

**Publisher**

<http://jssidoi.org/esc/home>

---

## USE OF MANAGEMENT GAMES WITHIN THE EDUCATION PROCESS OF FUTURE MANAGERS AT UNIVERSITIES IN SLOVAKIA AND CZECH REPUBLIC

Lucie Lendelová <sup>1\*</sup>, Patrik Hrkút <sup>2</sup>, Michal Ďuračík <sup>3</sup>, Eliška Čičmancová <sup>4</sup>, Adriana Panáčková <sup>5</sup>

<sup>1\*,2,3,4,5</sup> Faculty of Management Science and Informatics, University of Žilina; Žilina, Slovakia

E-mails: <sup>\*1</sup> [lucie.lendelova@fri.uniza.sk](mailto:lucie.lendelova@fri.uniza.sk) (Corresponding author); <sup>2</sup> [patrik.hrkut@fri.uniza.sk](mailto:patrik.hrkut@fri.uniza.sk); <sup>3</sup> [michal.duracik@fri.uniza.sk](mailto:michal.duracik@fri.uniza.sk); <sup>4</sup> [eliska.cicmancova@fri.uniza.sk](mailto:eliska.cicmancova@fri.uniza.sk); <sup>5</sup> [adriana.panackova@stud.uniza.sk](mailto:adriana.panackova@stud.uniza.sk)

Received 10 May 2024; accepted 11 July 2024; published 30 September 2024

**Abstract.** In the current turbulent business environment, the role of management is increasingly demanding, and therefore the demands for future managers in companies are increasing. A decisive role in the preparation of a manager for the performance of his work is primarily played by his education. The education of future managers is carried out primarily at universities designated for this purpose. Following the change in the role of management and the requirements placed on the performance of managerial practice, it is also necessary to change the approach to education and the form in which the future manager is educated. The key to success is, above all, the connection of theory and practice, active involvement of participants in the educational process, simulation of corporate reality, solving real cases in a risk-free environment and understanding the fundamental processes in the company and managerial work as such. All this is made possible by active education methods, specifically management games. Unfortunately, even though management games are globally considered modern, active education methods, they have many benefits and are constantly gaining importance. Still, few researchers in Slovakia and the Czech Republic are dedicated to this issue and research into their use, application and development within education. Following on from the above, this article, therefore, deals with the use of managerial games in the education and training of future managers, specifically at universities in Slovakia and the Czech Republic. The subject of the analysis is the identification of all affected universities where management games could be used, followed by the study of all publicly available information regarding this issue at the affected universities and the implementation of an extensive questionnaire survey at these universities. The results are summarised and compared in the context of other studies and the claims of other researchers focusing on this issue. The result of the article is primarily a mapping of the issue being addressed and pointing out current problems, challenges, and obstacles in using managerial games while educating future managers at universities.

**Keywords:** management games; education process; active methods of education; universities; Slovakia; Czech Republic

**Reference** to this paper should be made as follows: Lendelová, L., Hrkút, P., Ďuračík, M., Čičmancová, E., Panáčková, A. 2024. Use of management games within the education process of future managers at universities in Slovakia and Czech Republic. *Entrepreneurship and Sustainability Issues*, 12(1), 124-137. [http://doi.org/10.9770/jesi.2024.12.1\(9\)](http://doi.org/10.9770/jesi.2024.12.1(9))

**JEL Classifications:** I25, M21, M53

### 1. Introduction

A typical feature of the current business environment is the constant rapid changes and, therefore, the high dynamics of this environment. The changes concern, e.g., the legislative conditions of a given country, the market in general, business support, scientific and technical progress or innovation, ICT, globalisation, cooperative management and creating of cooperation relationships, etc. As a consequence of these changes, the demands on business management are increasing, and the role of managers is becoming more demanding. They face various problems, obstacles and challenges that they have to solve. As managers often misunderstand the role of cooperation, the way of their security, and the importance and benefits of cooperative management, and they do not use the cooperation potential of a company to the maximum extent, another challenge may be for

them to realise the full potential of their company for innovation, however, for this it is necessary to manage these activities effectively and to be able to quickly and flexibly respond to developments in the market (Lendel et al., 2016; Peterková et al., 2022; Hauróvi & Chilunjika, 2024), and others. But how do we prepare future managers for this role? It is necessary to start with the education of future university managers. Their education must be both theoretical and practical. Traditional education methods are proving inadequate for educating the managers of the future generation. Linking theory and practice, active involvement, trying out different situations, solving real problems in the form of simulations and linking knowledge from various areas are the keys to success in educating future managers. All this is made possible by management games, one of the most essential active education methods. They are growing in popularity worldwide. The trend is to use them in the education of future university managers or to train the management skills of current company managers. Even though the education of future managers should be based primarily on an active approach to education and active methods such as management games, many universities and faculties still apply mainly traditional methods of education, even though many researchers have demonstrated the positives and benefits associated with these methods. What is the current situation in universities in Slovakia and the Czech Republic? Are active methods of education, and especially management games, used in the education of future managers? How do universities develop and approach this issue? Do they understand its importance?

## 2. Theoretical background

According to Vodenicharova (2022), the development of individuals is mainly carried out with the help of education because education as a process helps to acquire knowledge and activities, which the individual processes into knowledge, skills and habits. Education can be defined as an ongoing process during which there is constant adaptation and change in behaviour, skills, knowledge, and people's motivation, primarily with the help of various methods. In addition, its primary role is also to form individuals' personalities, opinions, and interests. Education can also be viewed as a permanent lifelong process in which an individual acquires new knowledge, experiences, insights, ideas and attitudes, whether within a specialised field or a general overview (Valladares et al., 2023).

Education can, among other things, be used to acquire new communication skills, to ensure the development of creativity or to improve cooperation, more precisely defined, to develop collaboration. Ultimately, it is the process of expanding any knowledge, skills and experience that purposefully enhances proficiency in a particular industry. This classical understanding describes the educational process only as an activity to acquire new knowledge. However, education and training are complex processes that involve many sub-activities and touch on several areas. Petlak (2007) mentions three essential areas this process affects: Learning Area, Training Area and Psychomotor Area.

If we want the education process to be effective, we also need to choose the proper method of education. The education process has changed and shaped over time, as seen in the following Table 1.

**Table 1.** Evolution of the education process

Education 1.0 Oral knowledge	Education 2.0 Written knowledge	Education 3.0 The discovery of letterpress	Education 4.0 Academic education	Education 5.0 Digital education	Education 6.0 Social Brain Education
50 000 BC	10 000 BC	1 377	1 635	1 955	Discovery of a new level of education
Collective learning	Discovery and spread of agriculture	South Korea	Public schools in the USA	Excellent spread of the digital world	A growing amount of information
Valuable communication	Enough energy to survive	First printed book released	1 744	Internet, fast availability of information	Decline of traditional methods of education
Faster spread of information	3 200 BC Mesopotamia	Modern science discovery	Compulsory school attendance for kids aged 6-12	Fast and inexpensive spread of information	Usage of active methods of education

Ability to learn from experience	Creation of the alphabet still used today	Mathematics, chemistry, astronomy, physics, biology etc.	1 760	Start of e-learning	High demands of today
	Active usage of writing		Industrial revolution	Social pressure	Mutual influence and connection between people
	Better connection between people			Great amount of information	New dimension of education – Social Brain

Source: Compass, 2024

Currently, there are two types of educational approaches: traditional and active. More detailed characteristics of these approaches and their specific education and learning methods are given in the following Table 2.

**Table 2.** Characteristics of a traditional and active approach to education

Learning methods	Traditional	Active
<b>Characteristics</b>	The prevailing approach at universities nowadays	Based chiefly on solving problem situations
	A teacher has the leading role of giving information to students	The primary role is to stimulate and enhance students' creative and critical thinking It can be considered as 'the bridge', connecting theory to practice, from the individual knowledge about management to the very development of managerial skills
<b>Specific methods</b>	Verbal method in the form of explaining, describing, a lecture or reading comprehension	Case studies – to search for the cause of the analysed situation, its consequences and possible outcomes. Based on real situations, case studies help students develop their skills and apply theory to the solving process.
	Illustrative methods in the form of demonstration, observation or work with images	Management games – to help students develop managerial skills and try out the simulation of actual management practice
	Practical methods in the form of experiments, workshops, and school projects	

Source: Blažek, 2014

Active forms of learning have emerged as a response to corporate practice and differ from traditional forms of learning in several ways. While conventional forms of learning assume that students are in the position of listeners and receive theoretical knowledge from teachers or lecturers, active forms of learning involve the active involvement of students in the learning process. This approach improves critical thinking and leads to a better understanding of facts and ideas. These include, for example, problem-based learning, team-based learning, workshops or brainstorming sessions, role-playing, programme-based learning, collaborative learning, e-learning, etc. Active forms of learning also include management simulation games, which are their most important tool (Vljayalakshmi, 2019).

The term 'management games' is very general in the world; therefore, there are myriads of different definitions. When defining the issue of management games, attention is paid to authors who perceive management and simulation games as a means to increase the effectiveness of the educational process of future managers. Management games are a remarkable tool that can be used nowadays to train, test, monitor knowledge, and assess the overall behaviour of employees. Schrier et al. (2023) argue that these games represent the right way, making verifying and gaining additional knowledge possible.

Depending on the relationship of the players in the simulation model, management games can be divided into competitive games – in these games, players or teams compete against each other, and non-competitive games – the adversary is the simulation model itself. Games can also be divided into several categories, such as Board games (e.g., Monopoly), Computer (e.g., various turn-based strategies, building games), Team-based learning games (e.g., in the form of team building) and Simulations of real processes using technology and computers.

Each management game has its characteristics that distinguish it from others. Forssén-Nyberg and Hakamäki (1998) characterise the basic features of management games as follows: they must reflect reality, active social communication exists between live participants, and the aim is to assess reality, self-evaluation, and reflection.

The basis of any simulation game is, first of all, the scenario, which defines its main essence, the content focus and last but not least, the initial conditions. However, management games must consist of sustainable development of practical solutions and enable students' creativity in decision-making (Biercewicz et al., 2022). The authors also stated that computer games are considered the best form of training for management and business students.

Regarding historical development, management games have undergone several significant changes and improvements up to the present day. Faria et al. (2009) stated the historical development of management games, which dates from 1932, when Mary Birshstein developed her first management simulation – the existence of direct predecessors of the management simulation game in Europe, to the first widely known management game "Top management decision simulation" in 1956, until to today's games, which focus on specific issues Pászto & Pánek, 2020).

Their overall sophistication is all about using information technology and keeping up with today's ever-changing times. The overall application of these management games extends to research and many areas of human life.

There are countless management games in the world today; examples of well-known management games include Manahra (2024), Promis (2024), Stratis (2024), Global Marketplace (2024), Softip (2024), Global Management Challenge (2024) and many more. These games are mainly differentiated regarding industry, areas, difficulty, and accessibility.

With the help of management games, students are allowed to apply the acquired knowledge in practice and to find out to what extent they can use the acquired knowledge, given the problem situations that may arise in their future profession. Simulation games complement traditional forms of education with a dynamic, reactive and risk-free learning environment. They seek to fill the gap between student's knowledge after completing the relevant studies, and the skills companies require to perform a particular job. Simulation games also benefit the lecturers and teachers themselves. Nowadays, it isn't effortless to keep the attention of students. Simulation games can motivate students primarily based on their gamification. In this regard, the so-called creation of a more entertaining school curriculum includes several benefits affecting both parties.

Using managerial games in the educational process can be beneficial for teachers, as well. Teachers' attitudes towards business and entrepreneurship should be positive in order to educate future managers. Universities are advised to encourage teachers to develop their professional competencies in management (Joensuu-Salo et al., 2023).

According to Anastasiadis et al. (2018), an approach to learning based on digital games is a very good educational tool that has demonstrable benefits. It can increase students' well-being and self-confidence, help them improve their soft skills, develop their critical thinking, decision-making and problem-solving skills, and maintain a healthy mental and psychological balance.

Simulation games used in education can be divided into six categories, depending on their functionality and objectives. The first category of games is the so-called memory games, which aim to make the player remember the relevant information. The second category consists of decision games. These games challenge players to interpret data, compare a set of options, predict their consequences, and select the correct answers, given an

optimal strategy or specific objectives. The third category is the game of consequences, which focuses on causal phenomena. The fourth category consists of strategy games that test players through various puzzles or challenges aimed at solving in a specific way. The fifth category consists of exploration games that involve the principle of branching. The game evolves from the decisions of individual players. The last category is made up of simulation games that incorporate the principle of interaction, consequences and strategic decisions.

According to Tumpa et al. (2024), computer-based managerial games could be used mainly in higher education, especially when learning aspects of project management. Key elements of such games are learning how to involve stakeholders, managing instability in the team or the organisation itself, checking the project goals or improving future managers' decision-making. Peterkova et al. (2022) also recommend using digital simulation games that were not initially developed as an educational tool but can provide benefits. Such games can be used in a challenging way and offer a new point of view on the whole process of education.

The main advantages of management games and simulations in education can be considered as exposure to situations like those in a real company, a range of experiences, strong motivation to compete, teamwork, connection with a robust real-life story, learning by experiencing the consequences of one's actions and thus repeating different strategies to discover different outcomes, 'I do and I understand': assessing the usefulness of web-based management simulations to develop critical thinking skills, providing staff with an understanding of the bigger strategic picture (Nica et al., 2023).

Moreover, according to López et al. (2021), gamification at universities may bring more positives than negatives. The most significant advantage is its positive impact on the whole education as a process or stronger motivation of students to be involved. The authors recommend using severe games, which students consider a practical and fun training activity.

In addition to the advantages, management games have various disadvantages, which can be defined as follows (Hellström et al., 2023):

- Lack of ability to capture reality in detail,
- the limited nature of the game conditions,
- preparation is often costly and time consuming, hence the pressure to develop complex management simulation games,
- in the case of computer simulation, enough computers need to be provided,
- The performers may not perceive the management game as a reality or may not take it seriously and thus may consequently lose the motivation for it.

The advantages mentioned above and the benefits of active learning methods are indisputable. These methods are becoming increasingly prominent, and their importance is growing. The global market for games and simulations is constantly increasing, and this exponential growth is expected to continue soon. The growing use of computer and mobile technologies is behind this assumption.

According to Jääskä & Aaltonen (2022), the potential benefits of game-based learning are well understood, but less research examines the challenges, disadvantages, and barriers to applying it.

Blažek (2014), however, pointed out that education in higher education was dominated by teaching focused on the use of traditional methods. He does not consider this way of teaching appropriate in the management field. According to him, focusing on active teaching methods is better because students can better use and develop their management skills more effectively. This is mainly because they can help students link theory with practice, encourage creative thinking, or solve problems. Traditional forms of education are, in most respects, already outdated. Nowadays, in the education and training of managers, space for their self-determination and self-creation is encouraged. Self-efficacy, opinions and ability to collaborate are positively valued. All this includes active forms of learning and simulated creativity techniques, which are gradually becoming a growing trend. According to Peterková et al. (2022), using managerial games at universities may positively affect the educational process since these games help management and business students get and verify their knowledge.



Efforts to support the inclusion of active methods in the educational process can also be observed in the framework of various calls and projects by the state. Evidence of this can be, for example, the national project of the Slovak Republic called 'Universities as engines of development of knowledge society', which is focused on trends in education in the 21st century. The main task of this project is primarily to focus on the development of the competencies of individual students. It is about the development of 5 objectives, such as the development of analytical skills (applying methods to support students' creativity), the formation of interpersonal skills (practice in companies), how to realise intentions (solving model projects), the possibility of how to process knowledge and information (involving students in the logic system of manufacturing enterprises), how to develop skills and how to make changes with the help of learning (help in solving projects for enterprises). It can be seen in the very description of this project that the main aim is to help individual students through active learning rather than traditional learning. Slovakia currently has a National Programme for the Development of Education and Training, which it wants to achieve by the end of 2027. Through this programme, individual model school curricula (active forms of learning) can be developed to help students further their development (Ministry of Education, Research, Development and Youth of the Slovak Republic, 2020 a,b). Some model educational programmes already exist so far. Still, they are only for nursery schools to prepare children for life in society (Ministry of Education, Research, Development and Youth of the Slovak Republic, 2020 a,b).

### **3. Research objective and methodology**

This article aims to map the current state of the use of management games in the education process of future managers at universities in Slovakia and the Czech Republic. These two countries were chosen mainly because they were connected in the past and tend to compare or rival each other constantly. Among other things, they have a similar language, behaviour, customs and processes.

In order to map in detail the current state of the use of management games in the education of future managers, the first phase of the research was to identify universities in Slovakia and the Czech Republic that focus on economics and management.

With the help of the [portalvs.sk](http://portalvs.sk) and [vysokeskoly.cz](http://vysokeskoly.cz) websites and universities (faculties) focusing on economics and management were selected based on their listed study programmes and subjects. Subsequently, these selected courses were examined through information sheets to find mention of the use of active learning methods, especially management games and simulations. Similarly, other university activities were also reviewed to see if they participated in competitions, management games, etc.

A major drawback can be seen in the lack of accessibility of the information sheets of their courses by the individually selected universities. In case these information sheets are accessible only to students or lecturers, the possibility of contacting a particular university using an e-mail address or contacting student groups studying in a specific university via social networks is used.

The output of the first phase of the research is an overview – a list of universities, faculties, study programmes, subjects or courses and the methods or specific games used, based on the analysis of available information.

In the second phase of the research, a questionnaire survey is subsequently conducted to analyse in detail the current state of the use of management games in the process of education at universities in Slovakia and the Czech Republic. The questionnaire was compiled into an electronic form to contain the most straightforward and most easily understandable questions for the respondent. In total, it includes 15 questions. The questions are aimed at ascertaining the facts regarding the use/non-use of management games at universities, reasons for use/non-use, specific games/simulations, time of use, invested financial resources, identification of advantages/disadvantages associated with the use of games, deepening of the issue, etc.

The internet survey was used mainly because it is very time-consuming to collect the answers using traditional distribution, given that the universities are located in Slovakia and the Czech Republic. A great advantage can

be seen in this online questionnaire, as the data is automatically stored in a database, thus eliminating the overall administration associated with paper-based data collection.

The core set includes all universities located in Slovakia and the Czech Republic. It is a collection of universities regardless of whether they are public, private or state universities. There are a total of 70 universities in the Slovak Republic (105) and a total of 84 universities in the Czech Republic (208). The total sample, in this case, is 154 universities. These universities were searched using the website's portals. sk and vysokeskoly.cz.

The final sample must be formed based on predetermined criteria, such as the university's focus on the field of economics and management, or the use of management games in the educational process. Suppose a university has courses focused on economics and management or has introduced management games in its education. In that case, it is included in the selected universities that are subsequently contacted. There are 15 universities in the Czech Republic and 19 universities in Slovakia. The analysis established the relationship between these universities and the survey topic carried out earlier (first phase of the research – developed list of universities).

The questionnaire survey was carried out in 2020-2021 in 19 selected universities in Slovakia and in 15 selected universities in the Czech Republic.

The return rate for each questionnaire is a total of 29 completed questionnaires. 5 of the selected universities did not complete the questionnaire due to providing an incorrect email address on the website, which was reflected in a bounced message or a lack of interest in responding to the sent email. Specifically, these are 2 selected universities from the Czech Republic and 3 selected universities from Slovakia.

The results of the data show that the return rate of questionnaires within Slovakia is 16 completed questionnaires but with a 90% confidence interval and a maximum 10% margin of error. Within the Czech Republic, the return rate is 13 completed questionnaires, but also with a 90% confidence interval and a maximum 10% margin of error. The difference between the contacted sample of respondents and the final return of questionnaires is only one less respondent. The Raosoft web application (2024) calculates the sample size for the survey. The responses thus obtained were compiled into a clear database in MS Excel and MS Word. The resultant scores are presented in the form of graphs for a better overview.

## **4. Analysis and Results**

### **4.1. Analysis of publicly available information on the use of management games in the educational process at selected universities in Slovakia and the Czech Republic**

Based on the selected criteria and the procedure described in the Methodology section of this article, available information on the use of management games or similar active learning methods at relevant universities, faculties, institutes or departments was analysed.

It is evident from the information obtained that the difference in the use of management games or similar active teaching methods in teaching individual subjects at universities in Slovakia and the Czech Republic is not so great. Currently, management games in education have been introduced in 11 universities out of 19 in Slovakia and 12 universities out of 16 in the Czech Republic. These universities use management games mainly in teaching courses.

In Slovakia, these are mainly subjects such as Simulation Models, Game Theory, Managerial Simulations, Innovative Business Models, Theory and Tools of Modelling and Simulation, Managerial Games, Creative Methods in Management and Managerial Games, Game Theory and Business Simulation.

In the Czech Republic, these are courses such as Planning and Project Management, Management Simulator I, Managerial Simulations of Business Processes, Simulating Financial Models, Strategic Games and Simulations, Modelling and Simulation of Complex Systems, Managerial Game, Creation of Business Models, Controlling, Project Management, Management Simulation Games, Strategic Marketing (simulation game The Global

Market Place) or Financial Investing. On the positive side, universities are not afraid to introduce management games into other subjects as part of their education. It is a great way to link theory with practice.

Several Slovak universities, such as the University of Management or the Slovak Technical University, offer various courses focused on the development of presentation skills or the opportunity to use the acquired skills in a simulated environment. In both cases, management games are used.

In the Czech Republic, in addition to universities such as Mendel University, the Polytechnic University or the University of West Bohemia use the management game from UNISIM in their education, they also participate in various competitions offered by UNISIM. Other universities, such as the Czech University of Agriculture, use the Farmasim management game in their education and the FactorOrEasy software. At the University of South Bohemia in České Budějovice, online computer-based management simulators have been continuously developed since 2009; these are simulators such as ‘Supermarkéty’, ‘Cestovka’, ‘Cesta & Ciel’. Tomáš Baťa University organises various management simulation games, for example, Beer Distribution Game. It uses the JA Titan simulation game in teaching. Charles University, specifically the Faculty of Philosophy, has created an educational simulation in Czechoslovakia 38-89. The University of Technology uses a management game called Simulation Game for Managers – Soft Skills.

Positives can be seen in the fact that individual universities not only in Slovakia, but also in the Czech Republic use in the framework of education not only existing management games from various companies, which are engaged in its design and development, but also self-designed and developed.

Many of the selected universities in Slovakia use management games, but compared to the Czech Republic, they are still in small numbers.

Given that the publicly available information obtained on using individual management games at the selected universities represented an older edition or the year of publication was not disclosed, it cannot be assumed that it is valid at present. These facts, as well as others, need to be verified and ascertained through further analysis of the use of management games in the process of educating future managers at these selected universities. Hence, a questionnaire survey was carried out.

#### **4.2. Implementation of the questionnaire survey**

The questionnaire shows that management games are used at selected Czech Republic universities rather than in Slovakia. Out of 16 universities in Slovakia, only 5 universities use managerial games in teaching, whereas in the Czech Republic, out of 13 universities, 12 universities use them.

According to the results of the questionnaire, the main reason for not using management games in teaching at universities in Slovakia is the fact that teachers do not know how to use them at their university and also that they do not consider them effective or do not have enough financial resources to introduce and use them.

There are other reasons given by respondents, these are:

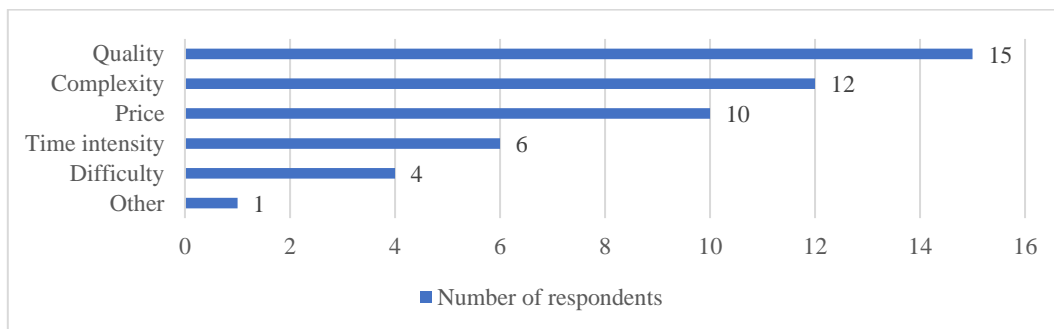
- Fear of time/labour for teachers,
- inadequate teacher training in the subject,
- given that it is an elective subject, students find it too demanding.

Only one Czech university stated it could not imagine using them in education. However, it did not elaborate further on its answer. This is probably because they cannot imagine their use financially and organisationally, even though management games can be a great tool to learn something new and prepare for the real reality, which the student can try out beforehand.



Also, universities that use active methods in the learning process, specifically management games, have reported that they have seen several positives, such as increased student creativity, efficiency in problem-solving, better logical thinking and effective decision making.

Universities are influenced by various factors when deciding whether to purchase or create their own management game, such as the quality of the game, the complexity of the game's focus, the price, the length of use or development of the game, etc. Figure 1 shows the most critical factors universities consider when choosing a management game. The quality of the game, the complexity of the focus and the price are the main priorities in the selection process.



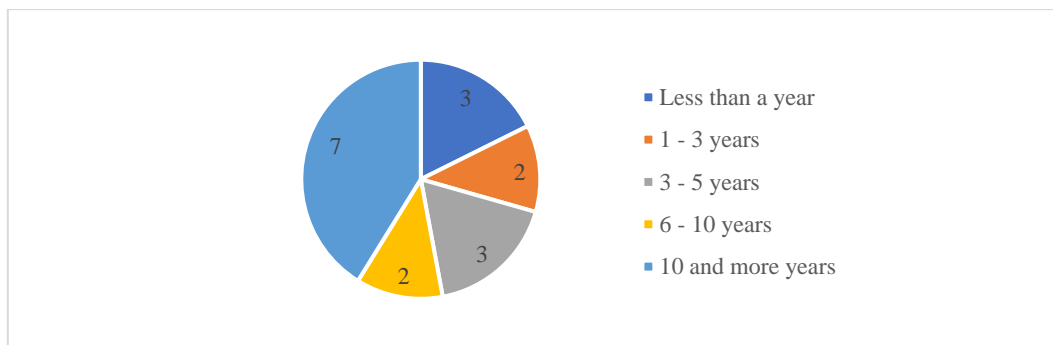
**Figure 1.** Factors influencing the implementation of management games in universities

As mentioned above, a total of 17 universities in Slovakia and the Czech Republic use management games in their teaching. An interesting finding is a fact that 9 of them use self-developed management games and, 7 use existing ones, 1 university uses both its own and existing games. Universities are interested in creating and developing their games, and this trend may be a reaction to the current availability of games, the area of use, the quality and above all, the price.

Analysed universities are currently using the following games:

- Beer Distribution Game,
- UNISIM,
- Global Management Challenge,
- Greatail International,
- ‘SuperMarkéta’,
- ‘Cestovka’,
- Insolvency simulations,
- SimBiz,
- MarketPlace,
- LUDUS,
- Manahra,
- Promis,
- FacOrEasy,
- Act as A.
- Simulations of production capacity budgets and optimal utilisation budgets of own and external human resources.

It is a positive finding that universities are using quite a large number of different management games, especially their own. As many as 7 universities have used management games in their learning process for over 10 years. Only 2 universities indicated that they have been using management games for 1-3 years (see Figure 2). From the length of use of management games at these universities, it can be inferred that individual universities consider management games to be very important and effective.



**Figure 2.** The usage of management games in Czech and Slovak universities

The cost of acquiring and using an existing management game or creating and maintaining your own one can be significant. The questionnaire, therefore, included a question related to the amount of annual costs associated with acquiring and using or developing and maintaining games. Unfortunately, not all universities that use management games as part of their education answered this question. It can be assumed that this question was sensitive for them to answer. Of the 17 universities that use management games within the education process, 8 universities stated that they invest up to €500 annually in management games, 3 universities stated that they invest up to €2,000 and only 1 university stated that they invest more than €2,000. It is a great finding that these universities care about their students' education and contribute even more money to education.

As many as 14 universities use management games as part of the course curriculum, 4 universities use these games as part of a separate course focused on management games, and only 1 university uses management games in the form of competitions. Management games are used in these universities as part of the educational process (to increase its effectiveness) to support teaching in various subjects, such as:

- Management 1,
- Business management system,
- Project Management,
- Basic Management Course,
- Enterprise Management,
- Business Skills,
- Strategic Management in Business and Tourism,
- Law in Business 2,
- Management games and simulations.
- Simulation of economic processes,
- Strategic Marketing,
- Decision Theory,
- Strategic Management,
- Fundamentals of managerial decision-making,
- Controlling,
- Management simulation games,

It follows from the above that management games or games in general can be introduced into a variety of courses, not just those focused on management games or management.

A positive finding is that all universities that use management games realise their importance in the educational process and its benefits—up to 15 of them stated that they want to deepen this issue at their university.

Four universities want to establish cooperation with specialised institutions dealing with management games in the future, 3 universities want to participate in competitions based on management games and only 1 university wants to deepen the issue by introducing a subject or introducing management games. In addition, 8 universities are planning to expand the subject in the following way:

- Use in more subjects, as this has not been the case so far,
- automation of the simulation game, as so far, the evaluation of the games has been done manually,
- the creation of a teaching tool,
- linking simulations (management games) more closely to teaching, i.e. linking theoretical knowledge to simulation,
- development of other, own management games, organisation of competitions between universities.

## 5. Discussion

From the analyses, Slovakia still needs to be developed using management games like the Czech Republic. Lendelova et al. (2019) reached the same conclusion in their previous research. Universities in Slovakia gave several reasons for not using these games. These reasons are that they need to consider their introduction effective or cannot imagine their introduction into education. Trávníček (2008) has already stated in the book entitled *Managerial Games at the University of Economics in Bratislava* that: 'Managerial games are time-consuming, there is a lack of textbook materials and manuals in the Slovak language. An important condition for their implementation is also a quality methodological training of new teachers.' It is possible to agree with this statement because in the research on this question, other answers, such as fear of time demands, finding it complex or inadequate requirements for teacher education in the subject matter, were included.

Not using these management games can be considered a big negative because universities that use this issue in education have seen many benefits, such as increased student creativity, problem-solving, better logical thinking or effective decision making.

Based on this information, this education method can put the university and its students at the forefront, prepare them for the future, and help them succeed, thus ensuring the university's reputation. It is essential that universities themselves, which do not use these games in education, realise this fact because theory alone does not prepare students for their real profession. It is the combination of traditional and active methods of education that will ensure success.

Currently, companies list demanding requirements for future employees in their job offers, which often need to be met by graduates. Their requirements are mainly experience, knowledge or problem-solving. In an interview, they frequently ask questions such as, 'How would you handle this situation...?' Many graduates do not know how to answer them. What is the reason? The main reason may be a lack of practice or the use of active methods in education. These active methods can be an excellent tool for universities to prepare students for their future positions. Management games contain different model situations with different focuses. These model situations can prepare students for unexpected situations in a real business. In this case, students might be fine answering the abovementioned question.

Many factors, such as time, cost and quality of the game itself, have influenced the number of universities that have introduced this active method in their education of future managers. Most universities have been using management games for more than 10 years as part of their education process and invest up to a maximum of €500 per year. Only one university stated that it invests more than €2000 per year in this active method. It is a positive finding that these universities really care about their students' education and contribute a more significant amount of money to education. Compared to the earlier research conducted by Lendelova et al. in 2019, where more than 80% of the surveyed universities stated that they invest up to €500 per year in management games, the situation has not changed significantly.

Currently, only 9 universities out of 29 are using self-created management games. These games are mainly used to teach various subjects. These findings do not compile with the results of a previous study conducted by Lendel et al. (2019), where more than 60% of the universities surveyed reported using their own developed management games, and more than 30% used existing management games. The selected universities are aware of the importance of the use of management games, which is reflected in the fact that they plan to deepen it in various ways, such as establishing cooperation with specialised institutions dealing with management games, participating in competitions based on management games, introducing another subject with a focus on the issue, or even creating their own management game. It is also a significant finding that these universities are planning to get involved in issue-based competitions, as this is a great way to learn how to deal with knowledge that can be linked to time and compare strengths with other teams.

Based on an evaluation of the current situation, universities are trying to increase the use of this active learning method, especially in the Czech Republic. Management games are indeed a great educational tool, which, although more expensive, can help students in their education and prepare them for their future managerial

fasting. The room for improvement in the educational process of future managers can be seen in their introduction, especially in universities in Slovakia, because many universities in the Czech Republic already use these games in the educational process. Also, most of them have stated that they are a great tool that benefits students.

## Conclusions

Educating future managers has never been as challenging in the past as it is now. Every successful business must have educated, motivated employees in today's turbulent business environment. This fact forces businesses to carefully select new employees for management positions and invest in their growth and education. For a business, this means that it can expect efficiency and sufficient performance from its employees, which ultimately leads to achieving and fulfilling the company's goals. The competitive advantage for businesses is not just machines, technology, know-how, and innovation but their people. Human capital represents the most precious resource of an enterprise. It is, therefore, essential for the enterprise that this capital meets the high demands and criteria placed on it and, at the same time, that the enterprise develops and promotes it. Therefore, the education of future university managers must be at a high level to meet the requirements of current corporate practice.

Management games have been successfully used as an effective, active, and modern form of education abroad for years, whether at universities or directly in companies. Abroad, management games are a highly recognised form of education, and management games must become more widely known in our country for the issue of management games to be deepened and for more literature and publications to contribute to this.

## References

- Anastasiadis, Theofylaktos & Lampropoulos, Georgios & Siakas, Kerstin. (2018). Digital Game-based Learning and Serious Games in Education. *International Journal of Advances in Scientific Research and Engineering (IJASRE)*, 4, 139-144. <https://doi.org/10.31695/IJASRE.2018.33016>
- Biercewicz, K., Sulich, A., Sołoducho-Pelc, L. (2022). *The improvements propositions for players' engagement and sustainable behaviors in managerial games*. *Procedia: Computer science*, 207, 2022. 26th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems. <https://doi.org/10.1016/j.procs.2022.09.208>
- Compass. (2024). <https://compasseducation.org/navigating-growth-the-compass-for-educational-development-by-saadia-faisal/>
- Blažek, L. (2014). *Management: Organizování, rozhodování, ovlivňování*. Prague: Grada Publishing, 2014. 2nd edition. 244 p. ISBN 978-80-247-4429-2
- Jääskä, E. & Aaltonen, K. (2022). Teachers' experiences of using game-based learning methods in project management higher education. *Project Leadership and Society*, 3, 100041. <https://doi.org/10.1016/j.plas.2022.100041>
- Faria, A. J., Wellington, J. W., Hutchinson, D., & Gold, S. (2009). Developments in Business Gaming: A Review of the Past 40 Years. *Simulation and Gaming*, 40(4), <https://doi.org/10.1177/1046878108327585>
- Forseén-Nyberg, M., & Hakamäki, J. (1998). Development of the production using participative simulation games: Two case studies. *International Journal of Production Economics*, 56-57. [https://doi.org/10.1016/S0925-5273\(97\)00028-5](https://doi.org/10.1016/S0925-5273(97)00028-5)
- Haurovi, M., & Chilunjika, A. (2024). Fourth industrial revolution and social innovation dynamics in South Africa: a review. *Insights into Regional Development*, 6(2), 103-116. [https://doi.org/10.9770/IRD.2024.6.2\(7\)](https://doi.org/10.9770/IRD.2024.6.2(7))
- Hellström, M.M., Jaccard, D., & Bonnier, K.E. (2023). A systematic review on the use of serious games in project management education. *International Journal of Serious Games*, 10(2), 3-24 <https://doi.org/10.17083/ijsg.v10i2.630>
- Joensuu-Salo, S., Peltonen, K., Hämäläinen, M. (2013). The importance of HEI managerial practices in teachers' competence in implementing entrepreneurship education: Evidence from Finland. *The International Journal of Management Education*, 21. <https://doi.org/10.1016/j.ijme.2023.100767>
- Lendel, V., Hittmar, S., Sroka, W., & Siantova, E. (2016). Identification of the Main Aspects of Innovation Management and the Problems Arising from Their Misunderstanding. *Communications – Scientific Letters of the University of Zilina*, 1A. <https://doi.org/10.26552/com.C.2016.1A.42-48>

- Lendelova, L., Panackova, A., & Skvarka, N. (2019). *Use of Managerial Games in the Process of Education of Future Managers at Universities*. Retrieved March 20, 2024, from <http://www.infoma.fri.uniza.sk/archive/mse/v9n1/3.pdf>
- López, F. R., Arias-Oliva, M., Pelegrín-Borondo, J., & Marín-Vinuesa, L. M. (2021). Serious games in management education: An acceptance analysis. *The International Journal of Management Education*, 19, <https://doi.org/10.1016/j.ijme.2021.100517>
- ManaHra (2018). *Úvod*. Retrieved January, 20, 2024, from <http://manahra.econ.muni.cz/general/intro/>
- Marketplace Simualtions (2020). *Enhance the power of knowledge through active learning*. Retrieved January 29, 2024, from <https://play.marketplace-simulation.com/>
- Ministry of Education, Research, Development and Youth of the Slovak Republic (2020, a). *Modelové školstské vzdelávacie programy*. Retrieved February 22, 2024, from <https://www.minedu.sk/narodny-program-rozvoja-vychovy-a-vzdelavania/>
- Ministry of Education, Research, Development and Youth of the Slovak Republic (2020, b). *Modelové školstské vzdelávacie programy*. Retrieved February 22, 2024, from <https://www.minedu.sk/8387-sk/statne-vzdelavacie-programy/>
- Nica, E., Androniceanu, A., Sabie, O.-M., & Miša, A. (2023). Generative artificial intelligence and workplace tracking systems, synthetic training data, and computer-based teamwork simulations in 3D immersive spaces, *Analysis and Metaphysics*, 22, 24-42. <https://doi.org/10.22381/am2220232>
- Peterková, J., Repaská, Z., Prachařová, L. (2022). *Best Practice of Using Digital Business Simulation Games in Business Education*. *Sustainability*, 14, 8987. <https://doi.org/10.3390/su14158987>
- Petlák, E. (2007). *Pedagogicko-didaktická práca učiteľa*. Bratislava: IRIS, 2007. 120 p., ISBN 80-89018-05-X.
- Portál VŠ (2019). *Informácie o vysokých školách*. Retrieved January 22, 2024, from <https://www.portalvs.sk/sk/>
- Promis (2024). *Cíle a průběh hry*. Retrieved March, 26, 2024, from <https://promis2.econ.muni.cz/login/>
- Raosoft (2020). *Samplesize*. Retrieved March 21, 2024, from <https://www.raosoft.com/samplesize.html>
- Slovak GMC (2019). *Domov*. Retrieved March 21, 2024 from <https://www.gmclovakia.sk/>
- Softip (2019). *Ekonomická simulačná hra*. Retrieved February 3, 2024 from <https://www.softip.sk/sk/produkty/zakazkove-is/softip-simbiz/>
- Schrier, K., Zahradnik, A., & Shaenfield, D. (2023). Playful Approaches to Leadership Development: Three Innovative Uses of Games in the Classroom. *Journal of Management Education* <https://doi.org/10.1177/10525629231215065> Early Access
- Stratis (2024). *Simulační hra Stratis*. Retrieved March, 26, 2024, from <https://is.muni.cz/publication/490571/cs/Simulacni-hra-STRATIS/Blazek-Halek-Smutny-Zak>
- Pászto, V., & Pánek, J. (2020). Spationomy Simulation Game. In: Pászto, V., Jürgens, C., Tominc, P., Burian, J. (eds) *Spationomy*. Springer, Cham. [https://doi.org/10.1007/978-3-030-26626-4\\_16](https://doi.org/10.1007/978-3-030-26626-4_16)
- Trávníček, A. (2008). *Ekonomika, financie a manažment podniku II.: Vedecká konferencia doktorandov Fakulty podnikového manažmentu*. Bratislava: Fakulta podnikového manažmentu EU, 2008. ISBN 978-80-225-2628-9.
- Tumpa, R. J., Ahmad, T., Naeni, L. M., & Kujala, J. (2024). Computer-based games in project management education: A review. *Project Leadership and Society*, 5. <https://doi.org/10.1016/j.plas.2024.100130>
- Valladares, V.O., Montes, L.H., & Arbalti, F.Z. (2023). Game as a Learning Tool in Higher Education. *Revista Electronica De Investigacion Educativa*, 25 <https://doi.org/10.24320/redie.2023.25.e28.4952>
- Veteška, J., Tureckiová, M. (2008). *Kompetence ve vzdělávání*. Prague: Grada Publishing, 160 p. ISBN 978-80-247-1770-8.
- Vljajalkshimi, M. (2019). *Modern Teaching Techniques in Education*. Retrieved April 10, 2024, from [https://www.researchgate.net/publication/331071559\\_Modern\\_Teaching\\_Techniques\\_in\\_Education](https://www.researchgate.net/publication/331071559_Modern_Teaching_Techniques_in_Education)
- Vodenicharova, M. (2022). Gamed-based Learning in Higher Education. *Tem Journal-Technology Education Management Informatics*, 11(2), 779-790. <https://doi.org/10.18421/TEM112-35>



**Author Contributions:** Conceptualisation: *Lendelová, Hrkút, Ďuračik, Panáčková*; methodology: *Ďuračik, Panáčková*; data analysis: *Lendelová, Hrkút, Ďuračik, Panáčková*, writing—original draft preparation: *Lendelová, Hrkút, Ďuračik, Čičmancová, Panáčková*, writing; review and editing: *Lendelová, Ďuračik, Čičmancová*; visualisation: *Čičmancová*. All authors have read and agreed to the published version of the manuscript.

**Lucie LENDELOVÁ**, Ing., Ph.D., MBA, Faculty of Management Science and Informatics, Department of Management Theories. Research interests: Performance Management, Management, Managerial Games, Education.

**ORCID ID:** <https://orcid.org/0000-0002-9737-1099>

**Patrik HRKÚT**, Assoc. Prof., Faculty of Management Science and Informatics, Department of Software Technologies. Research interests: Software development, Managerial Games, Education.

**ORCID ID:** <https://orcid.org/0000-0002-8747-9194>

**Michal ĎURAČÍK**, Assoc. Prof., Faculty of Management Science and Informatics, Department of Software Technologies. Research interests: Software development, Managerial Games, Education.

**ORCID ID:** <https://orcid.org/0000-0001-9247-039X>

**Eliška ČIČMANCOVÁ**, Ing., PhD student, Faculty of Management Science and Informatics. Department of Management Theories. Research Interests: Sustainability, Communication, Local governments, Education.

**ORCID ID:** <https://orcid.org/0000-0002-2041-8581>

**Adriana PANÁČKOVÁ**, Ing., student at Faculty of Management Science and Informatics, Research interests: Management, Managerial Games, Education.

---

Copyright © 2024 by author(s) and VsI Entrepreneurship and Sustainability Center

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

