individual measure items that measures the unobserved variable may be assessed to determine the factors affecting the said variable. These are independent analysis to verify the established constructs. Following Hair et al. [40], there needs to be a 0.70 measure for it to be considered fit for measure. In accordance, the relationship among variables considered could be assessed by means of p-value. As expressed by Kang and Ahn [51], these should be separated when analyzed to obtain a confirmed final model. Since an extension, integration, or modification is commonly considered by researchers for holistic assessment and hypothesis generation, the model undergoes primary implications set by the users. That is, hypothesizing that there is a significant relationship based on literatures. However, these may not necessarily reflect the output once data is collected and analyzed.

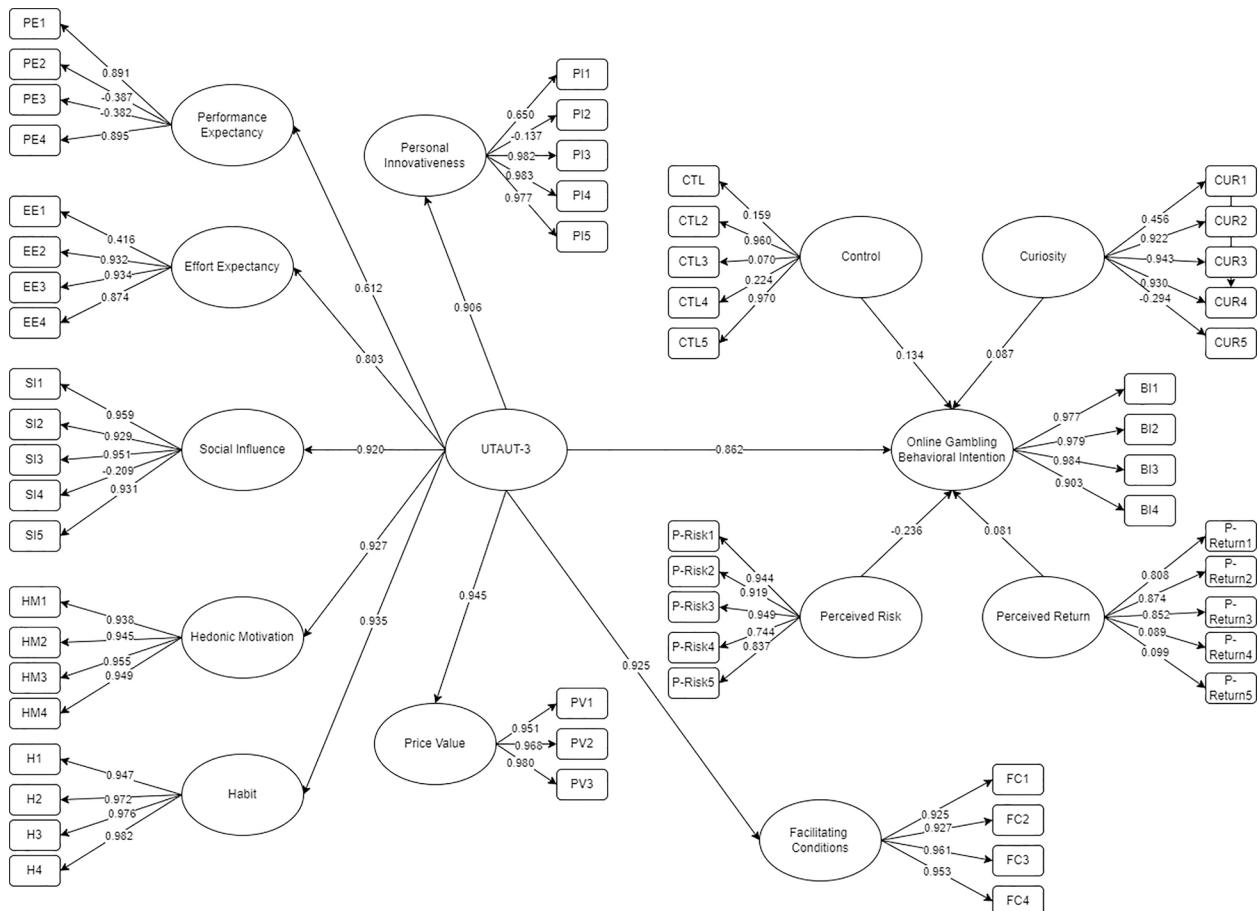In SEM, Kang [50] reported that there may be correlation of

Fig. 2. Initial structural equation modeling.

measurement error when interpreting the results due to validity – reflecting the overall model measurement fit. Therefore, the need to redefine the SEM output by removing the insignificant relationships (*i.e.,* p-value > 0.05) and measure items (*i.e.,* factor loadings < 0.70 for PLS-SEM, 0.50 for CB-SEM) is being performed[22,38]. Afterwhich, further establishment of reliability and validity of the measure items considered to assess the unobserved variable (*i.e.,* convergent validity) and the relationship among latent variables (*i.e.,* discriminant validity) should be established. Once all aspects achieve the validity, the final model could be generated in accordance with its acceptable model fit indices. This would represent the final SEM model for interpretation. It is also clear to note that the final model would only be applicable to the dataset being analyzed and that the initial hypothesized model could still be used by other researchers as these may opt to present different final SEM output once other datasets are considered [37].

Table 3 displays the validity and reliability indicators for both the initial and final loadings (FL). Items with initial loadings below 0.7 were excluded from the final loadings as they made insignificant contributions to the variance of the corresponding variables. A loading value of 0.70 or higher indicates that the items or variables are sufficiently internally consistent, meaning they reliably measure the same underlying construct [87]. This process ensures that the retained items have a stronger relationship with the constructs being measured. Moreover, this approach enhances the robustness, accuracy, and precision of the measurement model.

The findings from Table 4 underscore the robust internal consistency and validity of the variables under examination. According to the results presented, all items included in the model met the required criteria for internal validity and reliability. Cronbach's alpha (CA) values ranged from 0.809 to 0.986, and composite reliability (CR) ranged from 0.886 to 0.991. These values for each construct exceeded the threshold of 0.70, indicating achievement of convergent validity [49]. Additionally, the average variance extracted (AVE) ranged from 0.722 to 0.972, surpassing the threshold of 0.50. Moreover, the variance inflation factor (VIF) should have a value less than 5.0 for no collinearity measure[39]. The output presents that the VIF range is only between 1.337 and 4.245. This demonstrates that the measured items effectively represent the latent variables.

The assessment of model effectiveness in PLS-SEM, involves utilizing criteria like the Fornell–Larcker criterion (Table 5) and investigating cross-loadings[42]. Discriminant validity is confirmed when the Heterotrait–Monotrait ratio (Table 6) falls below 0.85 across reflective constructs. Specifically, for discriminant validity to be supported, diagonal constructs in the Fornell–Larcker criterion should exhibit higher values than the correlated constructs. With all thresholds met, the study validates its findings across all constructs, indicating significant relationships and appropriate representation of UTAUT3 domains through reflective ordered construct.

Lastly, Table 7 presents the model fit analysis employing three distinct indices: SRMR, Chi-Square, and NFI. The Standardized Root Mean Square Residual (SRMR) value is 0.066, which is below the recommended maximum cut-off of 0.08 according to Hu and Bentler [48], indicating a good fit. The Chi-Square value is 2.261, which is below the maximum acceptable value of 5.00 as per Hooper et al. [47], suggesting an adequate fit. The Normed Fit Index (NFI) is 0.913, exceeding the minimum threshold of 0.90 recommended by Baumgartner and Homburg [6]. These results collectively suggest that the model fits the data well based on these fit indices.

4.2. Results of initial SEM

Fig. 3 presents the final SEM of this study. It could be seen that there are 11 significant variables and 3 out of 5 hypotheses were accepted. Moreover, the summarized results of the relationship made is presented in Table 8. The table also includes higher-order constructs showing strong and significant relationships, all accepted with p-values less than

Table 3
Statistical Analysis of Indicators.

Variable	Item	Mean	Standard Deviation	Factor Loading	
				Initial FL	Final FL
	PE1	3.829	1.140	0.891	0.981
	PE2	1.336	0.928	−0.387	–
	PE3	1.340	0.913	−0.382	–
	PE4	3.824	1.158	0.895	0.985
Effort Expectancy	EE1	3.631	0.928	0.416	–
	EE2	4.902	0.423	0.932	0.944
	EE3	4.893	0.442	0.934	0.948
	EE4	4.852	0.558	0.874	0.879
Social Influence	SI1	4.736	0.759	0.959	0.96
	SI2	4.779	0.701	0.929	0.929
	SI3	4.793	0.66	0.951	0.955
	SI4	1.590	0.836	−0.209	–
	SI5	4.638	0.922	0.931	0.933
Hedonic Motivation	HM1	4.845	0.571	0.938	0.938
	HM2	4.855	0.539	0.945	0.945
	HM3	4.86	0.536	0.955	0.955
	HM4	4.862	0.543	0.949	0.949
Habit	H1	4.755	0.804	0.947	0.947
	H2	4.662	0.941	0.972	0.972
	H3	4.714	0.850	0.976	0.976
	H4	4.717	0.883	0.982	0.982
Price Value	PV1	4.800	0.689	0.951	0.951
	PV2	4.764	0.783	0.968	0.968
	PV3	4.750	0.820	0.980	0.980
Facilitating Conditions	FC1	4.857	0.551	0.925	0.925
	FC2	4.852	0.567	0.927	0.927
	FC3	4.819	0.651	0.961	0.961
	FC4	4.821	0.628	0.953	0.953
Personal Innovativeness	PI1	2.995	0.478	0.560	–
	PI2	1.686	0.835	−0.137	–
	PI3	4.671	0.874	0.982	0.987
	PI4	4.690	0.848	0.983	0.989
	PI5	4.683	0.882	0.977	0.982
Online Gambling Behavioral Intention	BI1	4.755	0.822	0.977	0.977
	BI2	4.745	0.842	0.979	0.979
	BI3	4.740	0.852	0.984	0.984
	BI4	4.681	0.977	0.903	0.903
Control	CTL1	3.164	0.597	0.159	–
	CTL2	4.857	0.520	0.960	–
	CTL3	3.267	0.648	0.070	–
	CTL4	3.529	0.763	0.224	–
	CTL5	4.867	0.494	0.970	–
Curiosity	CUR1	4.321	0.912	0.456	–
	CUR2	4.852	0.562	0.922	
	CUR3	4.836	0.624	0.943	–
	CUR4	4.831	0.604	0.930	–
	CUR5	1.805	1.209	−0.294	–
Perceived Risk	P-risk1	4.905	0.488	0.944	0.944
	P-Risk2	4.883	0.542	0.919	0.919
	P-Risk3	4.890	0.490	0.949	0.949
	P-Risk4	4.605	0.659	0.744	0.744
	P-Risk5	4.831	0.596	0.837	0.837
Perceived Return	P-Return1	4.036	0.517	0.808	0.827
	P-Return2	3.976	0.589	0.874	0.888
	P-Return3	4.762	0.633	0.852	0.832
	P-Return4	2.471	1.074	0.089	–
	P-Return5	2.493	1.072	0.099	–

0.05.

Table 8 summarizes the results of hypothesis tests examining various factors influencing behavioral intentions based on the extended UTAUT3. Hypotheses 1 to 5 test direct relationships with behavioral intention (BI). Hypothesis 1 shows that UTAUT3 significantly influences BI ($\beta = 0.892$, $p < 0.001$), while Hypotheses 2 and 3, testing Control and Curiosity, are rejected due to non-significant p-values (0.088 and 0.157,

Table 4
Convergent Validity.

Variable	Code	CA	CR	AVE	VIF
Online Gambling Behavioral Intention	BI	0.972	0.980	0.924	–
Effort Expectancy	EE	0.915	0.946	0.854	2.538
Facilitating Conditions	FC	0.957	0.969	0.886	3.245
Hedonic Motivation	HM	0.961	0.972	0.896	3.105
Habit	H	0.979	0.984	0.940	4.245
Performance Expectancy	PE	0.965	0.983	0.966	1.337
Perceived Innovativeness	PI	0.986	0.991	0.972	3.312
Price Value	PV	0.965	0.977	0.934	4.072
Perceived Return	P-Return	0.809	0.886	0.722	1.377
Perceived Risk	P-Risk	0.927	0.946	0.778	2.526
Social Influence	SI	0.959	0.971	0.892	3.619
UTAUT3 domains	UTAUT3	0.988	0.988	0.787	2.825

respectively). Conversely, Risk has a significant negative effect (β = -0.183, p = 0.001), and Return shows a positive significant effect (β = 0.088, p = 0.019). The table also includes higher-order constructs, all showing significant positive effects on BI, with factors like Effort Expectancy (EE), Facilitating Conditions (FC), Hedonic Motivation (HM), Habit, Performance Expectancy (PE), Price Value (PV), and Social Influence (SI) having strong beta coefficients and highly significant p-values (< 0.001), indicating robust support for these hypotheses.

In accordance, the cross-sectional analysis for the demographic characteristics and online gambling intention was tested (Table 9). From the output, it could be posited that only age and frequency of playing were significant demographic factors. To which, the younger the age and the more regular the playing frequency is, the more the behavioral intention to continue with online gambling. Hollen et al. [46] presented justification, wherein the younger people start gambling, an increase in habit is seen. However, their study implicated that most gamblers are male that shows significance in behavior. Compared to this study, there are no differences on the behavior among females. Their study from the

United Kingdom presented that these are adopted behavior, especially with parental gambling behavior, cigarette and alcohol influence, and maternal educational background. Since these factors were not collected and presents difference output, it could be deduced that younger Filipino gamblers may not have these effects which is why no significance were seen.

In another study, gamblers in Australia presented that parental and peer influence, as well as sports background, advertisement, and interest promoted the gambling behavior[44]. Further implications by Hing et al. [44] on positive gambling behavior were persistent due to the perceived reward, as well as neglecting the risks of loses. Evident in their study that non-gamblers adopt the parental notion of negating gambling behavior, have less to no friends gambling, and have less interest in the activity in general. Compared to this study's output, evident are social influence, habit, hedonic motivation, and higher perceived rewards than risks in losing. It is implicated that enjoyment over risks are obtained by respondents, leading to positive intention for online gambling. As explained by Chang and Young [11] and Murphy [70], there is anticipated benefits of wins and gains (for example in gambling behavior), which in turn could lead to the perception of reduced risk in loses.

Testing the interrelationship among exogenous variables affecting behavioral intention, it was seen that all were significant (Table 10). Having the interrelationship positive and significance, it could be posited that these measurements are relevant to the study[69]. Reflecting on the results, as control increases, the perception of risk and return, as well as curiosity increase. In accordance, as curiosity increases, both perception of risk and return increase. There is also a

Table 7
Model Fit Analysis.

Measures	Parameter Estimates	Minimum Cut-off	References
SRMR	0.066	< 0.08	Hu and Bentler [48]
Chi-Square	2.261	< 5.00	Hooper et al. [47]
NFI	0.913	> 0.90	Baumgartner (1996)

Table 5
Fornell-Larcker Criterion.

	BI	EE	FC	HM	Habit	PE	PI	PV	P-Return	P-Risk	SI	UTAUT3
BI	0.961											
EE	0.724	0.924										
FC	0.851	0.778	0.942									
HM	0.874	0.767	0.895	0.947								
Habit	0.916	0.676	0.791	0.801	0.969							
PE	0.521	0.393	0.448	0.476	0.514	0.983						
PI	0.889	0.629	0.791	0.819	0.865	0.464	0.986					
PV	0.901	0.694	0.867	0.86	0.896	0.528	0.844	0.967				
P-Return	0.686	0.552	0.630	0.692	0.662	0.398	0.656	0.674	0.849			
P-Risk	0.591	0.565	0.753	0.704	0.591	0.302	0.611	0.673	0.627	0.882		
SI	0.849	0.669	0.803	0.788	0.883	0.442	0.852	0.845	0.616	0.624	0.944	
UTAUT3	0.845	0.770	0.827	0.793	0.835	0.514	0.829	0.848	0.703	0.710	0.823	0.887

Table 6
Heterotrait-Monotrait (HTMT) ratio.

|	BI	EE	FC	HM	Habit	PE	PI	PV	P-Return	P-Risk	SI	UTAUT3
BI												
EE	0.754											
FC	0.829	0.819										
HM	0.801	0.822	0.831									
Habit	0.838	0.706	0.817	0.825								
PE	0.536	0.410	0.464	0.492	0.528							
PI	0.807	0.650	0.813	0.841	0.818	0.474						
PV	0.827	0.727	0.801	0.791	0.822	0.547	0.765					
Return	0.761	0.630	0.708	0.779	0.731	0.439	0.716	0.748				
Risk	0.620	0.602	0.797	0.742	0.618	0.308	0.637	0.708	0.717			
SI	0.818	0.706	0.835	0.817	0.791	0.456	0.775	0.827	0.683	0.659		
UTAUT3	0.762	0.799	0.774	0.754	0.815	0.524	0.831	0.769	0.774	0.740	0.847	
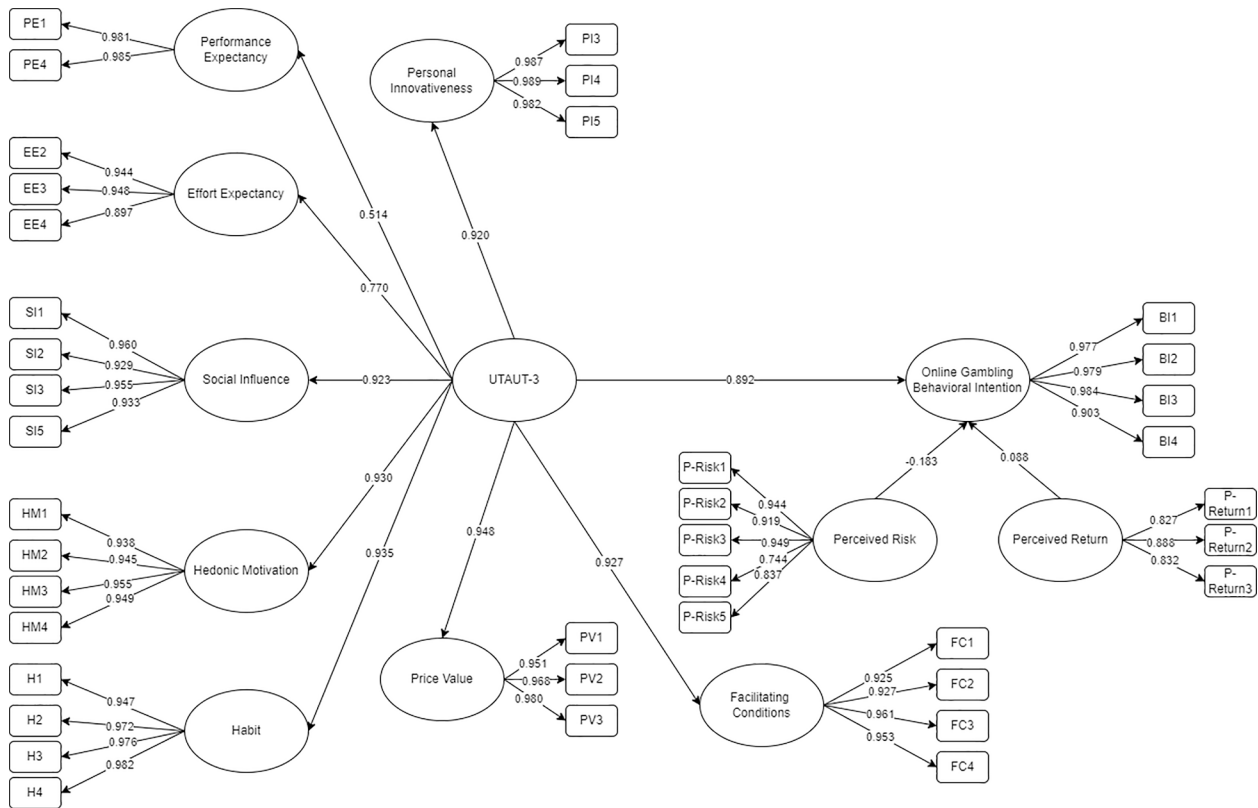
Fig. 3. Final structural equation modeling.

Table 8
Summarized Hypothesis Test.

Hypothesis	Relationship	Beta Coefficient	*p*-value	decision
1	UTAUT3 → BI	0.892	< 0.001	Accept
2	Control → BI	0.134	0.088	Reject
3	Curiosity → BI	0.087	0.157	Reject
4	Perceived Risk → BI	−0.183	0.001	Accept
5	Perceived Return → BI	0.088	0.019	Accept
Higher order	UTAUT3 → EE	0.770	< 0.001	Accept
Higher order	UTAUT3 → FC	0.927	< 0.001	Accept
Higher order	UTAUT3 → HM	0.930	< 0.001	Accept
Higher order	UTAUT3 → Habit	0.935	< 0.001	Accept
Higher order	UTAUT3 → PE	0.514	< 0.001	Accept
Higher order	UTAUT3 → PI	0.920	< 0.001	Accept
Higher order	UTAUT3 → PV	0.948	< 0.001	Accept
Higher order	UTAUT3 → SI	0.923	< 0.001	Accept

positive interrelationship between perceived risk and perceived return. That being said, when people have the control in performing certain acts like gambling, there is more thought into putting their risks and return. Similar to the presentation of the study from Chang and Young [11], there is adverse effect between gains and losses when an individual perceives their economic standing to be at risk – supporting why risk perception has a higher estimate. Following the concept of the prospect theory by Kahneman and Tversky [55], it could be deduced that individuals would usually neglect the happiness gained from the economic or monetary game but would dwell on the loses – making risks to be felt more by individual. Evidently, people will act and decide based on their perception of risk.

Creating a summary using the importance-performance map analysis (IPMA) following the suggestion of Hair et al. [41], it could be seen from Fig. 4 that perceived risk is less likely to have an overall effect on behavioral intention. This implicate that risky behavior are being avoided by Gen Z and millennial gamblers. Supported by the negative

results of the beta coefficient (β: −0.183), the more risk, the less likely gamblers would engage in playing. On the other hand, habit was evidently the most important variable. This implicate that when habit is built, there is continuous behavior intention to play online gambling. As noted in the direction by Hair et al. [41], the increase in variable performance by one (*e.g.,* habit increases importance [y-axis]) would lead to an increase in the key target performance by the size of the total effects [x-axis value] (*i.e.,* 0.396 for habit). This means that behavioral intention would increase by 0.396. In the same way, a negative size of the total effect would decrease its key target performance on behavioral intention.

5. Discussion

Online gambling has become a social issue due to its rapid growth and increasing popularity among youths. According to Claybaugh et al. [17], online gambling has more negative consequences and fewer positive consequences but are recognized to have financial gains among users. This industry is facilitated by the widespread availability of internet access and the proliferation of mobile devices, making online gambling platforms easily accessible to a younger demographic. According to PAGCOR, the online gambling industry has grown substantially, leveraging advanced digital such as utilizing aggressive marketing strategies and targeted advertisements on social media platforms to entice more consumers to engage and participate in gambling activities. Furthermore, Kim et al. [56] stated that the convenience of accessing gambling websites and apps from home or on the go has removed traditional barriers to gambling. This ease of access is particularly attractive to the youth, who are typically more tech-savvy and inclined to explore online entertainment options.

Based on the findings, the UTAUT3 and its domain have a strong and significant positive relationship with online gambling behavioral intention of consumers (β = 0.892, p < 0.001). The high beta coefficient indicates that UTAUT3 is a powerful predictor of users' behavioral

Table 9
Cross-sectional analysis.

Variables	Without Intention	With Intention	Significance	Cramer's V
Age			< 0.0001	0.2190
18–22 years old	21	130		
23–27 years old	7	211		
28–35 years old	0	34		
36–43 years old	1	4		
Sex			0.7650	0.0360
Female	21	266		
Male	8	106		
Rather Not Say	0	7		
Willingness to Spend			0.8950	0.0380
100 PHP – 500 PHP	20	262		
500 PHP – 1,000 PHP	7	77		
1,000 PHP – 5,000 PHP	1	26		
5,000 PHP and above	1	13		
Education Background			0.3790	0.1000
Elementary Graduate	0	0		
High School Graduate	1	44		
College/ Undergraduate Degree	24	242		
College Graduate	4	86		
Master's Degree	0	3		
Frequency of Playing			< 0.0001	0.6180
Rarely (once a week or less)	16	6		
Occasionally (2–3 times a week)	6	235		
Regularly (4–6 times a week)	3	106		
Daily, but only for a short period per day	4	29		
Daily, and I play for an extended period per day	0	3		
Monthly Income/ Allowance			< 0.0001	0.4590
Less than 5,000 PHP	11	7		
5,001–10,000 PHP	7	175		
10,001–20,000 PHP	8	105		
20,001–30,000 PHP	1	50		
30,001–40,000 PHP	0	15		
40,001 PHP and higher	2	27		

Table 10
Covariance Analysis.

Interrelationship	Estimates	S.E.	C.R.	p-value
Control ↔ Perceived Risk	0.165	0.015	10.787	< 0.001
Control ↔ Curiosity	0.127	0.019	6.842	< 0.001
Curiosity ↔ Perceived Return	0.109	0.017	6.577	< 0.001
Perceived Risk ↔ Perceived Return	0.112	0.013	8.811	< 0.001
Curiosity ↔ Perceived Risk	0.105	0.016	6.419	< 0.001
Control ↔ Perceived Return	0.117	0.013	9.232	< 0.001

intention to use technology, confirming the robustness of the UTAUT3 model in explaining user acceptance and usage behavior. Based on the constructs of UTAUT3, respondents exhibit a high intention to adopt and utilize technology, driven by multiple motivations. Lowrey et al. [63] stated that these motivations include the enjoyment of online gambling, the convenience and easy accessibility of gambling applications, and the enhanced gaming experience they offer.

Moreover, the current generation is widely exposed to and open to the diverse opportunities offered by online gambling technology. This acceptance suggests a holistic approach to adopting online gambling, encompassing not only the practical benefits but also the social and psychological factors associated with it. Respondents see online gambling technology as instrumental in achieving various objectives, such as entertainment, social interaction, and the potential for financial gain. This aligns with the findings of Kim and Lucas [57], which stated that UTAUT3 domains positively affect behavioral intention. Today's generation is receptive to the offerings of online gambling technology, and their intention to use these platforms is significantly influenced by their personal innovativeness and the perceived benefits.

Among the higher-order constructs, price value stands out with a significant beta coefficient of 0.948 (p < 0.001). This suggests that online gambling is widely perceived as offering good value for money. Given that 69.9 % of the respondents are students, with 282 respondents (69.3 %) willing to spend between 100 PHP and 500 PHP, this demographic view online gambling as providing a favorable cost-benefit ratio. The perception that online gambling offers good value for money, considering their current expenditure, underscores the importance of price value in their decision to gamble online. Research further indicates that convenience and accessibility are primary motivators for online gambling[31]. McCormack and Griffiths [64] noted that frequently mentioned advantages include better value for money through payout rates and bonuses, the speed and ease of online gambling, a broader range of betting products and options, and the comfort of gambling from home. However, this accessibility also introduces the risk of addiction. Hing et al. [43] highlighted that the ease of access to online gambling through various technological devices can increase the predisposition to gambling addiction, particularly among adolescents.

The higher-order construct of habit significantly affects online gambling behavioral intention (β = 0.935, p < 0.001). Many users have developed a habit of using online gambling platforms, feeling addicted to their use. Electronic Gambling Machines (EGMs) have been shown to form repetitive habits in consumers[35]. In relation to online gambling, habit-forming technologies, or persuasive technologies that prolong screen time[15], can be harmful when used and possibly even more harmful when they are constantly and widely available. Based on the results, participants have developed a habit that significantly influences their online gambling behavior. This habit-forming nature is significant because it indicates that respondents lack control over their gambling behavior, and this uncontrolled behavior may lead to addiction.

Moreover, Cotte [19] explored the role of hedonic behavior in online gambling, highlighting that seeking positive reinforcement through pleasure is a key driver behind gambling intentions. The findings emphasized that engaging in online gambling can enhance self-esteem, provide pure entertainment, and cater to hedonic motivations. This notion aligns with the result, which demonstrated a significant impact of hedonic motivation on the intention to gamble online (β: 0.930, p < 0.001). Even in the current generation, it could be deduced that individuals are drawn to online gambling platforms because they find the experience fun, enjoyable, and highly entertaining.

Additionally, facilitating conditions are essential in shaping individuals' intentions to engage in online gambling, with significant findings indicating a strong positive relationship (β: 0.927; p < 0.001). Users generally feel confident in their ability to access and navigate online gambling platforms, believing they have the necessary resources and knowledge to participate effectively. This aligns with Konietzny and Caruana [60], which highlighted that perceptions of organizational and structural support greatly influence users' willingness to adopt new technologies. For instance, popular platforms like 1xbet and Casino Plus reflect this trend, boasting user bases of 231 (56.6 %) and 201 (49.3 %), respectively, demonstrating the importance of accessible and supportive online environments in fostering gambling intentions.

In the context of social influence, peers play a significant role in shaping young people's behaviors, particularly in the context of gambling. According to Keyzers et al. [54], both emerging adults and those in adulthood are heavily influenced by their peers when making
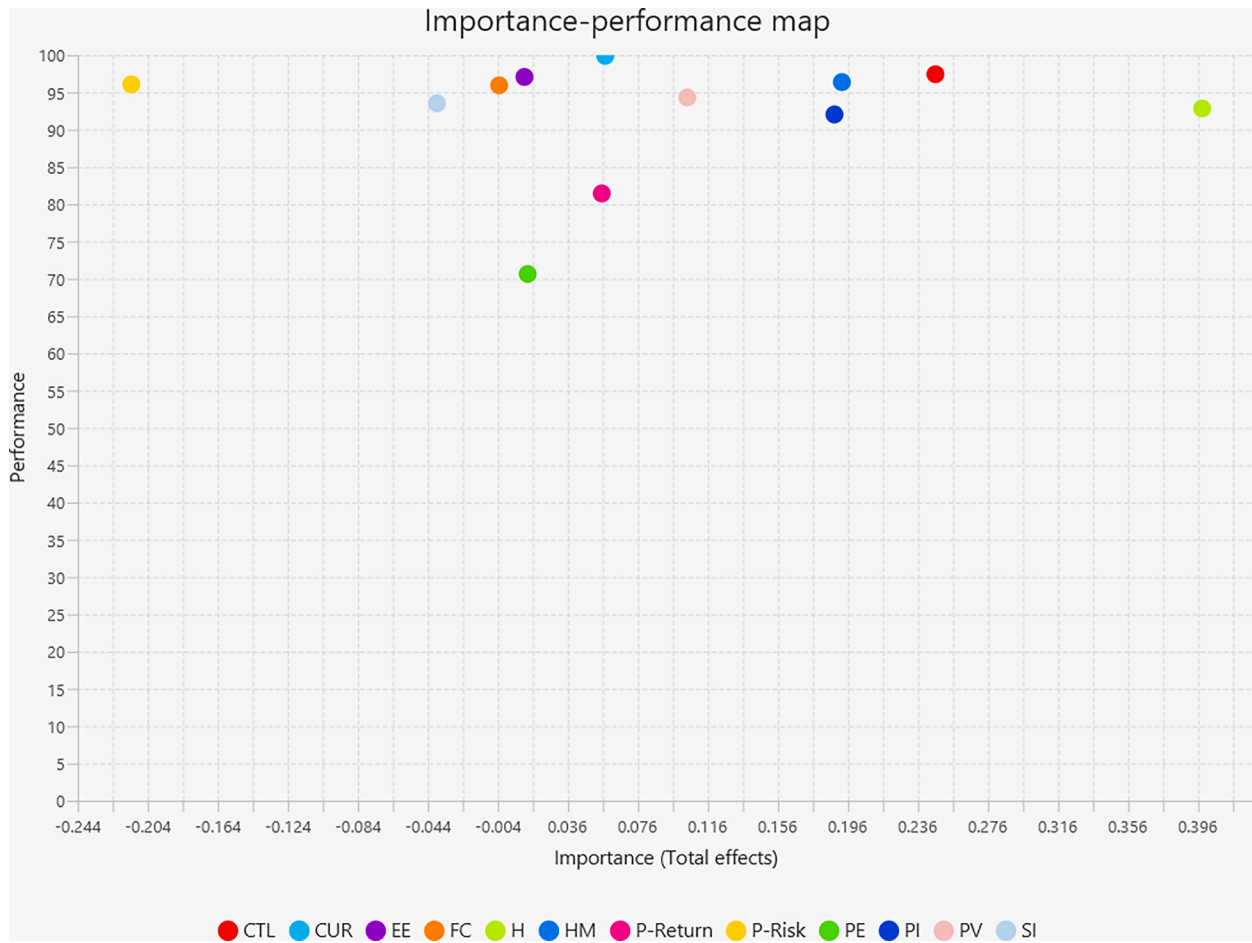
Fig. 4. Importance-Performance Map Analysis (IPMA).

decisions, such as trying new things or using certain substances, which also applies to gambling. In this study, 151 respondents from Generation Z, constituting 37 %, and 218 respondents from the millennial generation, making up 53.4 % of the sample, highlighted the profound impact of peer approval and social influence on online gambling participation (β: 0.923, $p < 0.001$). This finding aligns with the assertion of Bautista [7] that peer pressure strongly influences individuals' decision-making processes, fostering a sense of belonging and conformity within their social circles. Moreover, the supportive environment provided by family and relatives, who also encourage gambling behavior, further inclined individuals to participate in gambling activities.

Furthermore, results revealed that there is a significant relationship between personal innovativeness and online gambling intention (β: 0.920, $p < 0.001$). This result underscores that UTAUT3 have a substantial impact on individual's propensity to try out new technologies. Moreover, it could be posited that users of this study are generally open and willing to try out new technological advancements, driven by a strong belief in the utility and ease of use promoted by UTAUT3 constructs. This aligns with the study conducted by Farooq et al. [29], which explained that the current generation is acceptable and adaptable in utilizing different aspects or activities that may have been presented to them. According to Agarwal and Prasad [2], users are eager and attempt to try new gambling technology once they hear of it. This provides that people who are more comfortable and positive in trying new technologies are more likely to engage in these platforms even in the current generation.

Konietzny and Caruana [60] have identified effort expectancy as a critical determinant of gambling intention. Their study emphasized that a higher value of effort expectancy indicates a lower perceived effort required to engage in gambling activities. In relation to the study, a significant positive impact of effort expectancy on behavioral intention to gamble online was found, with a strong correlation (β: 0.770, $p < 0.001$). This finding underscores that individuals are more likely to consider online gambling when the platforms are perceived as easy to use, understand, and learn. Users appreciate the simplicity and clarity of these platforms, facilitating proficiency in navigating online gambling websites and apps. Consequently, the ease of use associated with online gambling platforms significantly enhances users' intentions to engage in gambling activities.

Lastly, in the case of performance expectancy, the study found that it has a significant impact on behavioral intention towards gambling ($\beta = 0.514$, $p < 0.001$). This finding is consistent with the broader literature, which indicates that an individual's belief in the efficacy of technology in enhancing productivity and effectiveness positively influences their intention to use such systems. This reflects why 241 respondents (59.1 %) use online casinos 2–3 times a week and 109 respondents (26.7 %) use them at least 4–6 times a week. Specifically, this implies that when individuals perceive that using a technological system will provide tangible benefits and improve their activities, they are more likely to engage with that system[82]. The study's results underline the critical role of performance expectancy in shaping behavioral intentions, particularly in contexts involving technology adoption. The strong statistical significance further emphasizes the reliability of this relationship.

On the other hand, control have no significant relationship on online gambling behavioral intention of consumers resulting to $\beta = 0.134$ and p-value $= 0.008$. It has been revealed that respondents may have no self or financial control while using online gambling platforms. Based on the

constructs, respondents particularly undergraduate students, do not view perceived control as a key factor in their decision to engage in online gambling. This demographic is often characterized by impulsive decision-making, which can lead to a diminished sense of control over their activities. Pearson et al. [75] posited that individuals with high positive urgency are likely to engage in online gambling impulsively when experiencing strong emotions, increasing their risk for problematic gambling behaviors. This impulsivity trait suggests that when these individuals face emotional triggers, they might seek immediate gratification through gambling, regardless of its consequences. Cowley et al. [18] explained that there may be a sense of control illusion being presented by gamblers. That is, the projection and intuitive actions based on their largest wins would lead the illusion and projection of their control on gambling. It was hypothesized from their study that those with low losses may lead to believe that they still have control. Therefore, it could be posited that when low cash-ins are present and low losses are incurred, gamblers may perceive that they have control over their gambling actions – making this insignificant since their accountability is not a great loss.

Contrary to the discussion, Sohn [84] explained that control often is evident for those without stress and mental challenges. However, for others who grew up bombarded with purchase decision, high impulse, and reward-seekers, they end up with no control on gambling-related actions. Since this study only assessed whether respondents have the choice and freedom, financial control, and are allowed to control their online activities from Lowrey et al. [63], these are not related to why control would be highly significant.

Reflecting on the study by Lightsey and Hulsey [62], the impulsive nature of undergraduate students' decision-making means that their engagement in online gambling is driven more by immediate rewards and excitement rather than a calculated sense of control. This aligned with the previous study conducted by Riley et al. [80] that perceived return appeals more to individuals which mostly influences their willingness to engage and participate in online gambling activities. Also, Kim and Lucas [57] emphasized that personal innovativeness and perceived benefits significantly affect behavioral intention to participate in gambling platforms. The rejection of this hypothesis indicates that for this demographic, online gambling is more of an entertainment with immediate gratification, rather than an activity that requires control and careful considerations.

Furthermore, the relationship between curiosity and behavioral intention is insignificant ($\beta = 0.087$, p-value = 0.157). This suggests that curiosity alone is not a strong motivator for consumers to participate in online gambling activities. Based on the results, the respondents do not perceive curiosity as a primary driver for their intent to engage in online gambling activities. Lowrey et al. [63] provided evidence that consumers engage in online gambling out of curiosity and because of its rewarding experience. It is true that undergraduate students engaged in online gambling activities for curiosity or just to have something to do [71]; however, this factor does not significantly influence their behavioral intention to continue using these platforms. As provided in the same study, their engagement in these platforms were driven by more substantial motivations such as enjoyment, social influence, and perceived benefits. The rejection of this hypothesis indicates initial curiosity can lead to trial usage, but sustained engagement requires deeper motivations and perceived value.

Contrary to the findings of Tani et al. [88], it was presented that curiosity when sensation seeking behavior is evident promotes the positive gambling intention among adolescents. This was especially high when externalizing problems such as expectation and age-appropriate policies are violated, impulsiveness and aggression are evident, and oppositionality and interpersonal conflicts are present. Compared to this study, curiosity was only measured in the sense of spark of engagement, stimulation of senses and imagination, thrill, and wanting rewarding experiences. Since no violation or oppressive behavior were assessed, this may be one of the reasons why curiosity was not significant.

Perceived risk was also seen to have a significant negative effect on behavioral intention ($\beta = -0.183$, p-value < 0.001). In SEM, a negative beta (β) coefficient indicates an inverse relationship between two variables. This may occur because individuals who perceive greater risks—such as financial loss or addiction—are less inclined to engage in online gambling activities. However, Riley et al. [80] expressed that while gamblers are aware of significant risks such as financial loss and addiction, they also believe that gambling can offer high financial returns on their investment. As expressed in the experiment by Ciccarelli et al. [16], it was seen that younger generation gamblers are bias towards joining and engaging in cues that initiates financial gains, together with their peers who are non-gamblers. In accordance, younger generation participants have a positive attitude on distorted gambling and cognitions and that money is not highly negated (loses) as both were seen to mediate their control on fate[93]. Following the developed theory of Kahneman and Tversky [55], adverse emotions would play a role among investors or gamblers. That is, risk and loses are expected when gambling while gains are not that much appreciated by gamblers. There are less hyped emotions every win, but gamblers would adversely feel the loses significantly. This highlights a complex interplay where perceived risks are acknowledged, yet the potential for high financial rewards may outweigh these concerns for some individuals.

When it comes to perceived returns, the results showed significant positive effect on online gambling behavioral intention ($\beta = 0.088$, p-value = 0.019). This suggests that the perceived benefits or returns associated with online gambling positively influence users' intention to participate. Respondents view gambling as offering tangible benefits, which strongly impacts their intention to engage with these platforms. According to Hoffower and Kiersz [45], the study's demographic, primarily millennials, tends to earn more than other generations due to their active pursuit of opportunities that promise growth and profit. It could be deduced that respondents perceive online gambling as instrumental in achieving various objectives, from financial returns to recreational satisfaction. This aligns with Kim and Lucas [57], who found that perceived benefits and personal innovativeness are primary motivators for engaging with gambling platforms. Consequently, despite the awareness of risks, the potential for substantial returns significantly encourages users' intention and engagement, supporting the hypothesis that perceived returns have a significant effect on online gambling behavioral intention.

Nonetheless, risk is however quite evident when gambling activities are being performed. Especially among gamblers with perception of losses being inclined with their wins[18]. It was explained that vulnerable gamblers are within those with an illusion of control over their actions. When higher wins are evident, gamblers would perceive lower risks, leading to irresponsible actions. It is needed to be noted that there really is a need for reflection as self-worth and optimism may sometimes lead to overplaying the wins and reduce the perception of risks, a dangerous and powerful consequence to actions. It is therefore suggested that time and monetary values should be accounted prior to engagement on gambling by individuals to handle possible negative outcomes due to low perception of risks if associated with the wins. As adverse emotions based on Kahneman and Tversky [55] prospect theory are implicated, gamblers need to realize that control over actions are empirical when performing gambling activities.

5.1. Theoretical implications

The online gambling market in the Philippines has been growing rapidly and has become increasingly prevalent as it gives its consumers convenience and accessibility, allowing them to participate in various games and place bets from the comfort of their homes without the necessity to travel[85]. The country's gambling culture and government support from PAGCOR have been part of the growth of the online gambling industry[68]. As derived from this research, the consumers or players were given options and opportunities to play the games while on

the go. According to Camba [10], the market has seen trends where consumers have been immersed in live dealer games, and eSports betting mainly attracts new gaming enthusiasts.

This study extends the UTAUT3 model to online gambling, showing that its constructs can predict behavioral intentions in high-stakes environments. The substantial impacts of social influence and habit suggest that future models should emphasize peer dynamics and routines in gambling behavior[74]. Personal innovativeness also emerged as a critical factor, indicating the importance of individual traits in adopting new technologies[57].

This research provides a new perspective on theoretical frameworks and offers significant insights into the factors influencing the online gambling intentions of Gen Z and Millennials using the developed framework. Incorporating deterrents, such as perceived risk and incentives, such as perceived benefits and return[91] [92], and considering facilitating conditions, this study addresses the intricacies of the gambling intention of consumers. This study highlights the importance of cultural context, anticipating how social norms, economic conditions, and values shape the gambling behaviors of individuals in the Philippines. This approach provides us with a brief understanding of the use of online gambling in the country and supports a wider use of comprehensive theoretical frameworks in the study for use in other study-related approach.

5.2. Practical and managerial implications

5.2.1. For government agencies

As provided by Mildredford [68], the Philippines' gambling culture and the support the said industry is getting from the government (PAGCOR) have been one of the reasons for this industry's growth. There is a growing need for enhanced regulation and monitoring to prevent the proliferation of online gambling platforms that target young individuals, particularly students, Gen Zs, and Millennials, who have a big chance of being addicted to gambling[46]. In accordance, the Republic Act No. 7922, Executive Order No. 13, Section 3, implicates the enabling of online gambling among Filipino residents and are not supposed to be operated by foreigners. To add, the House Bill 8910 was put to help regulate e-sabong among other online gambling activities. However, there are no further laws, acts, or regulations regarding online gambling. By providing stricter regulations and oversight, the risks associated with online gambling can be mitigated. In line with the implications by Mildredford [68] and Hollén et al. [46], one of the concerns among governing bodies should be the mitigation among habitual use of younger generations. A strict implementation of timeframe for playing, limitations for money being put into online gambling, and hours of playing could be mandated by the government to mitigate utilization of online gambling among younger age groups. This would reduce the habitual rate among young gamblers and may also implicate less to no habit build up among upcoming players.

The Philippines currently has a law implicating that only those who are 21 years old and above could gamble, but the current structure of online gambling cannot be monitored. It is suggested that the government may need to create a policy for signing up before individuals could play such as uploading an official identification card with birthdate, registration, and acknowledgement of agreement. In addition, public awareness campaigns that highlight the risks, negative impacts of perceived risks, and the potentially deceptive nature of gambling that allures consumers may be implemented to prevent the misuse of online gambling applications. Since the current scenario in the Philippines does not have strict monitoring or reflection on online gambling, it should be noted that proper implementations from the developers may be needed (as suggested in the aforementioned section).

Nonetheless, this implication may only be reflected on with countries having the same regulation, age-related only, and those with more developed control may have different reflection on government implications. Since there is a rapid increase in online gambling activities in the country, the government may establish and promote support systems, such as counseling services, for individuals who are struggling or are about to experience gambling addiction. As per the output of the study, risk was seen to have a negative beta output. Therefore, implications of raising awareness of risk may reduce the intention to play online gambling among younger generations which governing bodies should account for. Advertisements and short clips may be added among social media sites since younger generations are said to be highly engaged in it. This way, high information dissemination may be observed.

5.2.2. For online gamblers

This study provides insights into managing their gambling behaviors, particularly for Gen Z and Millennials. As shown by the results, social influence, habit, and hedonic motivation significantly impact gambling intentions; hence, understanding these factors would help an individual recognize and manage the circumstances and influences in their behavior. Being aware of these influences is vital for self-regulation and control. Additionally, online gamblers should be educated about the possible risks and circumstances that they could experience once they associate themselves with gambling. With this, online gamblers should have foreseen possible strategies that they could implement should they be fully immersed in the game to prevent themselves from online gambling addiction. Financial management and literacy are critical. Given that financial return is one of the driving forces on why individuals engage in gambling, managing their funds is necessary as online gambling is generally a form of entertainment and not a source of income. It could be deduced that consumers must make informed decisions whenever they engage in gambling activities.

5.2.3. For developers

Based on the study's findings, developers of online gambling platforms should create a user experience that balances engagement with ethical responsibility and social awareness. While intuitive design and engaging features enhance appeal, developers must consider their potential to foster addictive behaviors. With that, it is essential to integrate responsible gambling tools, such as clear risk messaging, betting limits, self-exclusion options, and access to support resources. They should also transparently communicate the actual probabilities of winning and the risks associated with gambling like incorporating periodic notifications reminding users of their performance, as well as realistic chances of winning and losses to help them make informed decisions.

Furthermore, developers should also promote a safe and responsible community that discourages excessive gambling. They should consider the potential mental health impacts of online gambling such as stress and addiction. This could be done by providing access to mental health resources like hotlines and counseling services, as well as implement features like cool-down periods between games and real-time alerts when users approach their self-imposed limits to encourage responsible gambling. While online gambling is a form of entertainment, it should be moderated to protect users and maintain ethical standards and corporate social responsibility. In accordance, prompt of the need for identification through legal processes like uploading and verification of person playing (*i.e.*, of legal age, resident, and validation), substantial amount for playing, and initial stop of credit prompts could be utilized to enhance security, protect vulnerable individuals, and promote economic stability.

5.3. Limitations and future research

While this study provides valuable insights into the online gambling behaviors of Gen Z and Millennials in the Philippines, several limitations and areas for future research should be acknowledged. The study focuses on a specific demographic group, namely the Gen Z and Millennials of the Philippines, which limits the generalizability of the findings. Future researchers can address this by adopting mixed-method approaches,

combining surveys with qualitative interviews or focus group discussions to uncover more nuanced comprehensions regarding an individual's motivations and experiences. Moreover, older generation group may also be considered and compare with this study's benchmark output to gain better implications and insights. To which, future researchers may consider cultural factors, enable the assessment and data curation from different countries for comparison and contrast. In accordance, future studies may reflect on religious beliefs, familial attitudes, and relative subjective norms factors in similar conservative societies like the Philippines. Other constructs and factors under thrill, escape, and/or emotional coping mechanisms could be explored on. Since this study opted to align with the established UTAUT3 framework as a benchmark analysis, the deduction and addition/framework extension was limited due to numerous variables already present.

In addition, only those who are already engaged in playing/gambling are the considered respondents. Factors under habit for example may emerge differently among those who has not yet gambled or are just planning to start gambling. Future researchers may consider them and could provide other implications. Moreover, researchers could benefit from diversifying analytical tools beyond structural equation modeling (SEM), as integrating machine learning data mining techniques can reveal patterns and relationships that SEM might not have shown. While SEM provides a precise measurement of theoretical concepts[40], supplementing quantitative findings with qualitative analyses would provide a deeper exploration of participants' beliefs and attitudes about online gambling intention. To add, future researchers may consider weighting analysis of factors and variables to specifically implicate the factors affecting online gambling intention.

Since this study covers a particular period, researchers may consider conducting longitudinal studies that could offer deeper insights into how these behaviors and influencing factors evolve[65]. Further research could also explore the dimensions of perceived risks and returns in more detail, including the types of risks and returns most influential in driving online gambling behaviors. Other framework and variables from gambling addition theory and problem gambling constructs may be explored and expanded by future researchers. Additionally, as technology continuously grows, investigating the impact of technological advances on online gambling behaviors and intentions would provide a forward-looking perspective on the evolving landscape of online gambling. Lastly, researchers could focus on evaluating the effectiveness of different interventions aimed at reducing problematic gambling behaviors and mitigating the challenges associated with online gambling among young individuals.

6. Conclusion

The structural equation modeling (SEM) analysis provides valuable insights into the factors influencing the online gambling intentions of Gen Z and Millennials in the Philippines. The results revealed a significant relationship between the Unified Theory of Acceptance and Use of Technology (UTAUT3) framework and the factors affecting individuals' online gambling intentions. These factors include performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, and personal innovativeness, as well as extended variables like perceived risk and perceived returns.

The data indicate that while financial returns and gains motivate Gen Z and Millennials to participate in online gambling, they are not the sole factors. The significant effects of performance expectancy and effort expectancy suggest that users perceive online gambling platforms as efficient and user-friendly. Social influence also plays a role, indicating that peer pressure and societal norms drive engagement and motivation. Additionally, facilitating conditions, such as the availability of resources and support, ease access to and use of these platforms for consumers and potential users.

Hedonic motivation is also significant, reflecting the enjoyment and pleasure users derive from gambling. Habit in this study emphasizes the routine nature of this activity, showing that once an individual becomes immersed in the game, it becomes a regular expectation. Personal innovativeness highlights individuals' willingness to try new technologies and platforms. Given that Gen Z and Millennials are adaptable and exposed to a wide range of technologies, their acceptance of gambling platforms is expected. However, curiosity does not significantly influence online gambling behavior, implying that it is not a primary motivator for users to gamble. On the other hand, price value reflects users' acceptance of the costs associated with online gambling and their perception of the cost-to-benefit ratio. This suggests that participants are willing to incur gambling expenses if they believe the benefits overshadow the costs. The study also found that control is not a significant factor influencing online gambling intentions. Despite having no control and being aware of risks such as monetary loss and addiction, gamblers' concerns are often outweighed by their belief in the potential for substantial financial returns. The mindset of "high risk, high reward" underscores why perceived returns are strongly significant in shaping online gambling intentions among Gen Z and Millennials.

Finally, this study contributes to existing research by providing a comprehensive understanding of how different factors affect online gambling among Gen Z and Millennials in the Philippines. On a theoretical standpoint, this study was able to utilize and present significant proof on the use of UTAUT3 in other context from literatures (*i.e.,* education and mobile games). This study highlights that the UTAUT3 could be used as long as individuals are engaged and are using the technology. Second, the higher-order construct could provide better evidence of measuring significant variables affecting intention since most studies provide more insignificant variables when assessed using lower-ordered construct as explained by Yuduang et al. [94]. Sarstedt et al. [81] explained that this reduced the path the SEM needs to analyze, presenting higher predictive power. Third, the findings helped in developing and providing managerial and pracitcel insights. It emphasizes the roles of social and habitual influences, personal innovativeness, perceptions of risk and reward, and external support, offering a framework for understanding and managing online gambling behaviors in this demographic.

CRediT authorship contribution statement

Jerald C. Antonio: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Ardvin Kester S. Ong:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **John Francis T. Diaz:** Writing – original draft, Visualization, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Maela Madel L. Cahigas:** Writing – review & editing, Visualization, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Ma. Janice J. Gumasing:** Writing – review & editing, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.entcom.2024.100918.

Data availability

Data will be made available on request.

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