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Has Business Simulation Become a Viable and Respected Alternative to Internships in Traditional and Online Business Learning?

Business simulations have become vital tools in modern business education, allowing learners to practice strategic decision-making, leadership, and collaboration in realistic, risk-free environments. Evolving from post-World War II computational experiments to sophisticated educational methods, simulations today encompass strategic, functional, and conceptual applications across industries. They foster critical thinking, engagement, and the practical application of theory, offering an effective alternative or complement to traditional internships. Despite challenges like high costs and design complexities, business simulations significantly enhance student skills, bridge academic and industry gaps, and strengthen graduate employability, preparing learners for the demands of today's dynamic workplace. The future of simulations in business education is fueled by advances in AI, digital communications, and augmented reality (AR). Rich simulations bridge the "learning-doing gap", offering personalized, immersive experiences that traditional internships often cannot. Virtual collaboration platforms like COIL enhance global competencies affordably. AI-driven tools, including professor-designed simulations and web-based platforms like Marketplace Simulations, foster adaptive, practical learning. Augmented Business Reality (ABR) further enhances experiential learning through immersive technologies. However, high costs and limited research into educational impacts highlight the need for further scholarly exploration. Business simulations have evolved into powerful educational tools that replicate real-world

business environments, allowing participants to develop essential industry skills in a risk-free setting.

Keywords: *business simulation, internship, artificial intelligence (AI), Augmented Business Reality (ABR), traditional business learning, online business learning, USA.*

Introduction

In the last few years, business simulations have been incorporated into both traditional and online business curricula to challenge students to resolve problems and experience various scenarios to test their application of business concepts and theories. Business simulation has also been used as a substitute for the traditional internship, where the aim has been and continues to be to provide the student with real-world experience that enables the student to use what has been learned. The question must be asked whether employers have the same regard for the simulation as it does for the internship. This article will explore the evolution of simulation and determine whether the simulation has been beneficial to online business students in their careers.

Definition and History of Business Simulations

Definition

A business simulation is an interactive learning experience where participants can experience real-world business situations and systems and develop their industry-related skills. It is defined as an experiential learning tool where participants engage in managing a simulated company, making strategic decisions in areas such as marketing, finance, and operations within a risk-free, interactive environment. This approach enhances engagement and fosters the development of critical skills like decision-making, problem-solving, and teamwork [Faisal et al. 2022]. Business simulations are considered valuable tools for students' and employees' development. Because of this, many universities have incorporated simulation into their curriculum, and many businesses have integrated business simulation as part of their employee development programs.

History of Simulations

The history of computer simulation began during World War II with two mathematicians, John von Neumann and Stanislaw Ulam. Von Neumann and Ulam were studying the puzzling behavior of neutrons (Introduction to Simulation and Modeling: Historical Perspective, n.d.-b). Von Neumann and Ulam developed the Roulette wheel technique to study this behavior and use the findings to predict the outcome of the events. This technique became so popular that it was applied to business and industry (Introduction to Simulation and Modeling: Historical Perspective, n.d.-b). After World War

II, there was a significant increase in commercially designed computers. As a result of this increase, the technical staff of these organizations found themselves responsible for figuring out how to use these computers and apply them to the problems of the day (Introduction to Simulation and Modeling: Historical Perspective, n.d.-b). Although more computers were available, computer simulation was not a valuable tool in the 1950s because the simulation (1) took too long to get results, (2) required too many skilled people, (3) cost a considerable amount in both personnel and computer time, (4) results were often ambiguous (Introduction to Simulation and Modeling: Historical Perspective, n.d.-b). Fortunately, the above problems did not stop the continued creation of types of simulations in various fields.

In 1956, the American Management Association introduced the first widely recognized business game, the Top Management Decision Simulation, designed for management seminars [Hodgetts 1970]. In 1957, Andlinger created the Business Management Game for McKinsey & Company [Andlinger 1958]. Additionally, that same year marked the inaugural use of a business simulation game in an academic setting, specifically the Top Management Decision Game, which was employed in a business policy course at the University of Washington [Watson 1981]. From this point onward, the prevalence of business simulation games continued to grow.

In 1961, it was estimated that over 100 business games existed in the United States, having been utilized by more than 30,000 business executives and numerous students [Kibbee, et al. 1961]. A survey conducted in 1962 involving 107 member universities of the American Assembly of Collegiate Schools of Business (AACSB), including prestigious institutions such as Harvard, Yale, Princeton, Columbia, and New York University, revealed that business simulation games were employed by 71.1 percent of the surveyed schools [Dale, & Klasson 1962]. According to Klabbers (1994), the New York University Business Game gained widespread adoption in the 1970s [Klabbers 1994]. The countries that were a part of this widespread adoption were the Netherlands, Israel, Hungary, and Poland [Klabbers 1994]. From the 1970s to the present, the use of business simulation games has continued to expand, paralleling the growth of computers in businesses, universities, and homes and the development of the internet. The main companies that provide business simulation to colleges and universities are Capsim, Acumen, Edumundo, Virtonomics and Marketplace Simulations.

Categories and Types of Business Simulation

Categories

Today, many versions of business simulations are available. Often, it needs to be clarified which type of simulation is best for training students

and employees. Gold categorized business simulation games and divided them into (1) top management games where the user takes on the role of the top executives of a company and is in control of the operation of the entire organization, (2) functional games that emphasize a business operation area, such as production, marketing, or finance, and (3) concept simulations [Gold 2009]. Concept games focus on a tiny area of business operation, such as traffic management, advertising management, sales management, or personnel.

Types of Business Simulations

Today, many versions of business simulations are available. Often, it needs to be clarified which type of simulation is best for training students and employees. The Indeed Editorial Team (2009) has identified seven types of business simulation games. The seven types of business are as follows:

(1) Project and operations management simulations are used to train incoming staff or help current team members improve their industry-related skills such as problem-solving, communication, teamwork, and adaptability.

(2) Process simulations allow people to explore a specific business process or system, such as inventory planning, sales performance evaluation, or statistical forecasting.

(3) Business knowledge and strategy test participants' knowledge involving an activity in which they participate in a hypothetical competition or confront a challenging situation.

(4) Planning simulation may collaborate with others to develop business plans as they encounter various hypothetical products or clients. Planning simulations allows them to practice how they might address opportunities and explore aspects of the organization.

(5) Strategic management simulations are used for running a business, which allows participants to develop leadership skills involving managing administrative tasks or making management decisions for various departments, including marketing, finance, or development and design.

(6) Team management simulations focus on team management and leadership situations to help users develop their ability to work with others and contribute to the team's efforts and initiatives.

(7) Business appreciation simulations may be simpler than other activities and allow participants to develop their financial knowledge by emphasizing the importance and impact of the organization's internal financial decisions [Indeed Editorial Team 2024].

Benefits and Liabilities of Business Simulations

Over the years, business simulation has been shown to have benefits and liabilities. Because of this, universities and organizations have been able to review the benefits and liabilities before integrating simulations into their

business curriculum or including simulations as part of their employee development. The benefits and liabilities will be discussed as follows.

Benefits

The Indeed Editorial Team (2024) has identified six benefits to using business simulations. The benefits of using business simulation are that these simulations (1) create a risk-free environment that allows participants to experience various professional situations with no risk, which these circumstances might include, (2) facilitate experiential learning where participants may access a variety of instruction methods, which can benefit a group of people with different learning styles, (3) keep people engaged by helping participants use several senses and remain attentive throughout the activity, (4) create an imitation of actual circumstances to help people overcome challenging circumstances they may encounter in their careers, (5) inspire participants to collaborate and cooperate as a team. Moreover, business simulations (6) improve learning efficiency by helping participants learn faster and understand complex situations more effectively.

According to systematic review by Faisalet al. (2022), the use of business simulation games (BSGs) results in

- knowledge gains (better understanding of the course content, key theories and concepts);
- developing transferable skills, such as information management, critical thinking, communication, time management, project management, workload management, team work, and problem-solving, which are considered higher-order cognitive skills;
- behavioral and affective outcomes, such as higher student engagement, motivation, satisfaction, as well as increased self-awareness and confidence (Faisalet al., 2022).

Despite undoubted and numerous gains and benefits, the use of business simulations entail some constraints, or liabilities.

Liabilities

Ibrahim and colleagues have identified five of the basic liabilities that impact business simulations. These liabilities are: (1) During the programming or development of rules, mistakes may be made in the simulation or model, (2) the cost of a simulation model can be high, (3) the cost of running several simulations may be high, (4) time may be needed to make sense of the results. Moreover, (5) people's reactions to the model or simulation must be more realistic and reliable, making it difficult to determine if the skills were developed using the simulation [Ibrahim, et al. 2022].

Nevertheless, the constraints and reservations in the use of business simulations has been undoubtedly outweighed by their benefits, and the simulations have found extensive use in the teaching and learning process.

One of specifical role of business simulations has not found sufficient representation in the literature yet: their ability to substitute the internships. With the internships being generally recognized and widely used as a necessary component of preparing the students to workplace situations, the experience of using business simulations rather than internships, should be of special interest to the educators due to its economy and efficiency.

How Business Simulation has become a Substitute for the Internship

One of the challenges for many students has been gaining experience while attending a university to secure a job upon graduation. Often, this has been Catch 22, where the student needs the job experience to be hired, but they need to be hired to get the job experience. The traditional approach students have used to gain experience has been the internship. An internship is a temporary job supported or not supported by a university where students apply their classroom knowledge and skills to a real-world setting in their chosen field. The structure of internships varies between being paid and being unpaid. Typically, the internship may last from a few months to a year. Unfortunately, internships are very costly. Even if the internship is paid, the pay is minimal, forcing the student to pay expenses such as travel and lodging. Smartsims (n.d.) has indicated that half of 1.5 million internships are unpaid. Smartsims (n.d.) also concluded that only 63 percent of paid interns receive a job offer upon graduation. Meanwhile, 37 percent of unpaid internships result in job offers upon graduation. Finally, students graduate from universities with thousands of dollars in debt, and taking an unpaid internship only adds to that debt. Additionally, it is not guaranteed that the student will be given the tasks directly related to the professional role they are studying for: very often internship tasks are given based on the company necessities rather than the student's educational needs.

As an alternative, the inexpensive way by which the students can gain real-world business experience is by using business simulations, as mentioned earlier. Students have saved money and have been able to focus their attention on gaining the specific skills needed for a future job. The other aspect is that various industries have been more accepting of simulation experience as viable evidence that graduating students have the essential skills related to the job. Mowreader (2024) has indicated that job simulation can be discussed during job interviews even if the student lacks traditional work experience. One example is Stony Brook University that is part of the State University of New York System. It has been using simulation in its curriculum and partnering with employers. Stony Brook University has developed the Forage platform, allowing students to develop professional skills and connect with potential employers. It has been concluded that employers would view students' use

of job simulations as a positive sign that students could take the initiative toward developing their skill set, which could lead to graduates being hired by some of these employers [Mowreader 2024].

How simulations have been Added to Capstone Classes

Capstone classes are taken at the end of the undergraduate and graduate programs. The purpose of these classes is to show the skillsets that students have developed during their time in the Capstone class [Cole 2024]. Capstone classes have integrated simulations into the curriculum in the last few years. The primary purpose of the simulation is to assist in making decisions within simulated virtual environments that imitate the real-world setting. In the simulated virtual environments, students are placed into competitive settings such as managing a virtual company that challenges the student to use critical thinking to resolve issues built into the simulation [Cole 2024]. Students are provided with immediate feedback as they progress through the simulations, which helps develop their skills in strategic decision-making.

How Mount Saint Mary's University Los Angeles (MSMULA) has used Simulations

Mount Saint Mary's University Los Angeles (MSMULA) has used Marketplace Simulations for the past six (6) years for its undergraduate BUS 191 Senior Seminar and BUS 192 Business Policy and Strategy courses and graduate BUS 260 Culminating Project capstone course in the Master of Business Administration (MBA) degree program. A problem occurred with the BUS 192 course, which led to its division into two courses and the addition of simulations. The events are discussed below.

BUS 192 Problem

A review of the Capstone course BUS 192 showed that students were overwhelmed with the volume of work and felt that, after completing an internship, they needed a full understanding and experience of how businesses operated.

Changes Implemented

To address the work volume and need for more understanding and experience, the Business Department implemented two changes.

1. Course Separation: To reduce the work volume identified in the review, BUS 192 was divided into two courses, BUS 191 Senior Seminar and BUS 192 Business Policy and Strategy. BUS 191 would review prior concepts and prepare students for BUS 192.

2. Simulation: Based on information provided at the ACBSP events and seminars, it was found that other ACBSP universities were using simulations

to assist students in gaining complete understanding and experience in operating a business. During these events, the Department representatives met with simulation vendors and chose Marketplace Solution. The Marketplace Solution simulation chosen by the faculty was the operations management simulation, which allowed the students or teams to create a company and handle the challenges in the business environment.

Results

1. Course Separation Results: Work volume was reduced, allowing the students to review prior business concepts in BUS 191 as they prepared for BUS 192. This review may have also benefited the 2022-23 Peregrine Outbound Assessments results. The Inbound Mean Score was 38.9, and the Outbound Mean Score was 56. Per a review of each score by subject, the outbound scores ranged between 50 to 63 points. These scores were much higher than the 2021-22 Peregrine Outbound Assessment results, where the Outbound Mean Score was 45.7. These scores show that the courses positively influenced the Peregrine results.

2. Simulation Results: Students enjoyed the simulation and found it beneficial overall. The students also indicated that the simulation was much more complex than they had imagined and that it placed them in difficult situations where their team had to work hard to address the simulation challenges. Based on the students' reaction, an introduction to operations management simulation was added to the Fall 2021 BUS 191 course to see if this simulation would reduce any difficulties and prepare the students for the challenging operation management version used in BUS 192. In 2023/2024, it was found that the addition of the course and simulation prepared the students for the work environment, and the students were hired after graduation.

BUS 260 Simulations

The focus of the MBA course BUS 260 Culminating Project allows graduate students to gain experience on what it takes to run a profitable and conscious business. This course uses the Marketplace Conscious Capitalism simulation to place graduate students into a very realistic international business setting where the graduate students will start up and run a company for one-and-a-half years or Six decision rounds(quarters) of decision-making. At the end of the BUS 260 course, students are required to write an executive summary to a board of directors that describes (1) the name, nature of the graduate student's business and its organizational structure; (2) the firm's performance during the prior three quarters, (3) the departures from the business plan and the justification for such departures (4) shares how well the firm is prepared to compete in the future; (5) if a business consultant was used how would you use the business consultant's services and (6) the lessons learned from the simulation. Like the undergraduate program, the MBA students were hired after graduation or received promotions. The most important aspect was

that the University developed and maintained partnerships with employers/ alums that supported the MBA program and the additions of simulations to the undergraduate and MBA program curriculum.

Future of Simulation, Digital Solutions, AI and Augmented Reality

Overall, the future seems bright for simulations. It has taken years for industry to see their value in the workplace, schools, and universities. With the advance of new technologies, digital communications and AI, new opportunities are opening for making simulations richer and more fulfilling than the actual internships in the workplace.

With rich experiences in developing business games and simulations, education of business is leading the race. The role of simulations in the learning process is covering the "learning-doing gap" – the step from classroom-acquired knowledge, skills, solution making algorithms to their application in real business environment. The exploration of the future of simulations in Business programs suggests that technology achievements that have already revolutionized education, will transform learning towards further personalization and diversification of instruction.

Virtual Teams Solution

Due to globalization of businesses and rise of communication technology, the future of business dealings is becoming increasingly remote. Meetings, negotiations, trainings etc., are delivered via online technology, because it saves time, resources, creates the "memory" in the form of recorded messages etc. Interaction and collaboration in virtual teams is considered an essential feature of the future educational and workplace settings [O'Brien, & Costin 2022]. This implies the need for developing virtual collaboration skills in business education programs.

One popular format for engaging students in online collaboration is collaborative online international learning (COIL). Initiated by State University of New York, COIL (https://coil.suny.edu/) provides opportunities for collaborations between students and professors in different parts of the world and across curricula. In addition to introducing the learners to a variety of business environments across the globe, COIL provides meaningful, significant opportunities for global experiences built into programs of study.

In an International Business class, COIL project focused on global supply chain management and international business entrepreneurship, proved effective in enriching the student's knowledge of business operations and investor relations, building international professional and social networks, and increasing the students' global mindset [Garcia et al. 2023]. Due to their wide applicability and affordability, COIL programs are becoming preferred opportunity in developing global business competences. In addition to

flexibility and affordability, COILs offer another very important benefit – interdisciplinarity.

In COM3112 Speech and Writing for Business Communication course undergraduate business students form Florida International University, Miami, USA, collaborate with Digital Media Technology graduate students from La Salle University, Mexico City, Mexico. In this interdisciplinary project they applied their knowledge of business field, communication and media technology to create unique artifacts. According to the joint syllabus, the students are instructed to research a company of their interest that operated both in the US and Mexico, and create a Persuasive Proposal based on the revealed business problem or unused opportunity, and, as the next step, prepare the video-presentation of that Proposal.

The project runs over 6 weeks in three phases: Ice-breakers, Collaboration, and Final Presentations. Each phase has its goals and used collaboration technology:

- The goal of the Ice-breakers is to establish a social connection between the students from the two participating countries, and to find the team mates with similar or complementary interests. To achieve this goal, the participants post their video-introductions (recorded with a phone camera) on Padlet (https://padlet.com/) – a free and open visual collaboration platform. They can post comments to the others' videos, to establish a personal connection and find potential teammates. Sometimes thy exchange social media contacts already at this stage of the project.
- The Collaboration stage is the time when the students do research on the international company of their choice that operates in their two countries. This may involve secondary research of the company website, records, communications, and relevant scholarly sources, as well as the primary research of locations, consumers or employees in the US and Mexico. Collaborations are done in Microsoft Teams or with the help of any collaboration tools, such as Dropbox, shared files and folders, Google slides, video recording and editing software etc.
- The final stage – Presentations – is completed by submitting the written Proposals into their respective LMS, as well as posting the videos on Padlet and presenting them in class. The students are also encouraged to include the created artifacts into their graduation portfolios and post them on the social media as a proof of their successful collaboration skills in interdisciplinary international teams.

The artifacts created by COIL participants are the evidence of achievement of the course learning goals: Persuasive Business Proposal – for business communication course, and video-presentation of the Proposal – for digital media course.

Participation in a COIL project exposed the students to real-world intercultural business communication in a goal-oriented team, operating in a controlled space under professor's guidance. This simulation created an opportunity to practice skills that are vitally important in today's globalized business world – business research, problem allocation, search for creative solutions, self-presentation, negotiation, collaboration and use of digital technology for the achievement of business communication goals. The value of the simulation compared to a hands-off practical experience is the opportunities to learn from reflecting on the experiences and learning valuable strategies for the future workplace.

AI-powered Solutions

The rise of Artificial Intelligence (AI) opened unprecedented opportunities for creating business simulations. As Martins (2024) observes, the integration of AI in education, particularly in business simulation studies, represents a transformative shift in teaching methodologies. The advantage of AI technology in education is combining human insights with AI-driven elements of modelling business operations and business environment. Under professor's guidance, the students have the opportunity of resolving real business situations in simulated conditions, featured specifically to represent the concepts that are under consideration in the respective course. The two types of AI-powered solutions that are now prevalent in business education may be categorized, from the pedagogical perspective, into professor-driven (created and run by the course professor) and web-based, using the existing business simulations to apply, analyze and evaluate business problems, creating solutions as part of the course training.

Professor-driven AI simulations

Scenario-Based Learning with the use of AI

As an example of innovative pedagogical approach, Scenario-Based Learning with the use of AI provides business students with immersive personalized experiences that enhance their learning and result in better preparedness for the workplace. Using AI-generated media, the professor creates a virtual company, thus providing the students with the opportunity to actively participate in running its operations and resolving its problems. To enhance the immersive effect of the simulation, the company problems are described by professor-created avatars acting as company officers. The business class students act as company consultants, applying their course content, researching and evaluating existing options and suggesting their creative solutions to the problems.

The use of professor-driven AI-powered simulation resulted in tremendous growth of the students' engagement and motivation. As the end-of-course survey has demonstrated, most of them found scenario-based learning activity very engaging or extremely engaging. They also

found the use of avatars highly effective in facilitating their understanding of course topics.

AI as a Business Communication Coach

As another example of an instructor-guided AI -powered simulation, in a Business Communication course, as a part of the class practice under the professor's guidance, AI may be sued as a communication coach to prepare the students for navigating difficult workplace communication scenarios [Andrienko-Genin 2025]. By integrating AI technology as a personalized communication coach, the professor creates scenarios of high-stakes or difficult workplace conversations, from serving a dissatisfied client, to handling a non-compliant employee, or navigating a job interview. To develop professional business communication competence, the situations are created that allow the students to practice, fail safely, and improve. This assignment fills that gap by using AI as an interactive, judgment-free platform to rehearse and refine students' communication strategies.

The assignment is structured in three phases. First, students are introduced to the concept of AI-assisted communication coaching and provided with ethical guidelines for interacting with AI platforms. They select a specific workplace scenario they want to master, such as responding to a customer complaint, managing team conflict, or preparing for an interview. Next, students engage in simulated dialogues with AI tools (e.g., ChatGPT or similar platforms), where the AI role-plays as a difficult client, employee, or interviewer. Through multiple iterations, students experiment with rhetorical strategies, tone, and messaging until they are able to navigate the conversation successfully. If specifically prompted, AI may analyze and provide guidance to the students on choosing the best strategy under the circumstances.

The final phase of the assignment requires students to reflect on their experience and submit a brief written analysis outlining their communication goals, key challenges encountered, how their strategy evolved through practice, and what skills they developed. They are also encouraged to share their reflections in class discussions, fostering peer learning and collaboration. The value of this assignment lies in its unique blend of real-world application, skill development, and personalized learning.

The use of simulations as a part of business course under the instructor's guidance, also has the beneficial impact on the students' overall learning motivation: thus, the simulation can direct the student to course readings to help them learn more about the topic they are exploring [Babin 2023]. These findings underscore the potential of AI-powered business simulations to revolutionize business education by fostering deeper engagement, practical problem-solving skills, and a more immersive learning experience.

Web-based AI simulations

Web-based AI simulations are fully autonomous solutions, specially developed as business games that may be flexibly applied by the instructors for enhancing their students' business learning experiences that mimic real business environments. An example of such solutions is offered by **Marketplace Simulations** [Cadotte 2025].

Marketplace Simulations solution helps turn theories into skills and viable strategies. The students may experiment with simulated businesses in an engaging game-like exercise. Students enter an emerging industry and manage the entire enterprise, from inception to maturity. Through practice, students internalize business knowledge to equip them for tomorrow's jobs.

Along with the traditional business games approach, Marketplace Simulations uses AI to model the business environment. It incorporates AI-powered elements, particularly in data analysis, decision modeling, and adaptive feedback. The platform, widely used in business and marketing education, employs AI-driven algorithms to simulate market dynamics, competitor behavior, and customer decision-making. This allows for realistic, data-driven scenarios where students can engage in strategic decision-making.

While Marketplace Simulations are not fully autonomous AI systems, they leverage machine learning and data-driven algorithms to create realistic business environments. Some AI-powered features include:

- Predictive analytics: AI helps forecast market trends based on user inputs and past performance.
- Competitor simulations: AI-driven competitors adjust their strategies dynamically.
- Adaptive learning: The system provides personalized feedback based on participants' decisions [Cadotte 2025].

Used in an array of business, management and marketing courses at Florida International University, Marketplace Simulations help students develop numerous business analysis skills that sometimes go beyond the learning outcomes of a specific course, but integrate into higher level competencies expected of a 21-century business professional. As a result of these simulations, the students:

- Improve decision-making skills by applying business concepts in a competitive and risk-free environment.
- Run an entire company and see the interconnections of business disciplines.
- Develop strategic planning and tactical execution skills using market data and competitive analysis.
- Practice performance-based management focused on the bottom line and customer value.

- Build confidence and experience by testing ideas and learning from the results.
- Cultivate soft skills such as leadership, teamwork, and interpersonal communication.

Other examples of AI-driven business simulation platforms used by universities are **Capsim** (https://www.capsim.com), widely used in both academic settings and corporate training; its popular *Capstone Simulation* focuses on strategic decision-making and business management; **StratX Simulations** (https://www.stratxsimulations.com) and **Harvard Business Publishing Simulations** (https://www.hbsp.harvard.edu).

The use of modern artificial intelligence methods, including machine learning also maximizes users' preservation of expertise, ability to make decisions, and capacity for creative thinking through tailoring their education, resulting in adaptive learning experiences [Bharathi, et al. 2024]. By collecting and leveraging use data, the AI-powered solutions raise the possibilities for more individualized and meaningful educational opportunities for the students.

In today's higher education landscape where technology and education increasingly intersect, AI stands at the forefront of transformative educational methodologies. The introduction of AI into teaching and learning environments heralds a new dawn for personalized education [Martins 2024], offering unprecedented opportunities for student engagement, adaptive learning, and data-driven insights into learning processes.

Augmented Business Reality Simulations.

Augmented Business Reality (ABR) Simulations blend real-world business scenarios with augmented reality (AR) and AI-driven simulations to enhance experiential learning. These simulations are useful in business education, as they offer immersive, interactive, and data-driven learning experiences.

Unlike AI-powered Business Simulations that leverage artificial intelligence to create dynamic, adaptive, and intelligent business scenarios, ABR simulations integrate augmented reality with the real world, superimposing digital elements (such as 3D models, graphics, or data) onto the physical environment. AR systems can use devices like smartphones, tablets, or AR glasses to combine the virtual and real-world elements, providing a more immersive experience by blending the real and digital worlds.

Al-Ansi and colleagues argue that augmented and virtual reality (AR & VR) are two of the most innovative technology advancements with a huge potential for improving the education system [Al-Ansi, et al. 2023]. AR and VR introduce students to immersive digital experiences that cannot be replicated through traditional teaching methods, enabling them to better engage with complex material beyond just lectures and textbooks. These technologies

create a more immersive experience, cater for individualized learner's needs and offer the potential for educators to provide simulations in professional fields, including manufacturing, education, and retail.

The use of these technologies in education is even more important because the companies increasingly use them for employee safety, mastering complex operations etc. [Sahija 2021]. Peterková and colleagues discuss the use of augmented reality game-based learning as a newly developing direction in education [Peterková, et al. 2022]. The games include business simulation games, theory-based games such as prisoner-dilemma simulations, enterprise ERP simulations and training in manufacturing and supply processes.

Yet, although Al-Ansi et al. (2023) observe the exponential growth of AR and VR adoption in education during recent years, their data show that 2.3% of subject area publications come from the Business and Management filed, with the leading fields being Computer Science, Social Sciences, Engineering and Medicine.

The main applications of AR/VR technologies in education for business are using extended reality in management education for analyzing case studies and integration of AR & VR in construction management to create physical models, improve visualization and understanding of construction materials (Ibid.).

Some examples of AR/VR applications for business include **PICO Business** (https://business.picoxr.com/) – solutions and software designed to optimize the use of VR headsets for enterprise applications, including training, engagement, and global meetings, with features like device management and content streaming; **CGS Corporate Learning and Development Solutions** (https://www.cgsinc.com/en/learning) – corporate learning and development solutions software, including custom professional development, eLearning, and instructor-led training, tailored to industries and business goals; **zSpace** (https://zspace.com/) that offers augmented/virtual reality (AR/VR) platforms and simulations for hands-on, experiential learning across various industries, including education, STEM, and workforce development, providing immersive experiences for training and career exploration.

AR and VR technologies can be used to provide a more immersive and interactive learning experience in education for business. These technologies can be used to create virtual tours of enterprises, interactive meetings and other simulations for more engaging and interesting learning experiences. These technologies can provide a more accessible learning experience for students with special needs. By allowing students to explore virtual environments at their own pace and on their own terms, AR/VR powered simulations can make learning more accessible for those with physical or cognitive impairments [Al-Ansi, et al. 2023].

However, despite numerous benefits of these powerful tools for enhancing business simulation experiences, there are also limitations which significantly impact, or even exclude the possibility of using these technologies. They include the prohibitively high cost of the hardware, the complexity of technology that will necessitate special training for teachers, maintenance needs and expenses etc. [Al-Ansi, et al. 2023]. The educational uses of AR/VR technologies are understudied, including the effects on the students' mental/emotional health and well-being, educational value for learning outcomes rather than enriching the experiences and similar considerations. With a huge potential for recreating real-life scenarios in educational settings, providing immersive learning environments and hands-on experiences that bridge the gap between theory and practice, augmented and virtual reality technologies definitely need more scholars' and educators' attention for future exploration in business simulations.

Conclusion

Business simulations have evolved into powerful educational tools that replicate real-world business environments, allowing participants to develop essential industry skills in a risk-free setting. Originating from post-World War II computational experiments, business simulations gained traction through the development of management games in the 1950s and 1960s, gradually becoming integral to business education and professional training. Today, simulations are classified into categories such as top management games, functional games, and concept simulations, and they encompass various types, from project management to strategic leadership exercises. Their popularity stems from their ability to foster critical thinking, decision-making, teamwork, and engagement, all within a realistic yet controlled environment that enhances learning efficiency and prepares individuals for workplace challenges.

Despite some limitations, such as high costs and the potential for unrealistic participant reactions, the benefits of business simulations far outweigh the drawbacks. They have increasingly been adopted as substitutes for traditional internships, offering a more accessible, affordable, and targeted way for students to gain practical experience. Universities like Mount Saint Mary's University Los Angeles have successfully integrated simulations into capstone courses, leading to higher student satisfaction, improved academic performance, and stronger employment outcomes. Business simulations not only prepare students and employees for real-world demands but also strengthen connections between educational institutions and industry partners, making them an indispensable part of modern business education.

The future integration of business simulations, digital platforms, artificial intelligence, and augmented reality into education presents significant

opportunities for enhancing experiential learning. As recent scholarship emphasizes [Jackson 2019; DeSmet, et al. 2021], simulations increasingly bridge the gap between theoretical knowledge and practical application, often surpassing traditional internships in flexibility and accessibility.

Collaborative Online International Learning (COIL) projects further expand students' intercultural competencies and global business acumen, aligning with findings by Rubin and Guth on the value of virtual collaboration in professional preparation – in the chapter "Collaborative online international learning: An emerging format for internationalizing curricula" [Rubin, & Guth 2015]. Similarly, AI-powered learning environments, including adaptive simulations and communication coaching platforms [Popenici, & Kerr 2017], offer personalized, scalable solutions to develop critical soft skills and strategic thinking.

Although the use of AR/VR technologies in business education remains emergent [Radianti, et al. 2020], preliminary evidence indicates strong potential for applications such as supply chain management, case study analysis, and enterprise simulations. However, challenges related to cost, scalability, and pedagogical efficacy persist, necessitating further empirical investigation.

Overall, while barriers remain, the integration of these technologies promises to redefine business education by offering more inclusive, dynamic, and future-oriented learning environments. Sustained research and careful pedagogical implementation will be essential to fully realize their transformative potential.

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Лестер С. Рімс, Тетяна Андрієнко-Генін. **Чи стала бізнес-симуляція життєспроможною та шанованою альтернативою стажуванням у традиційному та онлайн-навчанні бізнесу?**

Бізнес-моделювання стало життєво важливими інструментами в сучасній бізнес-освіті, дозволяючи учням практикувати прийняття стратегічних рішень, лідерство та співпрацю в реалістичних, безризикових середовищах. Розвинувшись від обчислювальних експериментів після Другої світової війни до складних освітніх методів, симуляції сьогодні охоплюють стратегічні, функціональні та концептуальні застосування в різних галузях. Вони сприяють критичному мисленню, залученості та практичному застосуванню теорії, пропонуючи ефективну альтернативу або доповнення до традиційних стажувань. Незважаючи на такі проблеми, як висока вартість та складність проектування, бізнес-моделювання значно покращує навички студентів, долає академічні та галузеві прогалини, а також зміцнює можливості випускників працевлаштовуватися, готуючи учнів до вимог сучасного динамічного робочого місця. Майбутнє симуляцій у бізнес-освіті підживлюється досягненнями в галузі штучного інтелекту, цифрових комунікацій та доповненої реальності (ДР). Багаті симуляції долають «розрив між навчанням та діяльністю», пропонуючи персоналізований, захопливий досвід, який традиційні стажування часто не можуть забезпечити. Віртуальні платформи для співпраці, такі як COIL, розширюють глобальні компетенції за доступні гроші. Інструменти на основі штучного інтелекту, включаючи симуляції, розроблені професорами, та веб-платформи, такі як Marketplace Simulations, сприяють адаптивному практичному навчанню. Доповнена бізнес-реальність (ДБР) ще більше покращує експериментальне навчання за допомогою імерсивних технологій. Однак висока вартість та обмежені дослідження впливу на освіту підкреслюють необхідність подальшого на-

укового дослідження. Бізнес-симуляції перетворилися на потужні освітні інструменти, що відтворюють реальне бізнес-середовище, дозволяючи учасникам розвивати необхідні галузеві навички в безпечному середовищі.

Ключові слова: *бізнес-симуляція, стажування, штучний інтелект (ШІ), доповнена бізнес-реальність (ДБР), традиційне бізнес-навчання, онлайн-бізнес-навчання, США.*

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