Leadership for Inclusive Academic Integration: Perspectives on Computer Science Curriculum Design

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ABSTRACT

Educational institutions should promote student entrepreneurship to foster personal growth, skill development, and social change. By employing collaborative learning strategies that develop leadership and entrepreneurial skills, teachers can improve this. In addition to introducing a business simulation-based learning approach to encourage academic motivation, leadership development, and creative thinking, this paper examines the importance of student leadership in computer science education. This approach, which emphasizes cooperation, was tested with 136 computer science students at a Bulgarian university. The results showed that teamwork and listening skills were more important to students than technical knowledge. The findings imply that business simulations provide a useful setting for developing the technical and leadership abilities essential to the technology industry.

Keywords: business simulation learning, computer science education, leadership, student leader, student motivation

INTRODUCTION

Leadership is one of the greatest challenges facing modern institutions, as it plays a crucial role in directing and shaping the future of communities, organizations, and nations. It is widely acknowledged as the ability to persuade, inspire, and direct individuals or groups toward shared goals. Leadership is a key factor in an organization's competitive advantage and productivity, influencing individuals' ability to achieve common goals (Hennicke et al., 2023). Relational dynamics and the leader–member exchange approach are crucial (Northouse, 2019; Scandura and Meuser, 2021). A shared vision unites members and motivates them toward common goals, guiding the organization toward its goals (Zasa and Buganza, 2023). In this context, leadership implies visions of change, impact, self-concept, and dedication to meaningful goals. It requires choices to respond adequately to changes in the external environment, as well as followers' motivation to achieve goals (Dobrev, 2024).

Davidson and Hughes (2020) emphasize the importance of ethical and moral leadership in institutions, arguing that it is crucial to institutional success. Organizations must adapt to the rapidly changing business environment, driven by technological advancements, to ensure survival and success (Muhanna, 2023; Musaigwa, 2023). Different leadership styles, such as autocratic, democratic, laissez-faire, transactional, and transformational, influence performance, employee satisfaction, and organizational culture (Udin, 2023). Autocratic leadership is centralized, promoting quick decision-making, but can lower staff morale and inhibit innovation (Harms et al., 2018; Chukwusa,2019). Democratic leadership is centralized, beneficial for start-ups and technology-based companies, and promotes cooperation and cocreation (Costa et al., 2023; Caillier, 2020; Dyczkowska and Dyczkowski, 2018). Laissez-faire leadership promotes autonomy but may lead to a lack of direction and oversight (Carli and Eagly, 2018; Zhang, Wang, and Gao, 2023). Transactional leadership employs rewards and punishments to motivate employees, but this approach may limit creativity and adaptability (Jaqua and Jaqua, 2021). Transformational leadership focuses on personal and professional growth, innovation, and change encouragement but may be tax leaders (Khan et al., 2020). Other leadership styles include benevolent, servant, paternalistic, charismatic, collectivistic, and empathic (Hadziahmetovic, Tandir, and Dzambić, 2023; Liden et al., 2024). However, this is a leadership style in which a person influences others while focusing on the group's objectives and mission. It is distinct from transactional leadership, which emphasizes identifying and meeting subordinates' needs (Ayandibu, 2024). As the author noted, individual consideration, intellectual stimulation, inspirational motivation, and idealized influence are characteristics of a leader's influence on followers. High performance, creativity, original thought, problem-solving skills, and personal attention are encouraged by this approach (Ayandibu, 2024). Research indicates

that this approach encourages individualized consideration, improves task performance, and helps members exceed expectations (Lai et al., 2020). All levels of leaders can demonstrate transformational leadership through educational stimulation, idealized influence, inspirational motivation, and personalized attention.

Benevolent leadership prioritizes followers' well-being, whereas paternalistic leadership treats team members such as family members (Shen et al., 2023). Charismatic leadership uses personal appeal and persuasiveness, whereas collectivistic leadership emphasizes group objectives and well-being (Klein and Delegach, 2023). Empathic leadership creates a welcoming and inclusive workplace, requiring strong, trust-based relationships, an inclusive work environment, and emotional intelligence (Nakamura and Milner, 2023).

On this basis, the effective management of organizations, employee happiness, and overall performance can be strongly influenced by leadership styles that provide different methods of directing and influencing others. As organizations face rapid technological and environmental changes, understanding the nuances of various leadership approaches – ranging from autocratic to empathic – enables leaders to adapt effectively and ethically. Each style has distinct strengths and limitations, and selecting the appropriate style in each context can foster innovation, collaboration, and resilience. Therefore, informed leadership is essential for institutional success, ethical governance, and sustainable growth. Choosing the best strategy for managing people in organizational environments can be made easier for leaders through a thorough understanding of individual leadership styles, with their advantages and disadvantages.

In regard to leadership, it is essential not only in the political and corporate spheres but also in education, where it can significantly impact student outcomes and institutional success. The SDGs Young Leadership and Social Responsibility Training Program (United Nations, 2022) aims to enhance youth leadership and social responsibility in the context of achieving the Sustainable Development Goals. Improving young people's awareness, ingenuity, entrepreneurship, and social impact is part of the program. Working with many societal stakeholders, the project is creating an international alliance to empower youths to act for social innovation in the SDGs.

Educational institutions play a crucial role in nurturing leadership skills among students, preparing them for a rapidly evolving world. Universities can integrate leadership training into their curricula by designing courses or projects that challenge students to solve social, economic, or regional innovations. Offering interdisciplinary leadership programs across disciplines fosters collaboration and encourages students to approach regional challenges from different perspectives. Leadership development is essential in fields such as computer science, where technological advancement and innovation are paramount. In this sense, the young people around the world who perceive changes through economic, social,

technological, and environmental prism, are most concerned about growing inequality and financial pressures, but remain optimistic thanks to entrepreneurship, innovation, and the pursuit of a meaningful, balanced lifestyle (World Economic Forum, 2026). In this context, the attitudes of business leaders also show cautious optimism - although the national and global economic outlook remains uncertain, confidence in one's own companies, the resilience of medium-sized businesses, and the increasing use of modern technologies reinforce confidence in growth and adaptation in 2026 (J.P. Morgan, 2026).

The purpose of the present study is to examine the importance of student leadership in computer science education and to propose a business-simulation-based learning approach to foster creative thinking and leadership skills.The following research questions are formulated:

- **RQ1:** Do business simulations in the learning environment influence the development of students' leadership skills?
- **RQ2:** How are business simulations integrated as part of a university's strategy for social impact and contributing to regional innovation?
- **RQ3:** Do business simulations increase students' motivation and help them develop critical and creative thinking when they acquire new skills in a learning environment?
- **RQ4:** Is there a relationship between an individual's personality profile and their leader profile?

The approach was tested with 136 computer science students at the Bulgarian University by forming small teams of 4 people, each representing a small learning company with clearly defined roles and responsibilities. We conducted surveys to assess students' attitudes toward the applied learning approach before and after the business simulation. The approach was applied in a specific context—computer science training at a Bulgarian university—among students pursuing 3- and 4-year bachelor's degrees in areas related to "user experience design" and "web content management systems". The choice of the two study areas was dictated by the flexibility of the study program, which includes topics related to project management in software production and a close specialization in user interface and web application development.

LITERATURE REVIEW

Development entails acquiring the skills and abilities necessary for effective leadership. It focuses on human capital and enhanced capabilities, enabling individuals to think and act in new ways. Leader development is an expansion of a person's ability to be effective in a leadership role and process. If a leader develops knowledge, skills, and abilities, leadership will be more effective (Kjellström, Stålne and Törnblom, 2020). In this sense, a crucial part of leadership

education is offering a dynamic and experiential learning model that enhances the retention and application of leadership theories. These can be achieved with business simulations to provide a controlled environment for learners to apply theoretical knowledge to real-world business challenges, enhancing critical thinking and strategic decision-making (Velez & Alonso, 2025), as well as problem-solving abilities (Ionescu-Feleagă et al., 2025). They also promote emotional intelligence, collaboration, and communication. Furthermore, business simulations allow participants to experiment with different leadership styles without real-world repercussions, enhancing their understanding and application of leadership theories.

All the business simulation models and approaches can be explained through constructivist learning theory. Finding and transforming complex information, verifying it against established norms, and making necessary revisions are all part of constructivism in education (Efgivia et al., 2021). Instead of relying solely on teacher delivery or transfer, it emphasizes the construction or accumulation of new knowledge within students' cognitive structures on the basis of experience (Ibid). Constructivist learning theory accounts for these business simulation models and methodologies. Inquiry-based learning, project-based learning, problem-based learning, and collaborative learning are some of the ideas that underpin constructivism. These fundamental ideas are connected to instructional strategies and classroom practices, as noted by Saarsar (2018). The author makes a connection between inquiry-based learning and motivating students to research subjects, poses questions, and builds their knowledge via exploration and discovery. Students actively explore and investigate concepts through questioning, research, and discovery in inquiry-based learning, a constructivist approach (Chand, 2023). However, problem-based learning encourages critical thinking, teamwork, and knowledge application by giving students real-world problems or scenarios to solve them (Chen, 2024). Another application of constructivism is project-based learning, in which students undertake lengthy, practical projects to investigate complex subjects (Milla, 2025). Collaborative learning encourages communication, teamwork, and peer learning, as students work together in groups to accomplish shared learning objectives (Saarsar, 2018). Taken together, these basic principles, embedded in constructivist learning theory, inform the development of business simulation models and approaches that are adapted to different use cases, meet students' personal needs, and remain directly connected to the business environment. Constructivism emphasizes the value of interpersonal communication and teamwork in the educational process.

Business simulations help students apply theoretical knowledge, enhance critical thinking skills, and understand real-world business problems (Zoroja, Bach and Miloloža, 2019). Simulation games provide a safe, controlled environment, preventing the negative effects of mistakes in real life. They offer an interactive

learning environment that combines complexity, realism, and enjoyment, making learning more engaging, adaptive, and intuitive (Hennicke et al., 2023). Simulation-based leadership games enable students to manage a company in a risk-free environment and share knowledge among departments, developing innovative skills, motivational abilities, and meaningful tasks (Lovin et al., 2021).

Business simulations are driven by three cognitive processes: experimentation, reflection, and inquiry (Barbaroux, 2022). Experimentation involves designing and implementing sequences of actions to test hypotheses and evaluate outcomes, whereas reflection and inquiry guide experimentation and outcomes. Simulation-based learning helps educators make decisions about using transfer-from-simulation tasks to help students develop higher-order thinking skills essential for academic success and learner independence (Falloon, 2019).

Repetitive game-based practices in business simulations reinforce stronger associations with actions and behaviors, aiding recall and memory formation, and enhancing students' cognitive schema built around stimulus–response–consequence associations (Faisal et al., 2022). Ross (2021) identified simulation-based learning as a powerful tool in vocational education, supporting its effectiveness and multidimensional benefits.

Barbaroux (2022) stated that business simulations can significantly enhance leadership skills and competencies, such as self-awareness, self-regulation, self-motivation, problem-solving, strategy execution, social awareness, and relational competencies. According to Kapur (2022), leaders must focus on achieving specific goals and tasks, which requires developing communication, motivation, creativity, positivism, feedback, delegation, trustworthiness, work ethics, conscientiousness, and conflict resolution. Effective communication is crucial for motivation, creativity, and increased productivity. Leaders must form positive perspectives, strengthen problem-solving skills, provide feedback, and supervise the workforce. Trustworthiness is essential for honesty and sincerity. Collaboration and integration are crucial for team members. Work ethics are the beliefs and principles that leaders must uphold. Conscientiousness and conflict resolution methods are also essential.

All these skills and competencies can be effectively developed in an educational environment through simulation-based games. Team-based simulation is a well-known business simulation practice for developing leadership skills that involve students managing a simulated company or project, each taking on a leadership role. Zamiri and Esmaeili (2024) reported that this type of simulation mimics real-world scenarios for experiential learning, providing learners with a safe, controlled environment for skill development. Accordingly, incorporating gamification and simulations into learning communities can create a dynamic, effective learning environment, promoting active participation and skill mastery. Hwang (2023) applied an approach to identify the effects of simulation-based education combined with team-based learning compared with simulation-based

education on nursing students. The author explored a simulation practice education program that focused on immersion, learning satisfaction, and self-efficacy. High academic achievement was achieved through active participation, or immersion, where learners fully immersed themselves in the learning process, as shown by the results of the study. According to his experiment, simulation-based education improves communication ability and self-efficacy, which reduces practice stress and is crucial for learning motivation. Therefore, professors should study effective simulation education methods. A similar hybrid simulation approach was applied by Tong et al. (2024), which facilitates a seamless learning experience, allowing individuals to practice skills in a simulated environment, receive immediate feedback, and apply their knowledge to real-world situations.

Scenario-based challenges are another good practice that improves students' leadership skills in problem solving, strategic thinking, and adaptability by presenting specific crises and requiring them to develop strategies to address them. Samadi-Parviznejad (2021) conducted a study that focused on the simulation method and used it to model and evaluate the predictive outcomes of simulation participants. The experiments are carried out via a computer simulation method and Enterprise Dynamics (ED) software, which is widely used for modeling and simulating various problems.

Reflective practice and feedback are other common components of business simulations, involving regular debriefing sessions, feedback from instructors and peers, and self-awareness, thereby promoting continuous improvement and personal growth. Moranya, Reynolds, and Gannon (2018) discuss the development of a business simulation game for undergraduate students and highlight the benefits of technology-assisted learning. Their methodology comprises five phases: reflective practice and problem identification; the design of active learning strategies; game development; analysis of student feedback; and the integration of student feedback. The proposed reflective practice led to the creation of a simulation game, highlighting the importance of reflective practice in an educator's toolkit. It enables meaningful improvements by questioning the educational process and one's involvement.

Role rotation in a simulation helps students understand different leadership roles, identify strengths, and develop areas for improvement. Role or job rotation is a widely accepted method for developing skills and motivation in the human resource literature. Cadotte (2022) stated that some educational institutions aim to develop students' leadership skills by providing opportunities to assume leadership roles. The author reported that leadership rotation with constructive feedback is effective, and this can be achieved through simulations by rotating the presidency during the simulation. Cadotte (2022) described an approach in which teachers should inform students that they will manage a team and serve as the company's president, overseeing tasks, monitoring performance, and helping the team achieve success. Each simulation has a life cycle, such as

start-up, test market, pitch competition, growth, and final accounting, which can be rotated according to the life cycle. We believe that such an approach would be quite useful for integration into the curriculum, particularly in computer science education. Students can rotate through the various roles and tasks associated with them.

Popular business simulation techniques include coaching and mentoring, which match students with coaches or mentors to offer individualized support and practical guidance, improve learning, and address leadership issues. Bradford et al. (2017) concluded that coaching has a positive effect on personal learning. The authors proposed a model that is based on the postulate that supervisors help create an environment that allows for increased levels of learning. Bradford et al. (2017) used nonmetric categorical scales to measure respondents' training, coaching, and mentor status. The respondents were asked to identify their last training experience as internal, external, or on-the-job. A coach is responsible for helping employees learn necessary tasks and skills and can be a manager, supervisor, or other individual.

Bauer, Heitzmann, and Fischer (2022) share good practices in their research and refer to the 3P model introduced by Biggs (1993) as a simulation-based learning framework. The model is a comprehensive approach to educational evaluation that considers not only the product of learning but also the learning process and presage factors. This includes product factors, which refer to learners' achievements, and process factors, which involve cognitive, metacognitive, affective, and regulative processes. The model also considers interactive and collaborative processes in groups. The study of simulation-based learning can offer valuable insights into the interplay between learner characteristics, simulation context, design, learning processes, and outcomes. This comprehensive approach can be particularly useful in contexts requiring complex skills, such as higher education and professional training.

Another business simulation model was proposed by Brassier, Favre-Bonté, and Ralet (2024). It explores the links among team cohesiveness, performance, player perceptions, and simulation technology. Their model is conducted in five stages, the first of which focuses on team cohesiveness. It was assessed via five distinct measures: school belonging, choice by class, choice by role, choice by profile, and random assignment. These measures were used to determine whether team members were selected from the same school or across multiple schools. The next stage of the model refers to measuring the participants' performance in a serious game via actual data—scores and rankings—instead of relying on self-report questionnaire data. After that, the authors examine both the perception of the team's organization and the perception of the gaming experience before and during the decision-making processes. Finally, the study identifies factors that promote or hinder the use of technology-based learning tools, thereby

assisting in the creation of strategies that improve user satisfaction and performance.

The question arises whether business simulations can be integrated into the university curriculum and, at the same time, be compatible with the regional innovation ecosystem. In this context, the research of Tijssen, Edwards, and Jonkers (2021) argues that the conventional goal of research and innovation excellence should be extended to local innovation ecosystems, requiring regional policy to develop its own criteria beyond research excellence. The authors noted that the drivers of growth vary across regions, affecting university development. According to them, integrating entrepreneurship education into the curricula should be a common practice, as seen from the portfolio of several universities in the European Union. Interdisciplinarity is thus promoted as a core value of innovation-oriented entrepreneurship.

Alstete (2023) explored the integration of multiple business simulations with increased assignment weighting in a university business curriculum. He uses a case study research design to test programmatic and learning theories. This study suggests that systemic program-wide implementation of teaching resources such as simulations, microsimulations, and role-playing assignments can enhance experiential learning. The author proposes innovative implementation ideas to strategically arrange simulation assignments, preparing students for future management work-based training.

Galan-Muros and Davey (2019) also created a comprehensive ecosystem framework for university-business cooperation (UBC), incorporating researchers, managers, and policymakers. It systematically maps the elements of UBC in higher education institutions and their interrelations. The framework simplifies the complexity of UBC, providing a common understanding of its operations. It also serves as an interorganizational performance management tool, supporting UBC decision-making processes and contributing to policy and management settings.

This experience is also approved by other universities, which are focused on innovation through policies, incentives, the interplay between actors, and faculty and student entrepreneurial ability (Kozirog, Lucaci, and Berghmans, 2022). Business simulation integration as part of a university's strategy aims to transform the university into a hub of innovation while maintaining high research and education standards (Kozirog, Lucaci, and Berghmans, 2022). The same source states that the institution supports innovation capacity enhancement and technology transfer through national and international collaborations with academia, industry, and society. It promotes inter- and transdisciplinary research cooperation to address challenges and future questions.

Another study explores the role of universities as ecosystem actors in entrepreneurial opportunity formation, identifying different entrepreneurial opportunity spaces on the basis of knowledge applicability and proximity (Rinkinen, Konsti-Laakso, and Lahikainen, 2023). The paper emphasizes the

importance of aligning entrepreneurial and innovative ecosystem activities for local businesses to fully utilize university opportunities. Universities can act as hub organizations, building and orchestrating stakeholder networks in entrepreneurial ecosystems.

Hunter (2004) emphasized the importance of relationships in effective leadership, stating that leadership development and character development are interconnected. He offers a simple, three-step change process that has been successfully used by thousands of leaders to effect change in their lives and organizations, promoting positive change at the personal, organizational, and societal levels. This is the three Fs process: foundation, feedback, and friction. According to Hunter's approach, leaders must set the standard, identify gaps between the set standard and current performance, and create friction by eliminating gaps and measuring results. The participants understood their deviations from the high standard and their current leader. The approach also includes a leadership skills inventory survey, which was developed in two versions—to assess one's leadership qualities and the leadership qualities of the team leader.

However, there are specifics in the design of business simulations for student leadership development that require significant lead time. According to Bauer, Heitzmann, and Fischer (2022), educators must consider some factors and their interplay in the context of evaluating the effectiveness of simulation-based learning. First, these are the individual factors that refer to a learner's cognitive, metacognitive, affective, and regulatory learning prerequisites. However, contextual factors should also be considered. They involve the design and implementation of simulations, including setting learning goals, defining tasks, creating stimulus material, and implementing measures to support and guide learning, such as scaffolding or debriefing. Both factors are crucial for effective learning strategies.

On the basis of the conducted literature review, we can answer RQ1, namely, according to the presented research, business simulations in the learning environment influence the development of students' leadership skills. It can be concluded that business simulations are a valuable tool for leadership development in learning. From the perspective of specialized computer science training, business simulations offer a practical environment for students to develop essential skills such as project management, team collaboration, strategic decision-making, technical and nontechnical training, effective team communication, and risk management. Simulation practices include software development projects where students assume leadership roles as project managers, team leaders, or product owners. This improves organizational and time management skills and helps students manage projects from the concept development of the technology project to its completion.

In this sense, we can answer RQ2. In summary, universities may recreate local innovative ecosystems through the integration of business simulations into the curriculum, providing students with a better understanding of their local importance. This approach to learning can help with real-world problems, promote entrepreneurial thinking, and help with joint ventures with nearby companies. Universities may strengthen their relationships with the local economy and ensure that students' competencies align with local employers' needs by involving stakeholders in the design of simulations. To help students strike a balance between social impact and financial feasibility, universities can incorporate simulations into their social business curricula. These facilities, sometimes known as "living labs", focus on local concerns and blend real-world research with simulations. Through business simulations, students can develop critical thinking skills and understand how business strategies affect societal benefits and organizational outcomes. Through role-playing activities, universities also assist students in understanding the effects of local policies and regulations and the importance of engaging with community stakeholders. The growth of social innovation is aided by these simulations.

RESEARCH METHOD

Research Design and Participants

The study was conducted in two periods: the 2020-2021 academic year (from September 2020--May 2021) and the 2023--2024 academic year (from September 2023--May 2024). The first period was during the COVID-19 pandemic, and the second was after it. Two study areas were selected: "User Experience Design" (UXD) and "Web Content Management Systems" (WCMS). The courses are titled "UX Design" and "Web CMS". The study areas UX Design and Web CMS are highly relevant for business simulation environments because of their direct impact on both the technical and business success of digital products.

Students studied for a bachelor's degree in the field of computer science at Bulgarian University. They were in their 3rd and 4th years. Due to invalid responses, 5 participants were rejected from the first survey, and 3 were rejected from the second survey. All the respondents were informed about the purpose of the study and the anonymous processing of their data. Only responses from participants who consented to have their responses processed are included in this paper. Ultimately, the sample to be processed was composed of 136 student representatives. During the 2020–2021 academic year, a total of 62 students participated in the study, of which 22 were female and 40 were male. The age of the participants ranged between 20 and 27 years, with a mean (M) age of 21.02 and a standard deviation (SD) of 1.35. By area of study, 26 students were from the UXD field, and 36 from the WCMS. During the 2023–2024 academic year, the sample increased to 74 participants, including 32 females and 42 males. The age

range was wider, from 19 to 37 years, with a mean age of 22.36 and a standard deviation of SD of 4.298. By area of study, 30 participants were from the UXD field, and 44 from the WCMS field.

For both periods, the average ages of the participants were 21 and 22 years, with the majority of the students being male, which is typical for computer science programs. A small number of participants were over 25 years old. For the first period, the age of 27 is 1 student, and for the second period, there are 12 participants between the ages of 26 and 37, or this is 16.22% of the sample. There is an increase in interest in computer science programs due to the growing opportunities for development in the IT field or even retraining, as some of the participants shared.

Both study areas are freely selected from the computer science students' curriculum, and the number of participants in the study areas depends on the percentage of course enrollment for the current year. As a percentage, the total number of participants for the 2020–2021 academic year was 50.8% of the total number of students studying computer science at Bulgarian University. The total number of participants from the academic year 2023–2024 is 54.81% of the total number of students studying in the field of computer science.
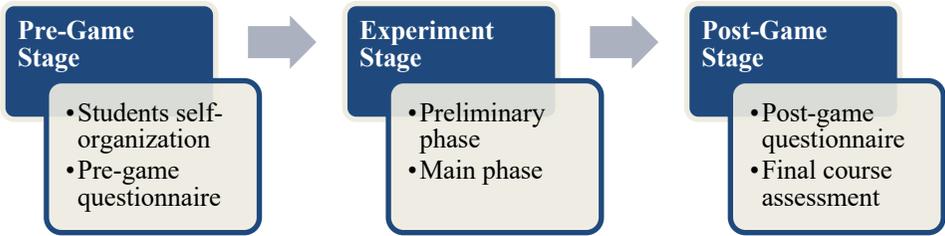
Research Procedure

Pre-Game Stage
The students self-organized into groups of 4, with one person as the team leader. Assignment to teams is performed randomly. In the first lesson, each student draws the number of teams in which he or she will participate until the end of the semester.The students completed a pregame questionnaire that aimed to explore the following:
- Personality of the students - A brief version of the Big Five Personality Inventory, adapted from Rammstedt and John (2007); see Appendix 1;
- Leadership skills of the participants - adapted from Hunter (2004), see Appendix 2;
- Expectations about game-based learning - Appendix 3 contains questions developed by the author of this study.

Participants can share as free text their own leadership strengths/skills and describe which leadership skills they need to improve at home.

Figure 1 *Business Simulation Learning Approach Stages*

Pre-Game Stage	Experiment Stage	Post-Game Stage
• Students self-organization • Pre-game questionnaire	• Preliminary phase • Main phase	• Post-game questionnaire • Final course assessment

Experiment Stage

The preliminary and main stages are the two phases of business simulation. By defining the roles of the teams, which the students divide among themselves, and assigning a set of assignments that the students are expected to complete throughout the semester, the lecturer prepares the necessary materials to help the students more easily enter the spirit of the game during the preliminary phase. The lecturer creates the game script and the instructions for every role during this phase.

The game is adapted according to the needs of the study areas. The scenarios depend on the curriculum, the requirements for the formation of assessments, and the conduct of examinations. In the context of the study areas UX Design and Web CMS, students work on a single project throughout the semester, divided into stages, including requirements formulation, user interface design, content development, and user testing.

At this stage of the business simulation, the set of tools (software) that will be used until the end of the semester is determined. In both study areas, students work entirely in an internet-shared environment. Within the UX design field, students use tools such as Miro for collaborative tasks, Trello for project management, and Figma for developing user interface prototypes for software applications. In the Web CMS study area, participants work with Trello for project management, WordPress, and Joomla for web application development.

The lecturer serves as a mentor during the main phase of the business simulation, assisting with role-playing and facilitating idea sharing. Weekly assignments are given and are based on the study area. The lecturer's job is to observe and assist the students. Students' preparation in both study areas depends on the game's success.

In student teams, the team leader is the role a student chooses to assume. The leaders manage the group during the game, assign tasks to the various roles, and keep tabs on the participants' proper behavior toward one another. He or she monitors whether the group has all the supplies needed for the game and assists as needed.

Depending on the task set and study objectives, other roles in business simulation for computer training may include developers, designers, and business analysts. They complete assigned tasks and report results to their team leaders.

Post-Game Stage

At this stage (typically at the end of the semester), a post-game questionnaire is administered to assess participants' opinions on the business simulation after its implementation and on the results achieved. It consists of:

- Leader Choice Questionnaire - adapted from ten soft skill attributes categorized from executive listings by Robles (2012), see Appendix 4;
- Leadership skills inventory - adapted from Hunter (2004), see Appendix 5;
- To obtain feedback on the approach, the standardized Situational Motivation Scale (SIMS) questionnaire was administered (see Appendix 6).

Additionally, open-ended questions are included to gather feedback on the team leader's greatest leadership strengths and skills, as well as areas for improvement. The survey results do not affect the assessment of the two study areas. When evaluating students, completed tasks are considered. The final semester evaluation is formed by the projects on which the students work, which are divided into 3 stages, because, according to the internal regulations of the university, a minimum of 3 forms of control are needed. The forms of control depend on the curriculum of the study areas.

RESULTS

The approach proposed in this paper integrates two questionnaires—before and after conducting the business simulation. We conduct data analysis in two stages: the pre- and post-Game stages. The research was conducted through a survey via the Lime Survey tool. A description of the number of participants and valid answers has been added to section 3.2. The evaluation of a business simulation should consider both quantitative and qualitative outcomes. The quantitative evaluation methods include pre- and post-simulation surveys based on leadership inventory tools, which are described below. Each of these tools supports a validated data analysis approach that is applied after the representation of the results. Qualitative evaluation focuses on subjective experiences, learning reflections, and deeper insights into students' feedback about the approach.

Pre-Game Stage Analysis

The groups of questions from the pregame questionnaire are presented in Appendices 1, 2, and 3. Tables 2, 3, and 4 present the means and standard deviations of the results of the survey conducted at the first stage of the approach described in 3.2. Research Procedure.

Table 1 describes the mean score results from the short version of the Big Five Inventory proposed and validated by Rammstedt and John (2007). Specifically, the personality dimensions of the Big Five Inventory are related to (Rammstedt and John, 2007):

- Openness: Creativity and willingness to explore new ideas.
- Conscientiousness: Discipline and goal-oriented behavior.
- Extraversion: Sociability and leadership qualities.
- Agreeableness: Teamwork and interpersonal skills.
- Neuroticism: Emotional stability under stress.

A possible framework for understanding how the business simulation may have affected students' personality traits and their likelihood of success as entrepreneurs is provided by examining mean scores across the five personality dimensions. The present interpretation, however, is still mainly speculative and does not provide concrete proof that the observed score changes correspond to the results. For example, stronger reasoning and corroborating qualitative data are needed to support the inference that a decrease in agreeableness reflects improved emotional stability and stress management, or that an increase in openness indicates greater creativity and openness to new ideas.

With reverse-scored items indicated (e.g., extraversion: 1R, 6; agreeableness: 2, 7R; etc.), each questionnaire item relates to a particular personality trait. The average scores from a 5-point Likert scale, which ranges from 1 to 5, are used to calculate the results. The analysis does not adequately explain the way these scores were interpreted statistically or whether the observed differences are significant, even though a summary of valid responses is arranged by year and study area. The analysis supports assertions regarding changes in personality traits using statistical measures (e.g., standard deviation, confidence intervals, and significance tests) to improve clarity. Additionally, establishing findings in observable educational outcomes rather than speculative conclusions would be easier if the changes were more directly linked to simulation activities and contextual factors.

Table 1

Mean and standard deviation of a brief version of the Big Five Personality
Inventory scores by study area for both academic years

Question Code*	UXD 2020–2021		WCMS 2020–2021		UXD 2023–2024		WCMS 2023–2024	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
A1Q1	3,35	1,13	3,39	1,23	3,70	1,12	3,09	1,22
A1Q2	3,62	1,36	3,56	1,13	3,30	1,32	3,48	1,44
A1Q3	2,77	1,31	2,86	1,33	2,73	1,34	2,77	1,24
A1Q4	3,58	1,30	3,61	1,18	3,17	1,39	3,66	1,24
A1Q5	3,38	1,42	3,83	1,03	3,37	1,38	3,18	1,33
A1Q6	3,46	1,07	3,56	1,25	3,17	1,26	3,84	1,12
A1Q7	2,81	1,06	2,67	1,20	2,87	1,14	2,68	1,25
A1Q8	3,77	0,82	3,86	1,05	3,40	1,22	4,11	1,04
A1Q9	2,96	1,37	3,17	1,32	3,10	1,21	2,95	1,46
A1Q10	3,85	1,12	4,33	0,83	3,93	0,98	4,07	1,19

Note. See Appendix 1.

Standard deviations (SDs) generally indicate a moderate level of variability in responses. For example, the UX design study area A1Q1 has a relatively high standard deviation (SD) of 1.13 in 2020–2021, but it decreased to 1.12 in 2023–2024, indicating more consistent responses over time. The Web CMS study area's SD values range from 0.83 (A1Q10 in 2023–2024) to 1.46 (A1Q9 in 2023–2024), indicating variability in responses. The relatively low SD for A1Q10 in 2023–2024 indicates that students' responses were more aligned in that question, possibly reflecting a shared sentiment.

The mean scores for questions A1Q1 and A1Q10 increased between the two academic years, indicating a significant improvement in students' perceptions of UX design. The mean scores for several questions, however, suggest a possible decline in performance or satisfaction. The UX design standard deviation was relatively constant across most of the questions, indicating that there was little variation in the consistency of the student answers. The mean scores for WebCMS were generally higher than those for UX Design, especially for questions A1Q5, A1Q8, and A1Q10. However, by 2023–2024, issues had become more complex, with some Web CMS scores declining sharply while others were rising. Web CMS A1Q8 showed the greatest improvement, indicating substantial advancement in that domain.

The results of Table 1 show that for the UX design study area for both periods, the audience profile is more composed of *extroverts* who can generally be trusted, manage stress well, have artistic interests, fulfill their duties, and have an active imagination. The results for the Web CMS study area show that the audience

profile for both periods consists of students who self-identify as more reserved or introverted but who can generally be trusted. They indicate that they manage stress and do a thorough job. For this study area, students define themselves as having an active imagination. Business simulation participants in the postpandemic period self-identified themselves more as reserved than did those in the pandemic period (A1Q1 has a higher average score for the 2023–2024 academic year). Additionally, the mean postpandemic A1Q4 score was greater in both study areas postpandemic than during the pandemic, suggesting improved stress management among current academic year students.

Table 2 is a self-assessment of the leadership skills of the participants in the two study areas for the two periods in which the study was conducted. The questions were adapted from Hunter (2004) to meet the objectives of this study. The questions are included in Appendix 2 along with the coding we performed for easier tabulation of the results. The questionnaire in Appendix 2 is comparable to that in Appendix 5. In the first case, the participants self-assessed their leadership skills, whereas in the second case, they assessed the team leader with whom they worked.

As Hunter's (2004) scoring ranges are from 0 – 4, and in this paper, we use a 5-point Likert scale, it is necessary to map the range and equate it between 1 and 5. Hunter (2004) identified 4 leadership skill mapping types: URGENT PROBLEM AREA (in the range of 1.0 – 3.3), POTENTIAL PROBLEM AREA (in the new range of 3.4 – 3.7), GOOD SHAPE (in the suggested range of 3.8 – 4.1), and EXCELLENT SHAPE (in the new range of 4.2 – 5). The results analysis strategy is the same as that of the Big Five Inventory; interpretation depends on the average points that each question receives. A summary of the valid answers by year and study area is provided. Since the questionnaire uses a 5-point Likert scale, each question can be scored between 1 and 5 points. Only the mean and standard deviation results were sufficient for the analysis.

The self-assessments of leadership skills across the two periods are comparable. The UX design study area's standard deviations generally reflect moderate variability in the responses. For example, A2Q1 has a relatively low SD of 0.50 in 2020–2021, indicating more consistent responses among students, whereas the SD for A2Q3 is 1.19 in the same year, reflecting a wider range of responses. The SD values for 2023–2024 show an increase in variability for some questions, such as A2Q1 (1.09) and A2Q18 (1.34), indicating diverse perceptions regarding leadership skills. In comparison, the SDs of the Web CMS study area also show variability. For example, A2Q2 has a high SD of 1.44 in 2023–2024, suggesting significant differences in student responses regarding leadership skills. Questions such as A2Q1 and A2Q17 maintain low SD values (0.91 and 0.77, respectively), indicating a more unified view among students about their leadership skills.

Table 2

Mean and standard deviation of leadership skills inventory - self-assessment
scores study areas for both academic years

| Question | UXD | | WCMS | | UXD | | WCMS | |
| Code * | 2020–2021 | | 2020–2021 | | 2023–2024 | | 2023–2024 | |
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
A2Q1	4,42	0,50	4,25	0,84	4,17	1,09	4,27	1,02
A2Q2	3,15	1,32	3,64	1,02	3,77	1,07	3,02	1,44
A2Q3	3,31	1,19	3,31	1,17	3,47	1,20	3,27	1,34
A2Q4	4,19	0,80	4,25	1,02	4,13	0,97	4,16	1,12
A2Q5	3,85	1,01	3,97	0,91	3,93	1,08	3,91	1,20
A2Q6	4,46	0,51	4,36	0,96	4,07	1,23	4,43	1,04
A2Q7	3,73	1,15	3,78	0,96	3,73	1,14	3,84	1,33
A2Q8	4,50	0,51	4,56	0,88	4,30	1,02	4,41	1,11
A2Q9	3,38	1,06	3,56	1,18	3,53	1,17	3,64	1,26
A2Q10	3,77	0,65	3,58	1,13	4,00	1,02	3,66	1,33
A2Q11	4,31	0,84	4,22	1,02	4,17	1,18	4,23	1,14
A2Q12	4,15	1,05	4,22	1,02	4,07	0,94	4,11	1,10
A2Q13	3,38	1,17	3,33	1,33	3,20	1,35	3,75	1,16
A2Q14	4,00	0,85	4,11	0,78	3,60	1,30	4,11	1,17
A2Q15	3,58	0,90	3,61	0,99	3,90	1,16	3,70	1,30
A2Q16	3,92	1,06	3,92	1,20	3,53	1,33	3,68	1,34
A2Q17	4,42	0,50	4,53	0,77	4,47	0,82	4,39	1,17
A2Q18	4,42	0,70	3,94	1,35	3,93	1,34	4,02	1,36
A2Q19	4,23	0,82	4,47	0,88	4,33	0,92	4,20	1,19
A2Q20	4,23	1,07	3,86	1,44	4,43	0,94	4,05	1,36
A2Q21	4,42	0,50	4,17	0,91	3,97	1,19	3,98	1,28
A2Q22	4,27	0,83	4,19	0,82	4,17	1,09	3,93	1,32
A2Q23	3,69	1,01	3,97	1,00	4,00	0,91	3,95	1,16
A2Q24	3,85	1,12	3,97	1,00	3,70	1,29	3,91	1,25
A2Q25	4,12	0,91	3,72	1,37	3,97	0,89	3,73	1,37

Note. See Appendix 2.

For the first period, students studying in the study area UX Design give an average rating of their leadership skills of 3.99, and for the second period, 3.9416. Students who study in the study area WebCMS for the first period give an average rating of their leadership skills of 3.9796, and for the second period, 3.934. In both study areas, a small decrease in general self-esteem was observed, i.e., students felt more confident during the pandemic than they had since. However, in both cases, the students' self-assessment falls within the GOOD SHAPE range. The students gave the lowest average self-assessment (between 3.02 and 3.31) to

questions 2, 3, and 13, i.e., they do not feel confident in being leaders of people following them or supporting the activities of their teammates. This is also because participants in the business simulation are still learning and need mentoring themselves.

The students gave the highest self-assessment (between 4.43 and 4.56) to questions 6, 8, and 17, which fall into the EXCELLENT SHAPE range. They define themselves as good listeners, treat people with respect and as individuals whom they can trust. The results of Table 2 overlap with the audience profile of Table 1, namely, the self-identification of participants as people who can be trusted.

However, students' self-evaluations of their leadership abilities show conflicting patterns, according to the study. In 2023–2024, students studying UX design gave themselves higher ratings for "confronting people with problems" than did students studying Web CMS. From 2020–2021, respect and goal setting also received high marks. However, from 2023–2024, Web CMS students gave their technical skills a slightly higher rating than UX Design students did. In particular, in the Web CMS study area, students may feel less confident in their leadership skills over time. However, the consistency in higher means for A2Q8 across both years suggests strong perceived leadership ability in collaborative and team-oriented tasks. The SD analysis reveals a mix of consensus and variability in responses, suggesting areas for further exploration or intervention. Both study areas maintain high mean scores for certain items, indicating strong perceived leadership skills. The overall confidence of students declined, pointing to either a more realistic self-evaluation of leadership abilities or a decline in general self-confidence.

Table 3 summarizes the students' expectations of the business simulation. For the UX design study area and both periods, questions 3, 4, and 5 received the highest values, as the participants' expectations are related to active participation in the learning process, easy learning of new things, and team cohesion. For the Web CMS study area and both periods, the highest average values were obtained for questions 5 and 8. The students expect to obtain knowledge that they apply in practice, as the business simulation puts them in conditions close to real situations.

According to the findings, expectations for the learning process vary among UX Design students, with some increasing and others falling. While Web CMS students have consistently lower expectations, they view business simulations as useful tools for real-world applications. Additionally, critical thinking is expected to be greater for UX Design students than for Web CMS students. In addition, UX Design students exhibit a more positive attitude toward group cohesion and identify positive traits in their peers, indicating a more positive perspective on the social and cooperative elements of simulations.

Table 3

Mean and standard deviation of business simulation learning approach
expectations scores by study area for both academic years

| Question | UXD | | WCMS | | UXD | | WCMS | |
| Code * | 2020–2021 | | 2020–2021 | | 2023–2024 | | 2023–2024 | |
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
A3Q1	3,81	0,85	4,09	0,93	3,77	1,25	3,52	1,41
A3Q2	3,68	0,74	3,97	0,90	4,00	1,14	3,55	1,22
A3Q3	3,92	0,95	4,03	1,06	3,93	1,11	3,66	1,34
A3Q4	3,96	0,92	4,06	0,89	4,10	1,12	3,80	1,25
A3Q5	3,88	0,91	4,16	0,99	4,10	1,06	3,84	1,22
A3Q6	3,88	0,86	4,00	0,98	4,07	0,83	3,82	1,39
A3Q7	3,88	0,95	3,88	0,99	3,73	1,11	3,77	1,29
A3Q8	3,81	0,85	4,09	0,93	4,23	0,94	3,91	1,33

Note. See Appendix 3.

An analysis of the emotions expressed in the open-ended questions was performed via the Tweet Profiler Module of the Orange Data Mining Tool (Figure 2). The content classification method based on Plutchnik's classification of emotions was used. According to Plutchik (1980), the basic human emotions are anticipation, acceptance, joy, surprise, anger, disgust, fear, and sadness.

Figure 2

Orange the data mining tool setup

For the first period of the 2020–2021 academic year, users left a total of 124 answers in the three free answer fields. The Plutchik classifier used 67.74% of the responses to contain the emotion of trust and 14.52% to contain joy (Figure 3). In business simulations, trust was the most common emotion, and the emotional climate was overwhelmingly positive and stable. The second most common emotion was joy, suggesting an optimistic environment.

Figure 3

Plutchik Emotions Classifier's Results in Orange Data Mining Tool for 2020–2021 and 2023–2024 Academic Years, Pre-Game Stage
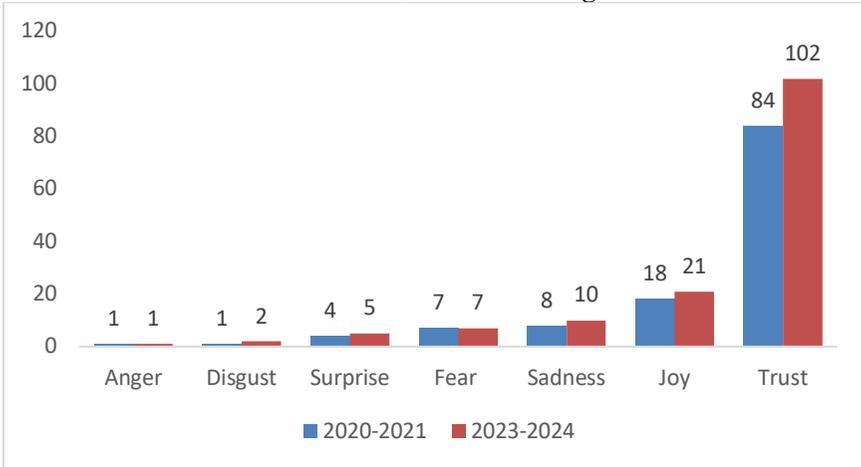
A particularly frequent emotion was sadness, which may indicate disappointment or anxiety. The least prevalent emotion was fear, followed by a slight degree of uncertainty or anxiety. A rare degree of shock or frustration was indicated by the least common emotions, which were surprise, anger, and disgust. Overall, the students had little negative emotion and came into the simulation with a positive and self-assured attitude.

For the second period of the 2023–2024 academic year, the students left 148 answers in the open-ended questions. The Plutchik classifier used 68.92% of the responses to contain the emotion of trust and 14.19% to contain joy (Figure 3). With high scores for Trust and Joy indicating a high level of confidence in the learning process, team, and academic environment, the overall mood during a simulation was overwhelmingly positive and stable. With 21 students experiencing happiness and positivity, joy was the most common emotion. Another common emotion was sadness, with ten students experiencing anxiety or unfavorable expectations. Seven students reported having mild anxiety or uncertainty, making fear the least prevalent emotion. A stable emotional climate was indicated by the rarity of the remaining emotions.

The analysis of emotional attitudes reveals predominantly positive opinions about learning through business simulation and about the participants' leadership skills.

Post-Game Stage Analysis

The groups of questions from the pregame questionnaire are presented in Appendices 4, 5, and 6. Tables 4, 5, and 6 present the means and standard deviations of the results of the survey conducted at the last stage of the approach described in 3.2. Research Procedure.

Table 4 describes the mean score results from the leader choice questions list based on the top ten soft skill attributes categorized from executive listings by Robles (2012). The list of questions contains 10 items (see Appendix 4) that highlight the most important soft skills that a leader should possess.

Table 4

Mean and standard deviation of leader choice scores by academic year and study area

Question Code *	UXD 2020–2021		WCMS 2020–2021		UXD 2023–2024		WCMS 2023–2024	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
A4Q1	4,15	1,01	4,11	0,98	4,00	1,23	3,98	1,27
A4Q2	4,12	1,07	4,17	1,03	4,17	1,02	4,14	1,09
A4Q3	4,38	0,80	4,17	0,88	4,13	1,20	4,07	1,26
A4Q4	4,08	1,09	4,00	1,01	4,13	1,17	4,02	1,15
A4Q5	4,08	0,93	4,11	0,82	4,23	1,14	4,07	1,21
A4Q6	4,19	1,10	4,14	0,99	4,37	1,10	4,41	1,11
A4Q7	3,92	1,02	3,89	0,95	4,20	1,13	3,95	1,20
A4Q8	3,92	1,06	3,89	0,98	4,23	1,28	4,09	1,27
A4Q9	4,19	0,94	4,25	0,84	4,27	1,20	4,25	1,24
A4Q10	4,23	1,03	4,22	0,96	4,27	1,01	4,34	0,99

Note. See Appendix 4

According to the students who participated in the UX design study area for the first period of the research, the skills of flexibility, teamwork, work ethic, and communication are the most important for choosing a team leader. Compared with the second period, a positive attitude toward team members is in first place by average value, followed by equal values for teamwork and work ethic, and in third place, students indicate interpersonal skills and demonstrations of responsibility. The participants in the Web CMS study area for the first period identified the skills of being a team player, having a work ethic, showing courtesy skills, being flexible, accepting new ideas, and adjusting to new situations as the most important for choosing a team leader. Compared with the second period, a positive attitude toward team members is most important, followed by the ability to work on a team and exhibit a work ethic.

The results between the two periods and between study areas are comparable. According to the students, a successful team leader must be a team player who is ethical and adaptable to new situations. In summary, students studying Web CMS and UX Design from 2023–2024 cited a strong work ethic and positive outlook as the most important factors when selecting a leader. On the other hand, communication and flexibility skills declined, with UX Design students exhibiting a more noticeable decrease. While Web CMS students' values remained constant, UX Design students placed greater emphasis on professionalism and responsibility. In general, UX Design students noted that professionalism and accountability are most important.

As described above, Table 5 is based on Hunter's (2004) questionnaire, which assesses team leader qualities. The questions are included in Appendix 5. After conducting the business simulation at the end of the semester, the students evaluate the leadership skills of the team leader chosen at the beginning of the semester. The results of the team leader's leadership skills assessment for the both periods are comparable. For the first period, students studying in the study area UX Design give an average rating of team leaders' leadership skills of 3.81, and for the second period, it is 3.92. Students who study in the study area Web CMS for the first period give an average rating of team leaders' leadership skills of 3.86, and for the second period, the rating is 4.09. In both study areas, minor differences were observed, i.e., students felt more confident during the COVID-19 pandemic than after it. However, in both cases, the team leader's assessment falls within the GOOD SHAPE range.

The students gave the lowest average self-assessment (between 3.28 and 3.89) to questions 2, 3, and 16. They define that the least represented for their team leader is the ability to face problems/situations when they arise, support teammates in completing tasks, and be able to forgive mistakes and not hold grudges. This is also because participants in the business simulation are still part of the education system, and they need to mentor and develop their leadership skills. The students gave the highest self-assessment (between 4.07 and 4.32) to questions 6 and 14, which fall into the EXCELLENT SHAPE range. According to the students who participated in the simulation in the first period, their team leader is a good listener, whereas in the second period, the technical skills necessary to do the job stand out.

The results of Table 5 overlap with those of Table 2, i.e., the given self-assessment is analogous to that which the participants look for in their team leader.

Table 5

Mean and standard deviation of leadership skill scores by academic year and study area

Question Code *	UXD 2020–2021		WCMS 2020–2021		UXD 2023–2024		WCMS 2023–2024	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
A5Q1	3,77	1,27	3,89	1,12	3,87	1,38	4,09	1,27
A5Q2	3,73	1,15	3,72	1,09	3,80	1,42	3,89	1,35
A5Q3	3,46	1,42	3,28	1,47	3,80	1,35	3,89	1,24
A5Q4	3,85	1,12	4,00	1,01	3,93	1,34	4,09	1,16
A5Q5	3,62	1,36	3,78	1,20	3,90	1,32	4,11	1,22
A5Q6	4,12	1,24	4,14	1,07	4,03	1,30	4,14	1,23
A5Q7	3,85	1,22	3,92	1,05	3,90	1,40	4,11	1,22
A5Q8	4,04	1,31	3,92	1,34	3,90	1,40	4,02	1,30
A5Q9	3,65	1,38	3,53	1,42	3,90	1,40	4,09	1,27
A5Q10	3,50	1,36	3,67	1,20	3,97	1,35	3,98	1,28
A5Q11	3,88	1,34	4,06	1,19	3,97	1,35	4,23	1,20
A5Q12	3,92	1,44	4,11	1,28	3,83	1,37	3,95	1,28
A5Q13	3,88	1,24	3,97	1,23	3,93	1,34	4,07	1,21
A5Q14	3,92	1,35	3,89	1,26	4,07	1,31	4,32	1,16
A5Q15	3,81	1,10	3,53	1,30	4,03	1,30	4,27	1,15
A5Q16	4,08	1,02	4,03	1,03	3,73	1,39	3,93	1,32
A5Q17	3,92	1,44	4,08	1,27	3,97	1,35	4,16	1,24
A5Q18	3,88	1,34	4,03	1,18	3,73	1,46	3,93	1,37
A5Q19	3,96	1,28	3,97	1,23	4,00	1,36	4,25	1,20
A5Q20	3,92	1,35	4,00	1,17	3,90	1,47	4,02	1,36
A5Q21	3,58	1,33	3,64	1,25	4,03	1,30	4,23	1,14
A5Q22	3,85	1,32	4,00	1,17	4,00	1,29	4,23	1,14
A5Q23	3,73	1,34	3,75	1,25	3,97	1,35	4,14	1,23
A5Q24	3,73	1,25	3,75	1,18	3,93	1,34	4,14	1,23
A5Q25	3,69	1,32	3,78	1,27	3,93	1,41	4,05	1,31

Note. See Appendix 5

When conducting a correlation analysis of the results of Table 3 and Table 4, we find that there is a good correspondence between the fact that the team leader is not an overcontrolling or overdominating person with communication skills, showing courtesy skills, and demonstrating responsibility. The leadership skill of the team leader not embarrassing people or punishing them in front of others has a good connection with his soft skills of courtesy and responsibility. The most frequently indicated skill of the leader to be a good listener, according to the correlation analysis, corresponds well with communication skills and courtesy

skills. The leadership skill of treating people with respect corresponds well with courtesy skills and demonstrating responsibility.

Table 6 contains the results of the responses to the Situational Motivation Scale (SIMS) of Guay, Vallerand, and Blanchard (2000). The evaluation considers the following formula:

Self-Determination Index (SDI) = (2 x IM) + IR – ER – (2 x AM), where the following coding is used:

- Intrinsic motivation (IM): mean of items 1, 5, 9, and 13
- Identified regulation (IR): mean of items 2, 6, 10, and 14
- External regulation (ER): mean of items 3, 7, 11, and 15
- Amotivation (AM): mean of items 4, 8, 12, and 16

Table 6 shows that the degree of intrinsic motivation to participate in the UX design study area for the first period is 4.98 out of 7 points, and for the second period, it increases to 5.18 out of 7. The students' intrinsic motivation to participate in the business simulation of the Web CMS study area in the first period is 4.69 (which is lower than that of the UX design study area), whereas for the second period, it is also 5.18, which is the UX design study area. The questions related to identified regulation are the internal conviction that participation in business simulation is a matter of personal decision on the part of the students. The IR values for the UX design study area (5.29 for the first period and 5.10 for the second period) were higher than those for the Web CMS study area (4.95 for the first period and 5.03 for the second period).

External regulation is related to whether the learning approach based on business simulation is mandatory and whether the student has no choice but to participate. The ER values for the UX design study area were 4.22 for the first period and 4.53 for the second period. For the Web CMS study area, the ER value for the first period is 3.97, and for the second period, it is 4.55. Notably, students in the 2020-2021 academic year did not feel that they had no choice when they were participating in the simulation, whereas in the 2023-2024 academic year, more students felt that their participation was mandatory for the study area.

Table 6

Mean and standard deviation of situational motivation scale scores by academic year and study area

| Question Code *	UXD 2020–2021		WCMS 2020–2021		UXD 2023–2024		WCMS 2023–2024	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
A6Q1	5,35	1,52	5,14	1,48	5,23	1,55	5,30	1,46
A6Q2	5,35	1,44	5,06	1,37	5,07	1,64	5,00	1,57
A6Q3	4,65	1,98	4,50	1,90	4,77	1,74	4,86	1,89
A6Q4	3,58	2,08	3,92	2,12	4,67	1,84	4,32	1,91
A6Q5	4,77	1,48	4,58	1,34	4,97	1,77	4,98	1,76
A6Q6	5,54	1,27	5,03	1,59	5,10	1,75	4,98	1,73
A6Q7	4,73	1,85	4,50	1,80	4,73	1,78	4,77	1,85
A6Q8	3,58	1,94	3,53	1,83	4,50	1,94	4,27	1,98
A6Q9	4,85	1,80	4,39	1,93	5,20	1,42	5,20	1,34
A6Q10	5,27	1,59	5,19	1,64	5,23	1,65	5,18	1,60
A6Q11	2,85	1,99	2,72	1,99	4,03	2,20	3,95	2,09
A6Q12	2,73	1,87	2,69	1,86	4,23	2,01	4,07	1,93
A6Q13	4,96	1,56	4,64	1,55	5,33	1,45	5,25	1,46
A6Q14	5,00	1,50	4,53	1,66	5,00	1,80	4,95	1,78
A6Q15	4,65	1,79	4,14	1,85	4,60	1,90	4,61	1,97
A6Q16	3,38	2,04	3,36	1,93	4,27	1,98	4,11	1,91

Note. See Appendix 6

With respect to the values of the Amotivation indicator, after the calculation of the average values for questions 4, 8, 12, and 16, in the first period, the students were not demotivated (the value for the UX design study area was 3.32; for the Web CMS, it was 3.38), whereas in the second period, the overall feeling of the participants lacking benefits from participation in the simulation intensified—the value for the UX design study area was 4.42; for the Web CMS, it was 4.19.

Finally, we re-examine students' emotional attitudes expressed in response to the open-ended questions. For the first period of the 2020–2021 academic year, users left a total of 124 answers in the three free answer fields. The Plutchik classifier used 51.61% of the responses to contain the emotion of trust and 27.42% to contain joy (Figure 4).

The emotional state of the students after the game was mostly positive, with Trust and Joy being the most prevalent feelings. Negative emotions were present, but in very small numbers, suggesting a successful and generally well-received learning experience.

Figure 4

Plutchik Emotions Classifier's Results in Orange Data Mining Tool for 2020–
2021 and 2023–2024 Academic Years, Post-Game Stage
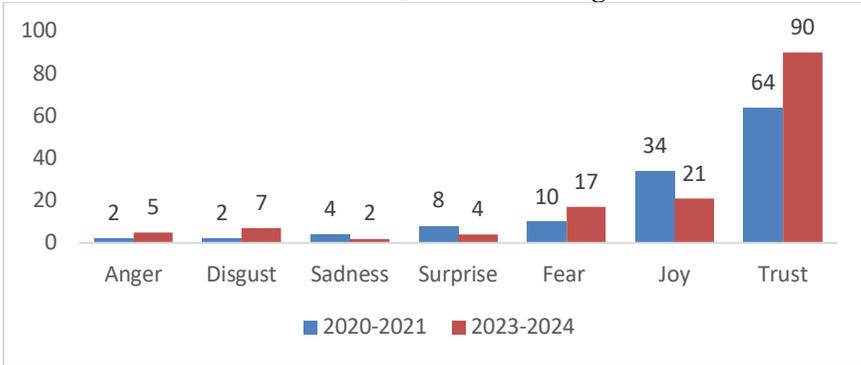
For the second period of the 2023–2024 academic year, the students left 146 answers in the open-ended question fields. The Plutchik classifier used 61.64% of the responses to contain the emotion of trust and 14.38% to contain joy (Figure 4). The emotional state of the students after the game, according to this classifier, was mostly positive, with Trust and Joy being the most prevalent feelings. However, the slightly greater level of fear than other negative emotions may indicate that some students found the postgame process difficult or stressful.

DISCUSSION

This study examined how computer science students in two different study areas (UX Design and Web CMS) perceived their leadership abilities and learning goals. The results reveal an environment with both commonalities and notable distinctions between the groups during the 2020–2021 and 2023–2024 academic years. These realizations offer a way to develop a more effective curriculum, but they must also be inclusive.

Joy and trust were the most frequent emotions, according to the pregame emotional analysis. This indicates that students began the business simulation with a high degree of optimism. Because a feeling of security and excitement can increase the cognitive load and increase engagement, this positive affective state is essential for effective learning. A positive attitude was the most valued leadership trait in the leader-choice data (Table 4), which directly supports this finding. Students are more likely to be engaged and successful in collaborative tasks when they are led by individuals who foster an encouraging environment.

However, a decrease in self-reported leadership abilities, such as listening (A2Q6) and technical skills (A2Q14), points to a widening gap in how students

view themselves. This suggests that a curriculum that explicitly incorporates and validates "soft skills" and emotional intelligence in addition to technical competencies is necessary. To avoid a growing disparity in self-efficacy, which might impair teamwork in a simulation, a curriculum needs to be created to foster confidence in these areas.

According to the study, students studying Web CMS and UX Design had different expectations for business simulations, but their self-assessed leadership abilities were lower. While Web CMS students consistently demonstrated a decrease in all simulation-related expectations, UX Design students demonstrated an increase in expectations for critical thinking and practical application. This implies that each group has a unique perspective on curriculum design. The learning environment should prioritize projects that require teamwork and direct application to real-world user problems, as UX design students' emphasis on interpersonal skills and responsibility is in line with the collaborative approach to their field. On the basis of these findings, a proposed common Teacher Profile for Business Simulation Methodology includes the following qualifications:
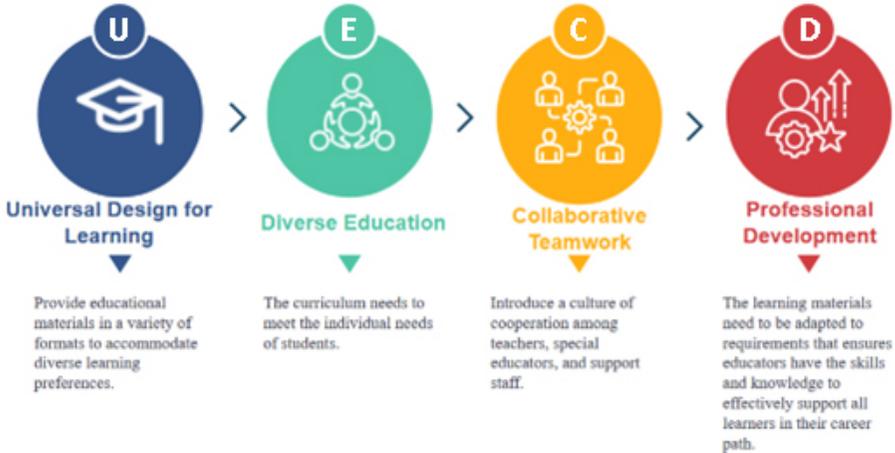
- A strong foundation in computer science, including programming, software engineering, and systems design.
- An understanding of real-world business processes and decision-making, with experience integrating technology into business environments.
- The ability to guide students through problem-solving, team-based activities, and decision-making processes.
- A commitment to fostering environments that integrate business, technology, and societal needs.
- Flexibility in adapting simulations to changing industry trends and incorporating feedback.
- Strong communication and team-building skills.
- A dedication to continuous learning in both the technical and business domains.

The analysis in the Results section highlights the need for a comprehensive model of the academic integration of students with different profiles. It is necessary to emphasize that a diversity of skills, perceptions and needs is observed within the business simulation. We propose a flexible model that incorporates the main principles of constructivist learning theory mentioned in the literature review (Figure 7).

The analysis highlights the need for a comprehensive model of the academic integration of students with different profiles, including students with special needs. It is necessary to emphasize that diverse skills, perceptions and needs are observed within the framework of business simulation. We propose a flexible model that incorporates the main principles of constructivist learning theory mentioned in the literature review (Figure 5).

Figure 5

Proposed Model for Integrating a Wide Range of Learners into an Academic Environment

Universal Design for Learning	Diverse Education	Collaborative Teamwork	Professional Development
Provide educational materials in a variety of formats to accommodate diverse learning preferences.	The curriculum needs to meet the individual needs of students.	Introduce a culture of cooperation among teachers, special educators, and support staff.	The learning materials need to be adapted to requirements that ensures educators have the skills and knowledge to effectively support all learners in their career path.

That is why the creation of such a model is essential for increasing the competitiveness of educational organizations - it encourages doubt, independent thinking, and reflection on real experience, instead of blindly following ready-made advice, turning knowledge into a personal and sustainable tool for development (Stanimirov 2024). In this sense, we believe that a successful model should strengthen the teaching–learning process and do the following:

- Adapting to the development of leadership skills: In the learning process, including in the field of computer science, specific leadership subjects should be offered that are in line with the core competencies of each learning area, such as focusing on empathy and user advocacy for UX design or on technical project management in the context of Web CMS training.
- Orient the educational activities to continuous feedback: Introduce regular self-assessments to provide students with a clear picture of their strengths and weaknesses, allowing for personalized learning paths.
- Emphasize skills development: This identifies the development of professional, leadership and soft skills, from listening to conflict management, as an essential and ongoing part of computer science education, not just an add-on. This would help address students' self-

perceived skill gaps and build a more confident and capable group of future professionals and managers.

- The model consists of the following main components:
- Universal Design for Learning: The learning process should focus on providing educational materials in a variety of formats to accommodate diverse learning preferences. It is about creating a flexible and accessible learning environment from the beginning. In this way, all students should be supported to have an equal opportunity to succeed in an academic environment. This approach offers flexibility in the ways in which students access the materials, engage with them, and demonstrate what they know. The development of lesson plans helps all learners but can be especially helpful for those with special needs.
- Diverse Education: This is associated with differentiated instruction, in which the curriculum is adapted to the individual needs of students. The goal is to emphasize diversity in content (what students learn for their professional preparation), process (how they learn, with what means and in what approaches), and product (how they demonstrate the results of what they have learned).
- Collaborative Teamwork: In the context of the model, we believe that the importance of a supportive community should be emphasized, both on the part of teachers and the learners themselves. This includes promoting collaboration among all those involved in the learning process—teachers, special educators and other support staff—to share their experiences, create teaching strategies and jointly plan the creation of learning content that meets the principles of universal design for learning.
- Professional development: The final component of the model focuses on ensuring that teachers have the necessary skills and knowledge to support all learners, including those with special needs. This includes providing ongoing training in inclusive practices, special educational needs and assistive technologies for students with special needs. This is in addition to providing an environment for continuous improvement and adaptation to the changing demands of the work environment.

The model can also be defined as an approach to education that emphasizes not only professional development but also accessibility and flexibility, preparing all students for equal success in the activities they perform. It focuses on the individual needs of students through differentiated instruction, adapting content to maximize the potential of each student. The model also ensures that the expertise of teachers is shared with students and that they receive ongoing, well-planned support and an empathetic environment.

CONCLUSIONS

Business simulation training is a powerful tool for developing leadership skills among computer science students. It provides a dynamic, interactive environment where students can practice essential competencies such as decision-making, project management, collaboration, and communication. The primary benefits of business simulations include the practical application of theoretical knowledge, enhanced problem-solving abilities, and experiential learning opportunities within both bachelor's and master's programs.

To maximize the effectiveness of business simulations in leadership development, educators must align these simulations with curriculum objectives. Doing so promotes team-based learning rooted in real-world scenarios and allows for targeted feedback on domain-specific material. Aligning simulations with the learning outcomes of the study area reinforces subject mastery and ensures relevance to students' future professional fields.

As this paper illustrates, business simulations implemented at Bulgarian University for computer science students focus on collaborative projects conducted in shared online environments. Lecturers act as mentors, offering constructive feedback that helps students develop leadership capabilities while deepening their understanding of core academic content.

This study also identifies a research gap in the application of business simulations within computer science education. To scale the approach from selecting courses to entire bachelor's programs, a comprehensive and sustainable strategy is needed. This includes:

- Integrating simulations across multiple disciplines.
- Ongoing teacher training and professional development should be provided.
- Development of standardized simulation toolkits.
- Securing institutional support and resources.
- Encouraging peer-to-peer learning and mentoring.

Based on constructivist learning theory, the proposed model offers an approach to integrating diverse students, including those with special needs, into academic settings. The model of integrating a wider range of learners into academic settings emphasizes four main elements: universal design for learning, diverse education, collaborative teamwork, and professional development. By modifying courses to promote leadership and soft skills, focusing educational activities on continuous feedback, and emphasizing the development of professional and personal skills, this framework seeks to improve the teaching and learning process. For the model to be successful, a supportive community between teachers and students must be created, as well as a flexible and accessible learning environment. It aims to create confident future professionals by addressing gaps in personal self-esteem, soft skills, and perceived diverse learning needs.

To strengthen the social impact of these simulations, institutions should align projects with local community needs. Designing simulations that address regional social and economic challenges can promote ethical technology use, sustainability, and positive social outcomes. Engagement with local stakeholders—through events such as hackathons—can further embed business simulations in the local ecosystem. Additionally, partnerships with local companies can provide internship opportunities where students apply simulation-based skills in real-world business contexts.

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REFERENCES

Alstete, J.W. (2023). Multiplying success: the power of multiple simulations with graduated weighting and coordinated sequencing for learner engagement. *Journal of International Education in Business, 16*(3), pp. 334–350. https://doi.org/10.1108/jieb-04-2023-0018.

Ayandibu, E.O. (2024). A review of transformational leadership and its impact on team, group, and departmental levels. *International Journal of Development and Sustainability,13*(12), 1083-1095.

Barbaroux, P. (2022). Développer les compétences de leadership par la simulation: un cadre de recherche et une étude de cas interprétative. *Management International, 26*(1), 192. https://doi.org/10.7202/1088443ar.

Bauer, E., Heitzmann, N., & Fischer, F. (2022). Simulation-based learning in higher education and professional training: Approximations of practice through representational scaffolding. *Studies in Educational Evaluation, 75*, 101213. https://doi.org/10.1016/j.stueduc.2022.101213.

Biggs, J. B. (1993). From Theory to Practice: A Cognitive Systems approach. *Higher Education Research & Development, 12*(1), 73–85. https://doi.org/10.1080/0729436930120107.

Bradford, S., Rutherford, B., and Friend, S. (2017). The impact of training, mentoring and coaching on personal learning in the sales environment. *International Journal of Evidence Based Coaching and Mentoring, 15*(1), 133-158.

Cadotte, E.R. (2022). How to use simulation games in the classroom? The
Journal of Entrepreneurship, 31(2_suppl), S90–S134.
https://doi.org/10.1177/09713557221107442.

Caillier, J. G. (2020). Testing the influence of autocratic leadership, democratic
leadership, and public service motivation on citizen ratings of an agency
head's performance. Public Performance & Management Review, 43(4),
918–941. https://doi.org/10.1080/15309576.2020.1730919.

Carli, L., & Eagly, A. (2018). Leadership and gender. Leadership and gender. In
J. Antonakis, D. Day (Eds.) Leadership and Gender (Third Edition ed).
SAGE Publications, Inc, .pp. 244-
271https://doi.org/10.4135/9781506395029.n10.

Chand, S. P. (2023). Constructivism in Education: Exploring the contributions of
Piaget, Vygotsky, and Bruner. International Journal of Science and Research
(IJSR), 12(7), 274–278. https://doi.org/10.21275/sr23630021800.

Chen, R. (2024). Exploring the effectiveness of Problem-Based Learning as a
constructivist approach in enhancing critical thinking skills in high school
classes. Research and Advances in Education, 3(4), 26–32.
https://doi.org/10.56397/rae.2024.04.05.

Chukwusa, J. (2019). Autocratic leadership style: Obstacle to success in
academic libraries. Library Philosophy and Practice, pp. 1-10.
http://digitalcommons.unl.edu/libphilprac/2019.

Costa, J., Pádua, M., & Moreira, A. C. (2023). Leadership styles and innovation
management: What is the role of human capital? Administrative Sciences,
13(2), 47. https://doi.org/10.3390/admsci13020047.

Davidson, F. D., & Hughes, T. R. (2020). Moral dimensions of leadership.
Oxford Research Encyclopedia of Education, pp. 1-24.
https://doi.org/10.1093/acrefore/9780190264093.013.785

Dobrev, D. (2024). "European" Leadership. Conference Proceedings of
International Scientific-Practical Conference Human Resource
Management, Varna: Science and Economics Publishing House, pp. 114-
120.

Dyczkowska, J., & Dyczkowski, T. (2018). Democratic or Autocratic Leadership
Style? Participative Management and its Links to rewarding Strategies and
Job Satisfaction in SMEs. Athens Journal of Business & Economics, 4(2),
193–218. https://doi.org/10.30958/ajbe.4.2.5.

Efgivia, M. G., Rinanda, R. A., Suriyani, N., Hidayat, A., Maulana, I., &
Budiarjo, A. (2021). Analysis of Constructivism Learning Theory.
Advances in Social Science, Education and Humanities Research/Advances
in Social Science, Education and Humanities Research.
https://doi.org/10.2991/assehr.k.211020.032.

Ekayani, N. W. D., Findyartini, A., Anugrapaksi, E., & Nadarajah, V. D. V. (2023). Integration Of Leadership Training In The Medical And Health Profession Education Curricula. Jurnal Pendidikan Kedokteran Indonesia the Indonesian Journal of Medical Education, 12(1), 102. https://doi.org/10.22146/jpki.75890.

Faisal, N., Chadhar, M., Goriss-Hunter, A., & Stranieri, A. (2022). Business Simulation Games in Higher Education: A Systematic Review of Empirical research. Human Behavior and Emerging Technologies, 2022, 1–28. https://doi.org/10.1155/2022/1578791.

Falloon, G. (2019). From simulations to real: Investigating young students' learning and transfer from simulations to real tasks. British Journal of Educational Technology, 51(3), 778–797. https://doi.org/10.1111/bjet.12885.

Galan-Muros, V., & Davey, T. (2019). The UBC Ecosystem: Putting Together A Comprehensive Framework For University-Business Cooperation. Journal of Technology Transfer, Springer, 44(4), 1311-1346.

Guay, F., Vallerand, R., & Blanchard, C. (2000). On the Assessment of Situational Intrinsic and Extrinsic Motivation: The Situational Motivation Scale (SIMS). Motivation and Emotion, 24(3), 175-213.

Hadziahmetovic, N., Tandir, N., & Dzambic, A. (2023). A research review of leadership styles. International Journal of Academic Research in Economics and Management Sciences, 12(1), 188-206. https://doi.org/10.6007/ijarems/v12-i1/15799

Harms, P. D., Wood, D., Landay, K., Lester, P. B., & Lester, G. V. (2018). Autocratic Leaders And Authoritarian Followers Revisited: A Review And Agenda For The Future. The Leadership Quarterly, 29(1), 105-122.

Hennicke, M., Boettcher, R., Gieselmann, A., Fechtner, H., & Rybnikova, I. (2023). Leadership simulations as a teaching and learning tool at universities: A single-player example. Zeitschrift Für Hochschulentwicklung, 18(Sonderheft Planspiele), 247–264. https://doi.org/10.21240/zfhe/sh-ps/14.

Hunter, J. (2004). The World's Most Powerful Leadership Principle. New York: Crown Business.

Hwang, J. H. (2023). Effects of Simulation-Based Practice Education on learning satisfaction, immersion, and Self-Efficacy of nursing students. Journal of Curriculum and Teaching, 12(1), 275. https://doi.org/10.5430/jct.v12n1p275.

Ionescu-Feleagă, L., Dragomir, V. D., Rîndașu, S., Stoica, O., Curea, Ș., Bunea, M., & Barna, L. (2025). Business simulation games from the perspective of accounting and management professors: Implications for sustainability education in universities. The International Journal of Management Education, 23(2), 101147. https://doi.org/10.1016/j.ijme.2025.101147

J.P. Morgan. (2026). Business Leaders Outlook: Leaders forge ahead in 2026. Retrieved February 8, 2026, from https://www.jpmorgan.com/content/dam/jpmorgan/documents/cb/insights/outlook/business-leaders-outlook/jpm-cb-business-leaders-outlook-2026-leaders-forge-ahead.pdf

Jaqua, E., & Jaqua, T. (2021). Transactional leadership. American Journal of Biomedical Science & Research, 14(5), 399–400. https://doi.org/10.34297/ajbsr.2021.14.002021.

Kapur, R. (2022). Leadership Management And Development In Organizations. International Journal of Information, Business and Management, 14(2), 47-57.

Khan, H., Rehmat, M., Butt, T. H., Farooqi, S., & Asim, J. (2020). Impact of transformational leadership on work performance, burnout and social loafing: a mediation model. Future Business Journal, 6(1). https://doi.org/10.1186/s43093-020-00043-8.

Kjellström, S., Stålne, K., & Törnblom, O. (2020). Six ways of understanding leadership development: An exploration of increasing complexity. Leadership, 16(4), 434–460. https://doi.org/10.1177/1742715020926731.

Klein, G., & Delegach, M. (2023). Charismatic Leadership Is Not One Size Fits All: The Moderation Effect of Intolerance to Uncertainty and Furlough Status During the COVID-19 Pandemic. Journal of Leadership & Organizational Studies, 30(3), 297-313. https://doi.org/10.1177/15480518231176231

Kozirog, K., Lucaci, S.M., & Berghmans, S. (2022). Universities as key drivers of sustainable innovation ecosystems. European University Association. https://www.eua.eu/downloads/publications/innovation%20report.pdf.

Lai, F., Tang, H., Lu, S., Lee, Y., & Lin, C. (2020). Transformational leadership and job performance: the mediating role of work engagement. SAGE Open, 10(1). https://doi.org/10.1177/2158244019899085

Liden, R. C., Wang, X., & Wang, Y. (2024). The evolution of leadership: Past insights, present trends, and future directions. Journal of Business Research, 186, 115036. https://doi.org/10.1016/j.jbusres.2024.115036

Lovin, D., Raducan, M., Capatina, A., & Cristache, N. (2021). Sustainable Knowledge Transfer from Business Simulations to Working Environments: Correlational vs. Configurational Approach. Sustainability, 13(4), 2154. https://doi.org/10.3390/su13042154.

Milla, D. (2025). The Application of Project-Based Learning with Constructivism Theory in Enhancing Creativity of Elementary School Students: A Literature Review. Journal La Edusci, 6(1), 17–27. https://doi.org/10.37899/journallaedusci.v6i1.1720.

Moranya, G., Reynolds, C., & Gannon, N. (2018). Developing a Business Simulation Game to Improve Student Engagement with Accounting Theory. All Ireland Journal of Teaching and Learning in Higher Education (AISHE-J), 10(2), 3311-33113.

Muhannaa, M. (2023). Ethical Leadership Dimensions And Their Relationships With Job Satisfaction And Organizational Commitment. Journal of Positive School Psychology, 7(11), 20-36.

Musaigwa, M. (2023). The role of leadership in managing change. International Review of Management and Marketing, 13(6), 1–9. https://doi.org/10.32479/irmm.13526.

Nakamura, Y. T., & Milner, J. (2023). Inclusive leadership via empathic communication. Organizational Dynamics, 52(1), 100957. https://doi.org/10.1016/j.orgdyn.2023.100957.

Northouse, P. G. (2019). Leadership: Theory and Practice (8th ed.). Sage Publications.

Pascal Brassier, Véronique Favre-Bonté, & Patrick Ralet. The Impact of collective Pregame Organization in the perceived Experience of Digital Management Simulations in Higher Education. IIM Kozhikode Society & Management Review , In press. hal-04629068 https://uca.hal.science/hal-04629068.

Phelps, D., & Santo, R. (2021). Student Leadership, Systems Change: Opportunities and Tensions for Youth Impact on District-Wide Computer Science Initiatives. ACM Transactions on Computing Education, 21(4), 1–39. https://doi.org/10.1145/3461716.

Plutchik, R. (1980). A general psychoevolutionary theory of emotion. In: Plutchik, R., Kellerman, H. (eds.) Emotion: Theory, Research, and Experience, Academic Press Cambridge, 1, 3–31.

Rammstedt, B. & John, O. P. (2007). Measuring personality in one minute or less: A 10 item short version of the Big Five Inventory in English and German. Journal of Research in Personality, 41, 203-212.

Rinkinen, S., Konsti-Laakso, S. & Lahikainen, K. (2023). University as an opportunity space enabler in a regional entrepreneurial ecosystem. European Planning Studies, 32(5), 1010–1028. https://doi.org/10.1080/09654313.2023.2246522.

Ross S. (2021). Simulation-Based Learning: From Learning Theory to Pedagogical Application. The internet Journal of Allied Health Sciences and Practice, 19(4), 15.

Saarsar, P. (2018). Exploring the Constructivist Approach inEducation: Theory, Practice, and Implications. International Journal of Research and Analytical Reviews (IJRAR), 5(2), 716-725.

Samadi-Parviznejad, P. (2021). Simulation of Sales Scenarios in Chain Store Marketing with a Futuristic Approach. International Journal of Innovation in Marketing Elements, 1(1), 7–17. https://doi.org/10.59615/ijime.1.1.7.

Scandura, T.A., & Meuser, J.D. (2021). Relational Dynamics of Leadership: Problems and Prospects. Annual Review of Organizational Psychology and Organizational Behavior, 9(1), 309–337. https://doi.org/10.1146/annurev-orgpsych-012420-091249.

Shen, Y., Chou, W., Schaubroeck, J., & Liu, J. (2023). Benevolent leadership, harmonious passion, and employee work behaviors: A multilevel moderated mediation model. Journal of Business Research, 157, 113571. https://doi.org/10.1016/j.jbusres.2022.113571.

Stanimirov, E. (2024). Business in the Fast Track. Iztok-Zapad Pubishing House.

Tijssen, R., Edwards, J. and Jonkers, K. (2021) Regional Innovation impact of Universities. https://doi.org/10.4337/9781839100536.

Tong, L. K., Li, Y. Y., Au, M. L., Ng, W. I., Wang, S. C., Liu, Y., Shen, Y., Zhong, L., & Qiu, X. (2024). The effects of simulation-based education on undergraduate nursing students' competences: a multicenter randomized controlled trial. BMC Nursing, 23(1). https://doi.org/10.1186/s12912-024-02069-7.

Udin, U. (2023). Leadership Styles And Their Associated Outcomes: A Bibliometric Review Using VOSviewer. International Journal of Human Capital in Urban Management, 8(4), 443-456.

United Nations. (2022). SDGS Youth Leadership and Social Responsibility Education. SDGS Youth Leadership and Social Responsibility Education. https://sdgs.un.org/partnerships/sdgs-youth-leadership-and-social-responsibility-education.

Velez, A., & Alonso, R. K. (2025). Business Simulation Games for the Development of Decision Making: Systematic review. Education Sciences, 15(2), 168. https://doi.org/10.3390/educsci15020168

World Economic Forum. (2026). Youth Pulse 2026: Insights From the Next Generation for a Changing World. Retrieved February 8, 2026, from https://reports.weforum.org/docs/WEF_Youth_Pulse_2026.pdf

Zamiri, M., & Esmaeili, A. (2024). Strategies, Methods, and Supports for Developing Skills within Learning Communities: A Systematic Review of the Literature. Administrative Sciences, 14(9), 231. https://doi.org/10.3390/admsci14090231.

Zasa, F., & Buganza, T. (2023). Developing A Shared Vision: Strong Teams Have The Power. Journal of Business Strategy, 44(6), 415–425. https://doi.org/10.1108/jbs-04-2022-0065.

Zhang, J., Wang, Y., & Gao, F. (2023). The dark and bright side of laissez-faire leadership: Does subordinates' goal orientation make a difference? Frontiers in Psychology, 14. https://doi.org/10.3389/fpsyg.2023.1077357.

Zoroja, J., Bach, M. P., & Miloloza, I. (2019). Developing Leadership in a Simulation-Games Environment. 42nd International Convention on Information and Communication Technology, Electronics and Microelectronics (MIPRO), 806–811. https://doi.org/10.23919/mipro.2019.8756993.

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