

ANTECEDENTS OF SIMULATIONS GAMES USAGE AND ITS IMPACT ON ENHANCING MANAGERIAL SKILLS AMONG MANAGEMENT STUDENTS

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Abstract—Employing Business Simulation Games (BSG) as instructional resources provides management students with a unique opportunity to apply theoretical insights in a simulated context, thus enhancing the overall educational atmosphere and invigorating classroom interactions. Despite clear evidence of their benefits, the uptake of these simulation games in Indian business schools and management faculties is relatively limited. Study on the factors influencing their use and their effectiveness in enhancing management comprehension and abilities in areas like communication, decision making, and problem-solving is still in its initial stage. The research utilizes the enhanced “Unified Theory of Acceptance and Use of Technology” (UTAUT2) to examine how aspects such as effort expectancy, performance expectancy, facilitating conditions, hedonic motivation, price value, and social influence affect the wider acceptance of BSGs. Information was gathered and examined from 188 management students from diverse educational backgrounds and locations, all of whom have engaged with simulation games previously. After conducting thorough validity and reliability assessments, a structural equation modelling approach was utilized via SPSS AMOS to map out the relationships between measured variables and their foundational constructs. The results underscore the crucial impact of engaging with BSGs on enhancing key areas such as knowledge understanding, communication, decision-making, and problem-solving abilities in management students.

Keywords: *Simulation Games, Managerial Skills, Enhancement, Experiential Learning.*

1. INTRODUCTION

The realm of management education is a unique fusion of science and art, where the former requires diligent study and the latter, practice. Theories and principles of management remain constant under ordinary circumstances and can be learned from textbooks or through conventional teaching methods such as lectures and various academic resources. However, the challenge arises in mastering the art of management, which necessitates the development of essential skills and competencies. Developing proficiencies and potential in areas such as teamwork, analytical thinking, problem identification and solving, making informed decisions, and effective communication is not straightforward. It requires innovative teaching and learning methodologies to better understand and address complex situations, ensuring the desired outcomes are achieved.

Management students are expected to develop a diverse set of skills to prepare them for a dynamic and challenging future work environment, both locally and globally. Management institutions, therefore, strive to enhance skill sets and learning outcomes, focusing on ensuring conceptual clarity in addition to mere knowledge acquisition. The professional world has specific expectations of business graduates, yet a gap between academic preparation and professional requirements has been identified by several scholars, indicating a disparity in expectations. (Keys & Wolfe, 1988; Nicolaidis & Michalopoulos, 2004; Sridevi, 2020). Employers often find that students lack essential skills, leading to an employability gap (Mill, 2007)

To address this research gap, educational institutions at the tertiary level have explored a variety of instructional strategies, including action-oriented learning or learning by doing (Reynolds & Vince, 2004), learning that is grounded in evidence, drawing from empirical research and findings to inform teaching and educational practices (Rousseau & McCarthy, 2007), learning through experience (Raelin, 2007), and learning by addressing problems or through the process of solving problems (Lovelace et al., 2016), all together designed to bolster students' knowledge and skills necessary for success in intricate business settings. Within this array of pedagogical innovations, simulation games have notably set themselves apart within the sphere of business education, offering a robust method for engaging, experiential, and problem-oriented learning (Adobor & Daneshfar, 2006; Farashahi & Tajeddin, 2018; Sheikh et al., 2023). Given their proven efficacy, simulation games are often considered more advantageous than conventional educational techniques like lectures and case studies (Farashahi & Tajeddin, 2018). This study delves into the antecedents that motivate management students to embrace Business Simulation Games (BSG) and assesses their impact on the enhancement of vital managerial competencies.

2. RESEARCH CONTEXT AND HYPOTHESIS

2.1. Simulation Games

The history of using simulation can be tracked back in history, when the Chinese first developed and used the games played on boards and the war-based games that could be approximately 5000 years ago. As per a study made, it is acknowledged that, the roots of the contemporary business simulation games date back to 1932 in Europe and 1955 in North America, marking their historical inception points (Faria et al., 2009). (Faria et al., 2009), since then business simulation and games become popular and spread quickly across the world. Today simulation is used in higher education and training employees in the companies (Faria et al., 2009; Mill, 2007; Sitzmann, 2011). The Business simulation games are considered as computer-generated, simulated depictions of real business and market situations which will allow the learners to test theories, make decisions to run the companies in local or global environment with lesser risks. Simulation is a transition from a traditional learning system to experiential learning, it is a change from instructor centric learning to students centric learning as players actively involved in the learning process. The concept that experiential learning is a more powerful instrument for talent acquisition and skill development (Pivec, 2007), simulation enhance experiential learning through active participation. (Chang et al., 2003; Lovelace et al., 2016; Pivec, 2007; Raelin, 2007). It is an active process where both the instructor and learners are involved to learn and execute decisions in an exposed environment for better understanding. By playing simulation games, users can engage more interactively and enjoyably with instructional content of multiple aspects, which are not possible to characterize with other teaching methodologies (Farashahi & Tajeddin, 2018). One of the previous study suggested that students levels of learning is higher when simulation games are used but this enhancement diminishes when transitioning from simulation methods to case studies and lectures (Farashahi & Tajeddin, 2018).

Many studies have proven the utilization of simulation games as an effective educational instrument in business education especially in developing management skills like communication and problem solving as well as competencies which are critical for budding managers such as team building and decision making skills (Adobor & Daneshfar, 2006; Chang et al., 2003; Costin et al., 2019; Faisal et al., 2022; Lovelace et al., 2016; Mustata et al., 2017; Sheikh et al., 2023; Torres & Augusto, 2017), but there is barely literature to comprehend features influencing the use of BSGs. Moreover past studies on simulation games are conducted in other developed countries, (Buil et al., 2018; Chang et al., 2003; Costin et al., 2019; Farashahi & Tajeddin, 2018; Kiss & Schmuck, 2021; Pando-Garcia et al., 2016; Pitic & Irimias, 2023; Ranchhod et al., 2014; Sheikh et al., 2023). So, this research aims to explore the antecedents of simulation game usage and the subsequent enhancement of three prevalent management skill (Communication, Decision Making and Problem solving skills) among students pursuing their management programs who has experienced simulation games as part of their curriculum.

3. OBJECTIVES

- To understand the factors leading to use simulation games among management students in business school.
- To understand the usefulness of simulation games in better understanding of management concepts and developing management skills which includes communication skills, problem-solving skills, and decision-making skills among management graduates.
- To finds out the major courses in which simulation games are implemented in Business schools.

The content is divided into a section for better understanding as follows: first section contains introduction, the theory background, including the literature review in a similar domain conducted in the past, the research methodology, second

section contains the hypothesis development and the third section contains the Analysis which is followed by discussion, major findings, limitation and future scope for study.

4. RESEARCH METHODOLOGY

4.1. UTAUT2

The journey from the “Unified Theory of Acceptance and Use of Technology” (UTAUT) to its evolved version, UTAUT2, marks a significant leap in understanding technology adoption behaviors. Initially introduced by (Venkatesh et al., 2003), the fundamental construct delineated from UTAUT are —Effort Expectancy (EE), Performance Expectancy (PE), Facilitating Conditions (FC), and Social Influence (SI)—supplemented by moderating factors like age, gender, experience, and willingness. This framework was pivotal for analyzing technology adoption within consumer contexts, diverging from business applications.

Advancing their work, (Venkatesh et al., 2012) expanded the original model through introducing three new constructs: Price Value (PV), Habit, and Hedonic Motivation (HM), thereby creating UTAUT2. This refined model offers a deeper perspective, especially by incorporating PE, EE, SI, FC, HM, and PV as crucial elements impacting the inclination to use technology, ultimately facilitating its adoption.

Our study leverages the UTAUT2 model, tailoring it to the realm of technology-based BSGs. Notably, we have opted to exclude the Habit construct due to the premise that substantial experience with BSGs is required to assess its impact accurately. Given that BSGs are typically procured through educational institutions via registration and payment, the limited accessibility and high cost may restrict frequent use, thus impeding the formation of habitual play.

We focused on six constructs from UTAUT2—Performance Expectancy, Effort Expectancy, Hedonic Motivation, Price Value, Facilitating Conditions, Social Influence—as antecedent variables determining the utilization of simulation games. This adaptation seeks to illuminate the effects of BSG usage on enhancing management learning outcomes, including knowledge acquisition, communication skills, decision-making, and problem-solving abilities, integrating additional variables from subsequent studies (Isaac et al., 2019). The empirical data supporting this investigation were gathered from management students with prior exposure to BSGs, underscoring the model's application to real-world educational settings as depicted in Figure 1.

Through this approach, our research endeavours to bridge the gap in understanding the specific dynamics driving BSG adoption in educational contexts, alongside evaluating the pedagogical impact of simulation games on developing essential managerial competencies.

4.2. Hypotheses Development and Research Model

4.2.1. Performance Expectancy (PE):

Building on the insights from (Venkatesh et al., 2012), PE is conceptualized as a level to which management student believes that engaging with simulation games could significantly enhance their understanding of management concepts, knowledge acquisition, and the development of essential management skills and competencies. This conviction stems from the perceived utility and practical benefits that BSGs offer, making them a potent tool for educational enrichment. The well-established benefits of implementing BSGs in improving understanding and practical application of management concepts highlight their significance as a learning tool. The motivation behind Performance Expectancy is external, focusing on the aspiration to boost both job performance and educational achievements (Davis, 1989; Venkatesh et al., 2012). The foundational belief is that if individuals perceive a technology or system as beneficial to their professional or academic endeavors, they are more inclined to adopt and utilize it (Chauhan & Jaiswal, 2016). Based on these considerations, we articulate hypothesis:

H1: PE positively influences the use of business simulation games.

4.2.2. Effort Expectancy (EE):

EE refers to “ease” and “simplicity” linked to utilizing a particular technology or system. This construct suggests that the simpler and more user-friendly a technology is perceived to be, the higher the likelihood of its adoption and use (Davis, 1989). It encapsulates the notion that the usability of a system—its simplicity, flexibility, and the minimal effort required for its effective operation—directly influences an individual’s decision to engage with it. Within the framework of business simulation games, the principle of Effort Expectancy posits that games which are straightforward and easy to navigate enhance the learning experience, making them more appealing to users. The beneficial effect of ease of use on learning outcomes, particularly within simulation games, has been supported by various studies (Adobor & Daneshfar,

2006; Chauhan & Jaiswal, 2016). Therefore, the ease with which students can engage with simulation games is anticipated to significantly affect their willingness to incorporate these tools into their learning repertoire. As a result, the hypothesis we put forward:

H2: EE positively influences the use of business simulation games.

4.2.3. Social Influence (SI):

SI encapsulates the effect that the opinions and behaviors of one's social network, including family, friends, peers, classmates, and reference groups, influence a person's choice to embrace and utilize new technology. As Venkatesh et al., (2012) highlight, this element acknowledges the influence of social dynamics in shaping perceptions and actions towards technology utilization. In the realm of business simulation games, SI suggests that endorsements or recommendations from within an individual's social circle can significantly motivate their engagement with these educational tools. This influence is predicated on the notion, people are more inclined to embrace technology upon witnessing its positive reception and usage among their social connections, who they trust and value (Pando-Garcia et al., 2016; Zulfiqar et al., 2019). Consequently, the existence of a helpful and encouraging societal environment is believed to be key in encouraging the uptake of business simulation games among management students. Therefore, based on the significance of social endorsement and peer influence in technology adoption processes, we advance the hypothesis:

H3: SI positively influences the adoption and utilisation of business simulation games.

4.2.4. Facilitating Conditions (FC):

FC encompass the awareness of available resources and assistance which aids individuals in efficiently utilizing a technology (Venkatesh et al., 2012). This construct is rooted in the understanding that the environment surrounding a user—including the presence of necessary hardware, software, instructional guidance, and technical support—holds a pivotal position in the initial adoption and ongoing utilization of a technology. Specifically, within the scope of business simulation games (BSGs), presence of the knowledgeable instructors, technical assistants, and the requisite technological infrastructure (like laptops, PCs, and a stable internet connection) can significantly influence a student's ability to engage with and benefit from BSGs. Research has demonstrated that facilitating conditions impact both the intent to use BSGs and play a substantial role in their real adoption and use of such technologies (Chauhan & Jaiswal, 2016; Venkatesh et al., 2012; Wang et al., 2020). The premise here is that when students perceive a supportive and resource-rich environment, their willingness and capacity to utilize BSGs as a learning tool are enhanced. Hence, acknowledging the importance of a conducive learning environment in fostering technology adoption, we put forward, the hypothesis:

H4: FC have a positively influences the adoption and usage of business simulation games.

4.2.5. Hedonic Motivation (HM):

HM is characterized by the enjoyment, pleasure, or fun resulting from engaging with a technology, significantly influencing its acceptance and continued use (Brown & Venkatesh, 2005). This dimension of user experience highlights that beyond practical utility, the emotional and experiential satisfaction obtained from using technology features decisive role in its adoption. Within the realm of business simulation games, HM underscores the idea that the intrinsic joy and engagement experienced by students while navigating through simulations can be a powerful motivator for their utilization.

Studies have consistently shown that perceived enjoyment and excitement not only fuel the intention to use technology but also forge a direct pathway to its adoption (Brown & Venkatesh, 2005; Wang et al., 2020). When students find simulation games to be enjoyable and stimulating, they are more likely to incorporate them into their learning processes, seeking out these experiences not just for educational value but also for the inherent pleasure they offer.

Given the significant impact of Hedonic Motivation on technology acceptance, particularly in educational settings where engagement can enhance learning outcomes, we advance the following hypothesis:

H5: HM exerts a positive effect on the use of business simulation games.

4.2.6. Price Value (PV):

PV represents the cognitive assessment made by consumers weighing the benefits of a technology as perceived by users against its related expenses. Within the framework of UTAUT2, as outlined by (Venkatesh et al., 2012), PV is identified as a crucial determinant influencing technology adoption decisions. This construct posits that a favorable evaluation of the benefits in relation to the monetary costs of a technology leads to a higher likelihood of its use.

In the context of business simulation games, Price Value becomes a significant consideration given that these educational tools often come with associated costs, such as subscription fees, purchase prices, or licensing expenses. For students and educational institutions alike, the decision to invest in business simulation games hinges on the perceived value these simulations offer in enhancing learning experiences compared to their financial outlay. When the perceived educational and experiential benefits of using simulation games substantially outweigh their costs, the inclination to adopt and integrate these technologies into the learning environment increases.

Given the importance of cost-benefit considerations in the adoption of educational technologies, we put, the hypothesis:

H6: PV positively effects adoption and use of business simulation games.

4.2.7. Usage Behaviour:

For usage behaviour the overall count of courses for which simulation games were used was considered along the total number of time simulation games use for that particular course in a semester. The data for usage of simulation games given in table-2.

4.2.8. Knowledge Acquisition:

KA is defined as the process of absorbing and integrating facts, principles, theories, and practices pertinent to a specific field of study or work. In the realm of management education, possessing a robust understanding of business concepts is indispensable. The deployment of simulation games in management training has been recognized for its considerable contribution to both student engagement and the effective assimilation of management concepts and knowledge (Torres & Augusto, 2017). These interactive platforms offer a vibrant and engaging learning setting, allowing learners to implement theoretical insights within simulated real-life business situations, thereby reinforcing their understanding and retention of key management principles.

Given the empirical evidence supporting the efficacy of simulation games in promoting a deeper understanding of business management concepts, the following hypothesis is posited:

H7: The utilization of simulation games significantly enhances the acquisition of management knowledge among students

4.2.9. Communication Skills:

CS encompasses the process of transmitting information effectively, where success is measured by the ability to convey messages within established norms and contexts to achieve the desired outcomes. For management graduates transitioning from academic settings to the professional arena, the ability to communicate effectively is crucial. It not only serves as a tool for motivation but also significantly enhances employee performance (Paksoy et al., 2017). Incorporation of simulation games into management education has been shown to be an effective method for developing communication skills. These simulations provide a practical and interactive environment where students can hone their interpersonal skills by navigating through scenarios that mimic real-world business challenges (Ayudhya, 2015; Bodnar & Clark, 2017; Mustata et al., 2017). Furthermore, the usage of simulation games in teaching pedagogies has been recognized for its effectiveness in fostering interpersonal skills among learners (Farashahi & Tajeddin, 2018).

Considering the evidences for simulation games' effectiveness in boosting communication skills, the following hypothesis is advanced:

H8: Engaging with simulation games significantly aids in enhancing communication abilities.

4.2.10. Decision Making Skills:

DMS involves choosing the optimal alternative from a set of alternatives, typically under conditions of limited information and time constraints. For students pursuing management studies, the capacity to make well-informed and prompt decisions is a critical skill, pivotal for their future roles in business leadership. Simulation games have been recognized as a potent tool for cultivating decision-making skills, offering a realistic and engaging platform that mirrors complex business situations (Faisal et al., 2022). Through engaging with business simulation games, students are thrust into dynamic scenarios where they must navigate challenges, weigh options, and make strategic decisions akin to those in the real world, albeit within a controlled, risk-free environment.

Given the efficacy of simulation games in enhancing the practical decision-making capabilities of management students, we articulate the following hypothesis:

H9: Engagement with simulation games significantly fosters the growth of decision-making skills.

4.2.11. Problem Solving Skills:

PSS entails devising effective solutions in response to unfamiliar situations or challenges within certain limitations. This cognitive process, essential across various professions, requires a blend of analytical thinking and creative solution crafting (Frensch & Funke, 2002; Mourtos et al., n.d.). For management graduates, the ability to adeptly navigate and resolve complex business issues is crucial, especially given the unpredictable nature of today’s business landscape. Simulation games have been identified as a valuable tool in enhancing problem-solving abilities among management students. These interactive platforms simulate real-world business scenarios, requiring students to apply critical thinking and strategic decision-making to overcome challenges. Research indicates that students perceive simulation and case study methods as superior to traditional lectures in developing problem-solving skills (Farashahi & Tajeddin, 2018). Thus, incorporating simulation games into business education is posited to significantly improve the problem-solving competencies of management students.

Given the demonstrated effectiveness of simulation games in fostering problem-solving abilities, the following hypothesis is proposed:

H10: Participation in simulation games positively influences the enhancement of problem-solving skills.

4.3. The Proposed Research Model

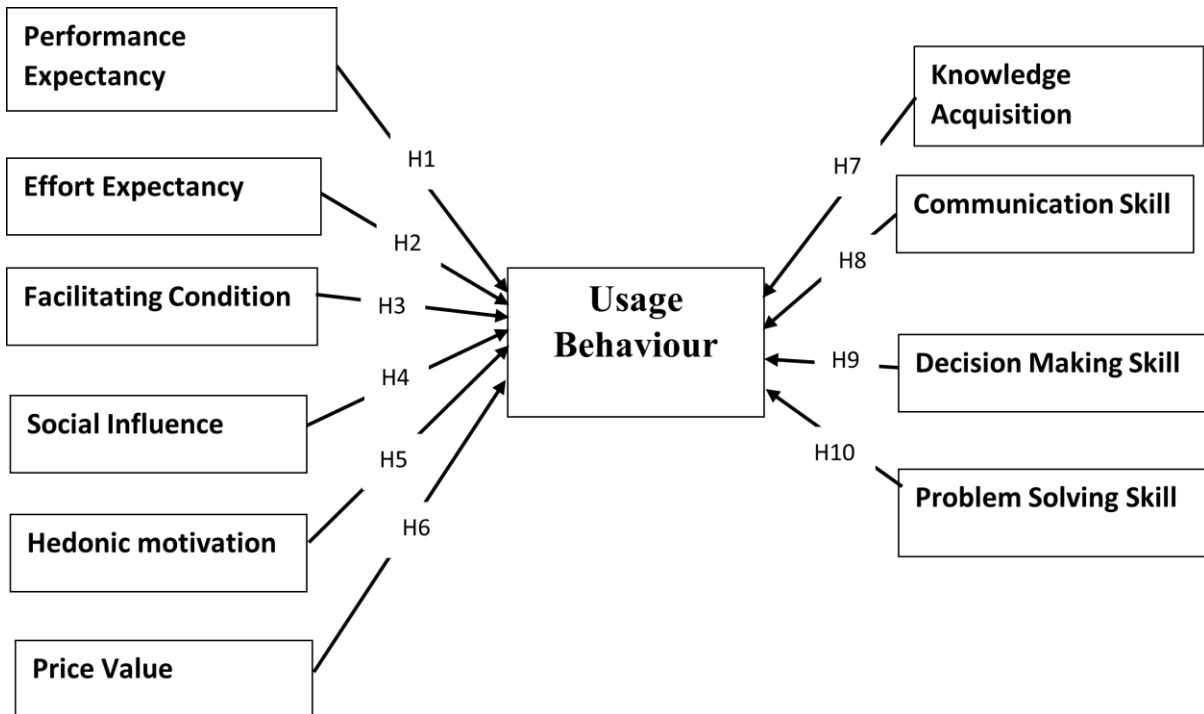


Figure 1: Proposed Research Model

4.4. The Research Methodology

This study's methodology focused on gathering insights from postgraduate students enrolled in management programs who have had practical exposure to simulation games within their curriculum. Total 188 participants completed the survey, with a nearly equal gender distribution: 93 female respondents (49.5% of the total) and 95 male respondents (50.5% of the total), as detailed in Table 1. The survey consisted two main sections: the first collected demographic information of the participants, while the second delved into aspects concerning behavioural intentions, usage behavior, and the development of managerial skills, comprising a comprehensive list of 38 items.

4.5. Data Collection

For the purpose of measuring the items for the construct, the model proposed for the study was assumed from the already existing studies, (Isaac et al., 2019; Venkatesh et al., 2012, 2003) and further alter for this research to fit to the context. In order to fulfil the objective i.e to identify the elements that influence students to apply the BSGs, and the outcome of

usage. The data was gathered from students attending business schools, colleges, and universities located in India, who already have an experience of simulation management games. 205 responses were gathered by circulating questionnaires through emails, out of which 188 data found to be complete and useable, remaining were rejected as incomplete and unusable data. Measurement items for antecedents to use to business simulation games were embraced from UTAUT2 model (Venkatesh et al., 2012) while outcomes variables,- knowledge acquisition, decision making , problem solving and communication skills were taken from previous study (Isaac et al., 2019). For the study, a 7-point Likert scale was utilized to gauge responses, where 1 signifies “Strongly Disagree”, 2 indicates “Disagree”, 3 is “Somewhat Disagree”, 4 represents “Neither Disagree nor Agree”, 5 means “Somewhat Agree”, 6 stands for “Agree”, and 7 denotes “Strongly agree”.

5. DATA ANALYSIS AND RESULT

The study encompassed 188 respondents, balanced across genders with 93 females and 95 males, as detailed in Table-1. This diverse group provided insights into the use of simulation-based games within various management courses. The investigation revealed that simulation games are predominantly utilized in Marketing, showcasing the highest implementation rate among the courses evaluated. This was closely followed by Finance, Operations Management, Strategy, Logistics, and Supply Chain Management, with Entrepreneurship and Human Resource Management also making significant use of simulation games. Organizational Behavior emerged as the area with the least implementation of simulation games, indicating varied application across different facets of management education. (Table-2)

Table 1: Characteristic of respondent

Respondent					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	93	49.5	49.5	49.5
	Male	95	50.5	50.5	100
	Total	188	100	100	

Table 2: Table for the course which simulation games were used

Course	Marketing	Entrepreneurship	Finance	Human Resource	Operation Management	Strategy	Organizational Behaviour	Logistic and Supply Chain Management
Total Participated	107	46	71	37	70	62	19	62

5.1. Model Fit Test

The analysis indicated that the Composite Reliability (CR) ranged from 0.906 to 0.960, surpassing the advised threshold of 0.7, and the Average Variance Extracted (AVE) varied between 0.649 and 0.879, exceeding the recommended benchmark of 0.5 (J. Hair et al., 2017; J. F. Hair et al., 2020). These results confirm the model's reliability and validity as detailed in Table 4. A factor loading above 0.7 was deemed significant (J. F. Hair, 2009), with all study items meeting this criterion, as showcased in Table 4. The Confirmatory Factor Analysis assessed the fit of both the measurement and structural models, determining the overall model fit to be good based on metrics such as CMIN/dif, CFI, TLI, NFI, IFI, and RMSEA, all aligning with accepted standards (Bentler, 1990; Hu & Bentler, 1998), thus indicating a well-fitting ten-factor model. (Table 3)

Table 3: Fit Indices from Measurement Model and Structural Model

Model	X²	Df	X²/df	RMSEA	CFI	IFI	NFI	TLI
Measurement Model	971.808	574	1.693	0.061	0.95	0.95	0.887	0.942
Structural Model	1127.811	604	1.867	0.068	0.934	0.935	0.869	0.927

Table 4: Factor Loading, Composite Reliability and Average Variance Extract

CONSTRUCTS	Mean(S.D.)	FACTOR LOADING	C.R.	A.V.E
EE	17.98(6.21)		0.950	0.813
EE1		0.902		
EE2		0.927		
EE3		0.904		
EE4		0.872		
SI	13.42(4.36)		0.932	0.821
SI1		0.907		
SI2		0.936		
SI3		0.873		
FC	18.05(5.85)		0.913	0.725
FC1		0.778		
FC2		0.875		
FC3		0.884		
FC4		0.864		
PE	20.08(6.78)		0.958	0.850
PE1		0.927		
PE2		0.949		
PE3		0.929		
PE4		0.881		
HM	14.48(4.88)		0.952	0.868
HM1		0.939		
HM2		0.939		
HM3		0.916		
PV	13.20(4.27)		0.920	0.793
PV1		0.858		
PV2		0.906		

PV3		0.907		
USB	6.52(4.44)		0.786	0.649
Subject Total		0.885		
Total Use		0.719		
KA	14.96(4.75)		0.906	0.763
KA1		0.9		
KA2		0.91		
KA3		0.807		
CS	14.44(4.96)		0.930	0.815
CS1		0.907		
CS2		0.903		
CS3		0.898		
DMS	19.56(6.12)		0.960	0.856
DMS1		0.904		
DMS2		0.93		
DMS3		0.947		
DMS4		0.919		
PSS	19.90(6.37)		0.967	0.879
PSS1		0.924		
PSS2		0.944		
PSS3		0.948		
PSS4		0.934		

“Expectancy, SI = Social Influence, FC = Facilitating Condition, PE = Performance Expectancy, HM = Hedonic Motivation, PV = Price Value, USB = Usage Behaviour, KA = Knowledge Acquisition, CS = Communication Skill, DMS = Decision Making Skill, PSS = Problem Solving Skill, S.D. = Standard Deviation, C.R. = Composite Reliability, A.V.E =Average Variance-Extracted”

5.2. Model result

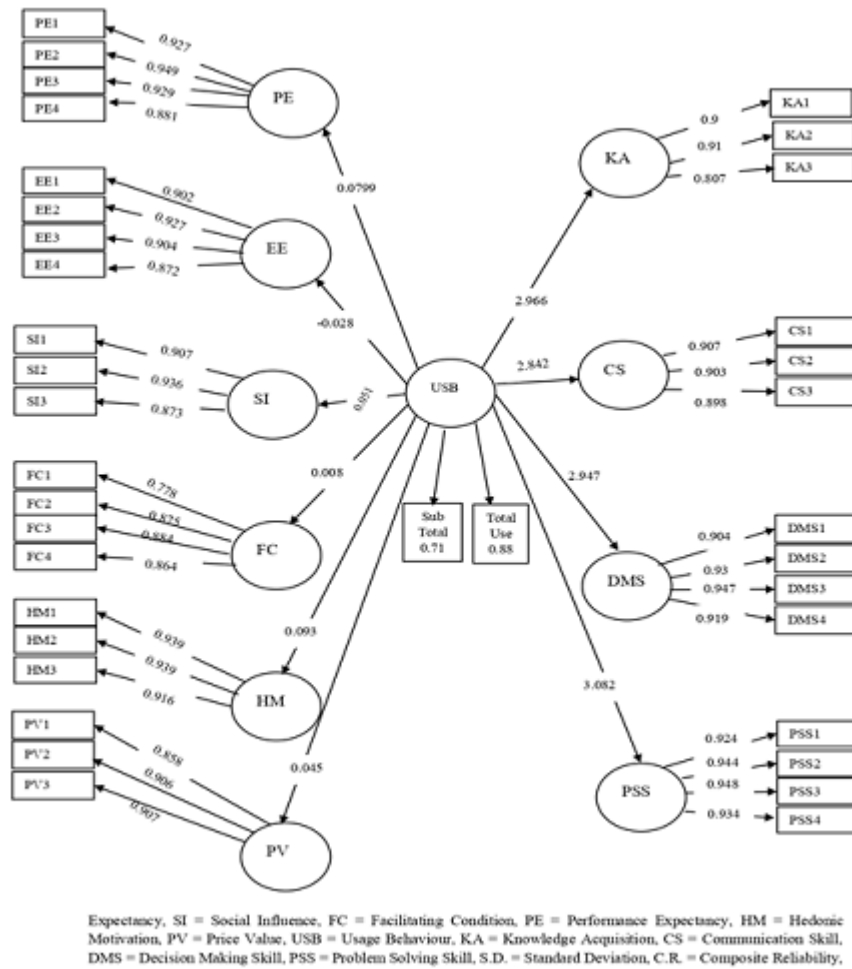


Figure 2: The Propose model result

Figure 2 is shown above.

Table 5: Path Model

Hypothesis	Independent		Dependent	Estimate	S.E.	C.R.	P	Result
H1	PE	--->	USB	0.079	0.029	2.731	0.006**	Supported
H2	EE	--->	USB	-0.028	0.029	-0.97	0.332	Rejected
H3	SI	--->	USB	0.051	0.031	1.65	0.099*	Supported
H4	FC	--->	USB	0.008	0.037	0.209	0.834	Rejected
H5	HM	--->	USB	0.093	0.033	2.808	0.005**	Supported
H6	PV	--->	USB	0.045	0.033	1.359	0.174	Rejected
H7	USB	--->	KA	2.966	0.627	4.729	***	Supported
H8	USB	--->	CS	2.842	0.606	4.686	***	Supported
H9	USB	--->	DMS	2.947	0.614	4.797	***	Supported

H10	USB	--->	PSS	3.082	0.641	4.81	***	Supported
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“EE = Effort Expectancy, SI = Social Influence, FC = Facilitating Condition, PE = Performance Expectancy, HM = Hedonic Motivation, PV = Price Value, USB = Usage Behaviour, KA = Knowledge Acquisition, CS = Communication Skill, DMS = Decision Making Skill, PSS = Problem Solving Skill, * $p < 0.10$, ** $p < 0.050$, *** $p < 0.001$ ” Table 5 is shown above.

5.3. Analysis

1. **H1 (Performance Expectancy):** Confirmed a positive relationship with the usage of simulation games ($\beta = 0.079$, $t = 2.731$, $p < 0.05$), validating that, students perceive simulation games as beneficial.
2. **H2 (Ease of Use):** Revealed no significant influence on simulation game usage ($\beta = -0.028$, $t = -0.97$, $p > 0.05$), leading to the rejection of the hypothesis that ease of use is a determinant factor.
3. **H3 (Social Influence):** Demonstrated a positive effect ($\beta = 0.051$, $t = 1.65$, $p < 0.10$), supporting the notion that social factors encourage the use of simulation games.
4. **H4 (Facilitating Conditions):** Showed an inconsequential relationship ($\beta = 0.008$, $t = 0.209$, $p > 0.05$), refuting the hypothesis that facilitating conditions significantly drive the usage of simulation games.
5. **H5 (Hedonic Motivation):** Indicated a positive and significant relationship ($\beta = 0.093$, $t = 2.808$, $p < 0.01$), accepting the hypothesis that hedonic motivation play important role in promoting the use of simulation games.
6. **H6 (Price Value):** Found to have no meaningful impact ($\beta = 0.045$, $t = 1.359$, $p > 0.05$), hence, the hypothesis suggesting price value affects the adoption of BSGs was rejected.
7. **H7 (Knowledge Acquisition):** Confirmed a significant positive relationship ($\beta = 2.966$, $t = 4.729$, $p < 0.001$), illustrating that simulation games are effective in enhancing the understanding of management concepts.
8. **H8 (Communication Skills):** Unveiled a strong positive link ($\beta = 2.842$, $t = 4.686$, $p < 0.001$), proving that using simulation games boosts communication skills.
9. **H9 (Decision Making):** Identified a substantial positive and significant effect ($\beta = 2.947$, $t = 4.797$, $p < 0.001$), confirming that simulation games enrich decision-making abilities.
10. **H10 (Problem Solving Skills):** Exhibited a significant positive effect ($\beta = 3.082$, $t = 4.81$, $p < 0.001$), affirming the effectiveness of simulation games in improving problem-solving skills.

6. DISCUSSION

This research delved into the precursors and consequences of utilizing business simulation games (BSGs) among management students in India. Anchored in the UTAUT2 framework, the study expanded to include knowledge acquisition, communication skills, decision-making, and problem-solving skills as outcome variables. It found performance expectancy to positively correlate with BSG use, echoing findings from other scholars (Pando-Garcia et al., 2016; Venkatesh et al., 2012; Wang et al., 2020; Zulfiqar et al., 2019), underpinning the belief in BSGs as a valuable educational tool.

Contrary to some literature (Chauhan & Jaiswal, 2016; Isaac et al., 2019; Pando-Garcia et al., 2016; Venkatesh et al., 2012), effort expectancy showed no significant effect on BSG adoption, possibly due to the complexity and preparatory requirements of simulation games. Social influence was positively associated with BSG engagement, suggesting the impact of peer and familial opinions on students' perceptions of BSGs as effective learning tools. This aligns with previous studies (Isaac et al., 2019; Venkatesh et al., 2012; Zulfiqar et al., 2019).

Facilitating conditions did not significantly affect BSG utilization, differing from other findings (Chauhan & Jaiswal, 2016; Venkatesh et al., 2012; Wang et al., 2020). This may be because students generally possess the necessary hardware and software, coupled with instructor support. Hedonic motivation was found to positively influence BSG use, supported by various studies (Venkatesh et al., 2012; Wang et al., 2020), indicating that enjoyment and engagement are key drivers.

However, price value did not significantly influence BSG adoption, diverging from some research (Venkatesh et al., 2012; Wang et al., 2020), likely due to the institutional procurement of these games, which may limit individual access.

6.1. Outcomes of BSGs Usage,

The outcome of the use of BSGs, proves that simulation games are helpful in acquiring management knowledge, developing communication management skills, decision making skills, problem solving skill, it is similar to many other research findings (Adobor & Daneshfar, 2006; Ayudhya, 2015; Kiss & Schmuck, 2021; Pando-Garcia et al., 2016; Pitic & Irimiaş, 2023; Ranchhod et al., 2014; Salas et al., 2009; Vos, 2015; Wang et al., 2020; Zulfiqar et al., 2019), it is because simulation games enables user to engage in experimental learning within a business environment, fostering, enjoying, excitement and active involvement.

6.2. Implications

While BSGs are widely studied, few investigations have explored the factors influencing student engagement and usage. This study contributes a theoretical model to understand these dynamics and their impact on learning and skill enhancement. Findings suggest that performance expectancy, social influence, and hedonic motivation are significant predictors of BSG usage, whereas effort expectancy, facilitating conditions, and price value are not.

Educational institutions should consider integrating BSGs into their curriculum to foster management skills, given their effectiveness in subjects like marketing and finance. BSG developers are encouraged to expand their offerings into other areas of study at more accessible price points to increase adoption.

7. LIMITATIONS AND FUTURE SCOPE

The study is a cross sectional kind of study and is limited to determinants to use of BSGs and its impact on enhancing managerial skills among management students, although the study was found to be effective, it cannot be generalise in other of educations, studies can introduce the effect of mediation and moderation including age and gender in the relationships to bring improvement in this kind of study. Future study has scope in exploring and testing the model in other field of education like engineering and medicine. Table 6 is shown below.

Table 6: Model Validity Measures

	Variable	1	2	3	4	5	6	7	8	9	10	11
1	EE	0.901										
2	SI	0.620***	0.906									
3	FC	0.690***	0.710***	0.852								
4	PE	0.660***	0.603***	0.582***	0.922							
5	HM	0.670***	0.597***	0.683***	0.710***	0.931						
6	PV	0.677***	0.600***	0.701***	0.542***	0.620***	0.890					
7	USB	0.282**	0.249**	0.281**	0.325***	0.306***	0.235**	0.806				
8	KA	0.514***	0.514***	0.514***	0.638***	0.662***	0.497***	0.315***	0.874			
9	CS	0.474***	0.504***	0.457***	0.512***	0.479***	0.476***	0.263**	0.685***	0.903		
10	DMS	0.405***	0.473***	0.458***	0.559***	0.543***	0.457***	0.334***	0.766***	0.829***	0.925	
11	PSS	0.484***	0.547***	0.551***	0.592	0.666***	0.516***	0.387***	0.805***	0.683***	0.850***	0.937

“EE = Effort Expectancy, SI = Social Influence, FC = Facilitating Condition, PE = Performance Expectancy, HM = Hedonic Motivation, PV = Price Value, USB = Usage Behaviour, KA = Knowledge Acquisitions, CS = Communication Skill, DMS = Decision Making Skill, PSS = Problem Solving Skill, **p < 0.010, ***p < 0.001”

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