E-Learning for SMEs

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Abstract—This study was aimed to investigate the advantages and disadvantages of the e-learning system and distinguish the concepts of e-learning and distance education. The study population included 40 managers from five contact centers, 20 of which comprised a control group that did not undergo specialized training. The companies under consideration were representatives of the Russian domestic market and did not operate abroad. As a result of the experiment, the average number of sales of managers who underwent training increased by 20% in relation to the previous period. In the control group, the number of sales remained the same. In this regard, the introduction of gamification in particular, and e-learning as a whole, can be deemed a useful strategy to improve organizational activity not only in big companies but also in SMEs. Moreover, taking into account the lower cost of online education compared to traditional learning courses, web-based training remains an excellent alternative for SMEs since expenses on its implementation will be fully paid off by the received profit.

Keywords—Digitalization of learning; e-learning; organizational activity; small and medium enterprises

1 Introduction

Effective entrepreneurship development, in particular, the improvement of small and medium-sized enterprises (SMEs), is a necessary condition for economic growth and an increase in the country’s welfare [1]. These days, the activities of SMEs are
considered to be among the factors that create the backbone of the world's economy. This business sector circulates the most substantial amount of national resources that form the basis for large enterprises. Modern SMEs take the position of both a producer and a consumer of goods and services offered by large companies. A significant advantage of SMEs is their managerial flexibility, which allows them to respond to changing market requirements quickly. The SME sector remains a crucial element in the development of the country's economic system, without which the market cannot function properly [2].

In developed countries, the SME sector comprises a relatively large part of all enterprises. According to official statistics, SMEs represent 99% of all businesses in the European Union [3] and provide 85% of all jobs [4]. The share of SMEs in the United Kingdom is 51%, in Germany – 53%, in Finland – 60%, and in Italy – 68% (Fig. 1) [5]. In the People's Republic of China, SMEs account for almost 98% of all operating market entities and get 62% of all revenues. Furthermore, Chinese SMEs provide 82% of all available jobs, and 75% newly created working positions [6]. As of 2018, the part of SMEs in Russia constituted only 21% of all companies, which was only one-fourth of the entire business sector. At the same time, the Russian government seeks to increase the share of SMEs to 40% by 2024 [7,8].

![Share of SMEs in the country's GDP](source)

**Fig. 1.** Share of SMEs in the country's GDP

Source: developed by the authors based on data retrieved from [5]

In order to expand the number of SMEs and their effectivity, the SME sector needs constant development of its workforce. This issue often remains challenging due to the expensiveness of corporate training and lack of time for education, resulted from the continuous flow of work [9]. Today's small business is characterized by the fact that one employee usually performs a wide range of tasks. Thus, the replacement of workers is often impossible, and the manager cannot afford to send the employee to full-time training courses. As a consequence, advanced training, as a tool to improve professional competencies, is rarely used in SMEs. The solution to this dilemma can be the introduction of e-learning practices.
Chapter 1: E-Learning for SMEs

1.1 Literature review

These days, the concepts of e-learning and distance education are widely used in the scientific literature. Though, to operate them successfully, one should realize the difference between these notions. E-learning is a training system that involves only electronic means of education and Internet technologies. That is, the transfer of materials from teacher to student and vice versa occurs exclusively in electronic format. Distance learning is a system that applies a set of instruments enabling the interaction between geographically distant teachers and students and may include e-learning components. Despite being far from each other, the learner and the educator have an opportunity to use various means of communication, regardless of their form and digital origin (transfer materials and information by regular mail with courier delivery or through online messengers). The present work is focused solely on the use of web-based education due to its popularity in the current educational market and simplicity of introduction [10].

The e-learning system is mainly used in the educational environment (schools and higher education institutions), corporate environment (for training personnel in business), and for individual training (personal development). To provide large-scale training of employees in a corporate environment, many organizations use a Learning Management System (LMS). LMS is not just a platform that comprises courses and personnel training documents. It is a single system that systematizes and automates all student results, automatically checks tests, and collects statistics on academic performance. LMS is a full-fledged online university that a company can use to train and improve the competency of its staff [11-13].

The e-learning system in the corporate environment is usually aimed at preparation personnel in the following main areas:

- Initial learning of the product or corporate rules
- Personal training to increase the level of professionalism
- Advanced training centered on new products, rules, or standards.

Corporate training of employees is most often held in large companies due to the availability of opportunities, human and financial resources, and modern technologies [14,15]. However, unlike large enterprises, SMEs often remain uninvolved in such innovations. To resolve this issue, such enterprises can introduce e-learning courses and give their employees the ability to study anywhere and anytime. This decision will allow workers to improve their skills and qualifications without discontinuing the working process [16].

The e-learning system is characterized by flexibility and adaptability. Each person assimilates information at one's own pace and under specific conditions, for example, in complete silence, or vice versa – in a noisy environment. When undergoing an e-learning course, all these factors and nuances can be taken into account since one will be able to choose the rhythm and structure of learning, depending on his/her preferences [17].

When using the e-learning model, the company can go beyond the spatial boundaries. A person can be trained by a titled business coach from America or Europe without even leaving his/her office in a small town. Such kind of employee preparation is deemed profitable for the company. It bears significantly lower costs since there is no need to spend money on travel, accommodation, and related matters [18]. Cheapness is
the most notable advantage of the e-learning system as online education is always more affordable than full-time study (according to the Cedar Group [19], the cost of training via the Internet is, on average, 32-45% lower).

All of the above facts can demonstrate to SME executives the need and benefits of using e-learning courses. Nevertheless, it is also worth to mention the set of barriers that may hinder the introduction of e-learning in SMEs. Researchers identify three main groups of barriers to the implementation of e-learning systems in SMEs. Among them are barriers related to teachers and students, barriers related to technology, and barriers related to institutional management [20,21].

The first group's specific feature is that not all teachers and students can easily perceive information through virtual communication. When studying via the Internet, there is no real interaction between the learner and the instructor. This fact can lead to a number of misunderstandings. Besides, within the e-learning process, the importance of self-discipline increases, and responsibility for completing a particular task lies directly on the student.

The barriers associated with technology imply that, unfortunately, not everyone has access to high-speed internet networks or a computer with a new operating system that supports the required software. Nevertheless, even if there are no problems with material support, there is a possibility of a complicated understanding of the e-learning platform's tools, which may entail a number of difficulties.

The last barrier is connected to institutional management. When using the e-learning system, it is impossible to check precisely whether the worker is studying and completing tasks or someone else.

1.2 Problem statement

E-learning is an effective way to improve the performance of the entire company. Though, unfortunately, the world experience shows that only large businesses practice e-learning, while SMEs remain on the sidelines. In view of this, the objective of the present research was to expose the possibilities of e-learning for employees on the example of gamification in corporate training. The examination of this topic was induced by its relevance as well as theoretical and practical significance.

Besides the central goal, this paper was also aimed at investigating the advantages and disadvantages of the e-learning system and distinguishing the concepts of e-learning and distance education. The study described the idea of gamification and provided an experiment on its implementation in five contact centers of different SMEs.

The relevance of the reviewed issue determined the following research objectives:

- Examine the essence of the e-learning system and discover how it can be used in business
- Explore the differences between e-learning and distance education
- Determine the advantages of the e-learning system and outline barriers that may occur during its implementation
- Investigate the nature of gamification in online education and implement it in five SMEs' contact centers
- Compare the experience gained from using the gamification method in this research with the practice of other organizations.
2 Materials and Methods

Despite all the disadvantages and obstacles that the management of SMEs may face during the implementation of e-learning, its benefits for personnel are apparent. Today, companies that already take advantage of online education are familiar with such options as passing online tests, taking specialized courses, webinars, and conferences to improve their employees' skills and competencies. Together with these online learning methods, the use of gamification techniques during the study becomes much more common.

Gamification in e-learning is based on honing an employee's skills in a playful way via the simulation of a real situation. It can also be defined as the use of game elements to solve non-game problems [22]. The first use of the gamification concept by the American computer programmer Nick Pelling dates back to 2002. However, this term became more widespread only since 2010. The gamification process can be applied both in offline and online training of workers through special programs. The use of gamification tools is actively practiced by such large companies as Microsoft, Hyundai, Volkswagen, and Nike to polish up the skills of company employees [23]. It is beyond a doubt that large organizations have more opportunities to introduce new technologies. However, due to modern digitalization processes, various technological innovations in the context of commercial training can be easily applied to SMEs in view of the lower costs for online education.

These days, professional activity predominantly requires employees to have specific skills and experience in using certain technologies rather than a set of encyclopedic knowledge. Such an experience can be easily gained during online training courses that include gamification elements, in particular simulation of a real-life situation in the working place.

Thus, to investigate the impact of gamification of online education on employees, five contact centers of different SMEs were proposed to implement a specially designed dialogue simulator to improve their workers' communication skills. In favor of preserving the companies' confidentiality and ensuring an impartial assessment of the study results, it was decided not to disclose the names of the participating organizations. It should be only noted that all companies that were involved in the experiment are selling household goods only in Russia. The central task of sales managers was to confirm the orders from the online store's website and sell the main and related products via the phone. Simultaneously, managers resolved various conflict situations, such as problems with already purchased goods. The program for employee training looked like a special application installed on a computer or laptop. A visual example of this program is shown in Fig. 2.
With the help of this program, telephone sales managers could work over a script for a conversation with a client (an algorithm that predicts the prevailing part of questions and has already prepared answers) and go through non-standard situations during the interaction with a customer. The experiment included four employees from each of the five selected companies. In total, the investigation enrolled 40 people – 20 of them were trained with the program (experimental group), and 20 others did not undergo any additional study (control group). All managers were aged from 25 to 30 to assure the experiment objectivity. The selected specialists belonged to the group with average sales performance (the monthly sales plan was always met, but not exceeded). The only difficulty was that each contact center had its own average sales level (for example, in one company, the average number of monthly sales was 20 sales per manager, while in another – 150). The duration of training constituted for two months.

Within the training, sales managers were required to take two lessons a week (10 lessons a month). At the beginning of the course, each of them was explained how to work with the program's tools and interface. Although, during the study, they could contact the support service to get an additional consultation. Participants were free to choose the most convenient day and time to study. The only prerequisite was to take one lesson at the beginning and one at the end of the week. Each lesson lasted 60 minutes.

3 Results

The implementation of any training system at an enterprise includes several stages. In the framework of this experiment, during the introduction of the training course for SME managers, the following steps were distinguished:

- Analysis and selection of the e-learning system: The current research did not include the analysis phase since a specific form of online education was initially proposed. If the enterprise decides to start an e-learning course independently, this stage is inevitable.
- Planning for software implementation: During this stage, the company's management determines whether to attract individuals from outside the organization to set up the program, creates plans and programs of personnel training, selects an analytics system that will show the training results.
• Implementation of e-learning: The responsible person shows the company staff how to go through training, describes the training methods, and provides support to students.

• Summing up and determining the effectiveness of the selected program: At this stage, the company’s management analyzes the training results and decides whether the e-learning course will be used on an ongoing basis through the examination of the ratio of spent costs and gained outcomes, an increase in the employees’ productivity, and changes in the approach to work.

Given that the current study was aimed at examining the impact of gamification of online education on SME employees, the last stage of the training system implementation requires particular attention.

During the experiment, only 3 participants out of 20 contacted the support service to receive help with the program’s working environment (15% of all involved). Since only 15% of managers needed additional assistance, it can be concluded that the program’s working environment did not pose significant difficulties to respondents. After completing the course, managers were asked several questions concerning the training process (Table 1).

| Question                                                                 | Answer                  |
|-------------------------------------------------------------------------|-------------------------|
| Was it difficult to understand how to work with the program?            | Yes – 20 %               |
|                                                                          | No – 80 %                |
| Was the training interesting?                                           | Yes – 70 %               |
|                                                                          | No – 30 %                |
| Did you acquire new knowledge or skills from training?                  | Yes – 90 %               |
|                                                                          | No – 10 %                |
| In your opinion, did the efficiency of your work improve?               | Yes – 65 %               |
|                                                                          | No – 35 %                |
| Would you like to undergo such training regularly?                      | Yes – 80 %               |
|                                                                          | No – 20 %                |
| If you were offered two training options: gamification or listening to  | Gamification – 60 %      |
| online lectures from the best sales managers, which one would you choose? | Online lectures – 40 %   |

As can be seen from the survey results, the prevailing part of managers liked the proposed training and believed that such an e-learning course is a good way to improve the employees’ performance.

The introduction of any innovation in the company should lead to an increase in work effectiveness. Thus, the main goal of implementing an e-learning system in contact centers was to increase the transaction amount, sell more related goods, and enhance the number of average monthly sales.

After completing the experiment, the participants’ results were compared with the control group, namely with the other 20 managers who were not involved in the training process. The comparison was carried out separately for each contact center since the average indicators of companies differed significantly (Fig. 3).
After the online learning course, the average number of sales in the experimental and control groups was compared. The presented diagram explicates a 20% increase in sales for each contact center among those managers who took part in the e-learning course (indicated in blue) in relation to the period when such training was not conducted. In the control group, the number of sales did not change (marked in green). It should be noted that in the course of the study, the average monthly sales in the control group remained at the same level, as before the experiment. Therefore, the outcomes of the e-learning course can be considered reliable. The gamification itself can be deemed one of the effective means to improve workers’ professional competency and enhance the company’s profit. The only drawback of this method is funding since the implementation of online learning requires a certain amount of money from the employer. However, since the program is web-based, its introduction costs are significantly lower than in-class education. Accordingly, such an innovative strategy for personnel training may be applied not only in large organizations but also in SMEs. The resulting benefit from employee education is much higher than the expenses on e-learning. Consequently, this approach is rational.

4 Discussion

Today the use of game-based learning methods is not a new phenomenon. Gamification of learning is widely applied in teaching schoolchildren, students, and even employees of business organizations. Modern games usually drag the person into the gameplay so that it becomes difficult to tear oneself away from the process. This peculiarity is mainly perceived as a negative characteristic of games, though it can be useful
when teaching a person a particular skill. It is often difficult for an educator to keep learners' attention on the subject of instruction. The gamification method effectively meets this challenge and even can contribute to the increase in students' focus on learning if the training process is held online [23].

Among the significant advantages of gamification is that the learner is not afraid to make a mistake since he/she understands that this decision will not bear any real consequences. As a result, during web-based learning, a person can offer non-standard solutions to the problem that would not be proposed in real life due to fear of punishment or negative consequences [24].

The gamification method can be used in multiple variations regardless of the field of work or specialization. This learning approach may take the form of a digital simulator for honing sales managers' skills; it may be an interactive game that will teach merchandisers how to arrange the goods on store shelves; or a vocabulary game that will promote mastering foreign languages. The latter approach is most often used in the process of teaching students and business representatives. Since learning a foreign language is a lengthy and challenging process, learners do not always have enough motivation and incentives to complete the started training. In order to diversify the learning process, educators often turn to gamification. For example, the Department of Foreign Languages of the Moscow State University of Economics, Statistics and Informatics holds the Foreign Language Festival where students themselves come up with the storyline of the game. The practice proves that even the weakest learners, who do not always have enough motivation, show good results owing to the positive impact of their mates [25].

Another successful example of using the gamification method in e-learning is LinguaLeo – the platform for learning English [26]. With LinguaLeo, one can study the most widely used words in the form of games and various interactive activities. The person is free to choose a topic and can always receive help from the virtual assistant called Leo.

Representatives of large businesses also do not stand apart from the introduction of gamification in their employees' training. For example, the international bank Alfa-Bank has created a virtual simulator Alfa City with the help of which workers can learn how to sell banking products to customers and handle objections.

The use of gamification methods in traditional and electronic education allows educators to diversify the learning process and avoid routine [27]. A growing body of literature, the experience of large companies, and outcomes of the experiment conducted within the present research have revealed that gamification in e-learning significantly increases the effectiveness of the training and enhances workers' efficiency [28-30].

Today the tedious process of cramming or exhausting passing tests is already left behind and replaced by new, innovative approaches. Gamification can be expressed in various forms, but at the same time, the goal of introducing such an option in training is always the same – to get the maximum advantage from the learning process. In general, e-learning is taking the place of traditional teaching techniques as it is easier, faster, and requires no additional expenses. Regardless of their size, business companies and higher educational institutions actively use the e-learning format in their learning
activities. Moreover, to make this process more interesting, they tend to use various contemporary training methods, including gamification.

5 Conclusion

E-learning is an efficient way of training employees and students through various computer applications, digital technologies, or Internet resources. This learning method is mainly used in three sectors of consumption: educational (schools and higher education institutions), corporate (for training employees), and individual (personal development). To provide efficient preparation of highly-qualified personnel in a corporate environment, modern business companies use a Learning Management System. Despite the number of barriers that e-learning faces, online education has several advantages over traditional study methods. Among such benefits are flexibility, adaptability, lower expenses, and the absence of spatial restrictions.

Gamification is believed to be one of the most effective e-learning methods. This approach implies game-based education to improve the employee's skills. The current study implemented the gamified learning course in the form of the dialogue simulator to sharpen the employees' communication abilities. As a result, the average number of monthly sales per manager in the experimental group increased by 20% compared to the period before the training. For the control group (managers who did not undergo training), sales volumes remained at the same level as before the experiment. For this reason, it can be concluded that the use of gamification in e-learning leads to a substantial increase in organizational performance.

The study showed that gamification elements, as well as e-learning itself, can be adopted not only in big companies but also in SMEs since this preparation approach greatly increases workers' efficiency and business profit, and costs for its introduction can be fully paid off by the received earnings. These days, online education is in the process of rapid development. In this connection, further research should focus on the presentation of new experience in using advanced e-learning tools by representatives of both business and scientific environments.

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