International Journal of Engineering & Technology, 7 (4.38) (2018) 109-111

International Journal of Engineering & Technology

Website: www.sciencepubco.com/index.php/IJET

Research paper

Students' Satisfaction with Interactive Forms of Training with Elements of Gamification

Tatiana S. Demchenko[1]*, Mikhail V. Vinichenko[1], Maksim V. Demchenko[2], Irina Y. Ilina[1], Natalya V. Buley[1], Elena V. Duplij[1]

[1]Russian State Social University, Wilhelm Pieck Street, 4, build.1, Moscow, Russia, 129226
[2]Financial University under the Government of the Russian Federation, Leningradsky Prospekt 49, Moscow, Russia, 125993
**Corresponding author E-mail: demchenko.t.s@mail.ru*

Abstract

The article considers students' satisfaction with interactive forms of training with elements of gamification. Based on the empirical study, the level of students' satisfaction with interactive forms of training with elements of gamification has been measured. The study has been conducted at 6 educational organizations that carry out educational activities on educational programs of higher education – bachelor, specialist and master degree programs. A set of sociological methods has been used in the study: a questionnaire survey of students, an expert survey of teachers working at higher education institutions, an analysis of documents; content analysis; a method of mathematical data processing (correlation analysis, using the software package SPSS Statistics 23). Based on the analysis of the scientific literature and the results of the sociological research conducted, it has been established that the students are more satisfied with the quality of interactive sessions with elements of gamification (57.01%) than with the quality of training by traditional methods (23.36%) and the quality of the content of classes conducted by traditional methods (19.63%). It has been revealed that the use of interactive forms of training with elements of gamification is the most effective: to increase the effectiveness of mastering the training material (20%); for decision-making (17.33%); to heighten interest in learning (15.33%). The closeness of the views of students and teachers on the assessment of interactive forms of training with elements of gamification and assessment of classes conducted by traditional methods has been determined by means of Spearman's rank correlation coefficient. The obtained data of the correlation analysis have shown a rather high level of correlation and indicated the closeness of the views of students and teachers on the phenomena studied.

Keywords: *Classes; Higher education institution (HEI); Interactivity; Gamification; Satisfaction; Students.*

1. Introduction

The quality of personal education [1], the study of the problems of education [2], as well as the study of its quality as a particular aspect [3], students' satisfaction with the quality of training become relevant in the context of socio-economic changes, the financial and economic crisis, globalization of social relations. The most relevant is the effective use of human resources [4].

Important factors in the formation of favorable conditions for the successful implementation of higher education programs are as follows: timely improvement of the education system [5], successful implementation of personnel policy that would satisfy employees and students of HEIs [6, 7], improvement of personnel training [8], conflict-free interpersonal relationships [9], teachers' motivation [10], etc.

In recent decades, the elements of gamification have been widely used in psychology [11, 12], education [13, 14], business [15], marketing, social networks [16], health care service [17, 18] and in other areas.

In marketing practice, gamification is used to influence the behavior of consumers and increase the interest of buyers (consumers) in a particular product or service [19].

In education, the elements of gamification are used to improve the learning process, to heighten the interest of students, to increase students' academic progress [20, 21, 22, 23].

The problem is that the management of organizations, on the one hand, seeks to improve the quality of education at an HEI, to prepare competitive specialists and, on the other hand, it does not fully use the opportunities of gamification.

The purpose of this study is to reveal students' satisfaction with interactive forms of training with elements of gamification through the influence of conducting classes with the use of interactive forms of training with elements of gamification on students, to measure the closeness of views of students and teachers on the assessment of interactive forms of training with elements of gamification and the assessment of classes conducted by traditional methods.

2. Methods

The empirical study of students' satisfaction with interactive forms of training with elements of gamification was conducted at six Russian HEIs.

The study was conducted with the use of a set of sociological methods: a questionnaire survey of students, an expert survey of teachers working in HEIs, an analysis of documents; content analysis; a method of mathematical data processing (correlation analysis, using the software package SPSS Statistics 23).

The total population was 818 educational organizations that carried out educational activities on educational programs of higher education – bachelor, specialist and master degree

Copyright © 2018 Authors. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

programs; 4,399,000 people, the sample size was 700 people, with 4.7% sampling error and confidence probability equal to 95%.
Multistage sampling based on a phased selection was used in the formation of the sampling population.
At the first stage of the formation of the sampling population through cluster sampling, the total population was divided into relatively compact structural parts – clusters, namely particular educational organizations (HEIs). The selection of organizations was random.
At the second stage, the selection of employees working in the organization was carried out by means of quota sampling. The respondent's gender and year of study were quota features (Table 1).

Table 1: The sampling population: name of an HEI and gender

				Quantity	% according to the subtable
HEI	Modern Academy of Humanities	Your gender	Male	187	45.9%
			Female	220	54.1%
	Moscow City Pedagogical University	Your gender	Male	8	12.7%
			Female	48	87.3%
	Russian University of Humanities and Social Sciences	Your gender	Male	17	34.0%
			Female	33	66.0%
	State University of Management	Your gender	Male	16	23.9%
			Female	51	76.1%
	E.R. Dashkova Moscow Humanities Institute	Your gender	Male	26	36.6%
			Female	45	63.4%
	International Academy of Business and Management	Your gender	Male	6	12.2%
			Female	43	87.8%
In total	6			700	100%

3. Results and discussion

The effectiveness of training at HEI was measured by students' satisfaction with the quality of training by traditional methods; the quality of the training material (content) provided; the quality of interactive sessions with elements of gamification. The results of the study showed that the students were most satisfied with the quality of interactive sessions with elements of gamification (57.01% of all respondents) (Figure 1).

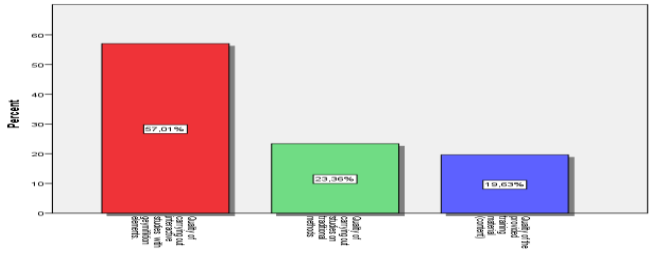


Fig. 1: Students' satisfaction with the quality of training by traditional methods, the quality of the training material (content) provided, the quality of interactive sessions with elements of gamification

Indeed, the results of the survey of respondents showed that they were fully satisfied with new, interactive types of classes with elements of gamification (73.43% of respondents) (Figure 2).

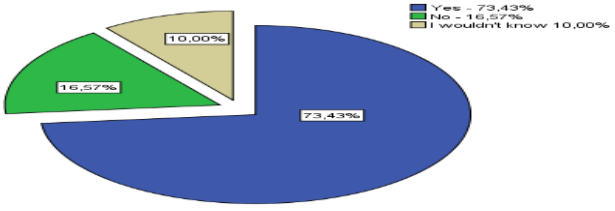


Fig. 2: Satisfaction with the introduction of interactive forms of training with elements of gamification

The results of the expert survey of university teachers showed that the use of interactive forms of training with elements of gamification was the most effective: to increase the effectiveness of mastering the training material (20%); for decision-making (17.33%); to heighten interest in learning (15.33%) (see Figure 3).

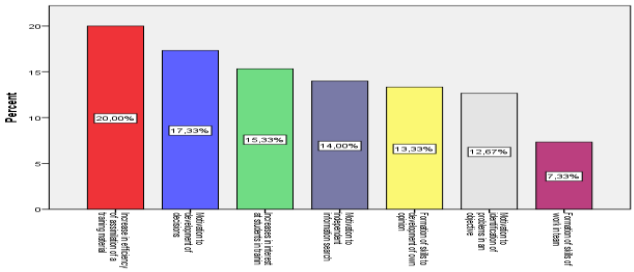


Fig. 3: The impact of interactive forms of training with elements of gamification on students

In order to determine the closeness of views of students and teachers on the assessment of interactive forms of training with elements of gamification and the assessment of classes conducted by traditional methods, a degree of statistical interrelation of the studied features was analyzed with the use of Spearman's rank correlation coefficient. The program SPSS Statistics 23.0 was used in the application of the method of Spearman's rank correlation (see Table 2).

Table 2: Spearman's rank correlation coefficient of measuring the views of students and teachers on the assessment of traditional forms of training and interactive forms of training with elements of gamification

	Students' assessment of traditional forms of training	Students' assessment of interactive forms of training with elements of gamification	Teachers' assessment of traditional forms of training	Teachers' assessment of interactive forms of training with elements of gamification
Students' assessment of traditional forms of training	1.000	0.362	0.907	0.297
Students' assessment of interactive forms of training with elements of gamification	0.362	1.000	0.432	0.886
Teachers' assessment of traditional forms of training	0.907	0.432	1.000	0.432
Teachers' assessment of interactive forms of training with elements of gamification	0.297	0.886	0.432	1.000

These tables lead to the conclusion that a rather high level of correlation (especially in some groups) indicates the relative closeness of the views of students and teachers on the groups of phenomena studied. For example, the coefficient of correlation of students' assessment of traditional forms of training and teachers' assessment of traditional forms of training is equal to 0.907, which shows a high level of correlation and indicates the closeness of the views of students and teachers. The coefficient of students' assessment of interactive forms of training with elements of gamification and teachers' assessment of interactive forms of

training with elements of gamification is equal to 0.886, which also indicates the closeness of opinions among the groups studied.

4. Conclusion

It has been revealed that students are more satisfied with the quality of interactive sessions with elements of gamification (57.01%) than with the quality of training by traditional methods (23.36%) and the quality of the content of training by traditional methods (19.63%) (see Figure 1). The results of the study showed that students had been least satisfied with the quality of the content of training.

Due to the fact that the content is already an integral element of training sessions at most Western and Russian HEIs, its availability and proper quality indicate the level of quality of training students in the organization that conducts educational activities. Thus, when introducing interactive forms of training with elements of gamification, HEIs should timely develop new content for conducting similar classes or update the available content, adapting it to interactive forms of training with elements of gamification.

Results of the survey of students showed that 73.54% of respondents were satisfied with the introduction of interactive forms of training with elements of gamification, 16.57% responded negatively and 10% found it difficult to answer (Figure 2). In this regard, it is necessary to develop the introduction of interactive forms of training with elements of gamification in educational practice.

Special attention should be paid to the results of the conducted correlation analysis (Table 2), which indicated that students and teachers showed interest in interactive forms of training with elements of gamification.

Teachers and the administration of the HEI expressed their wish to further use interactive forms of classes with elements of gamification and apply new technologies for their improvement.

At present, when applying interactive forms of training with elements of gamification at HEIs, teamwork skills are formed least effectively (7.33% of respondents) (Figure 3). In this regard, HEIs should expand the use of interactive forms of training with elements of gamification and use them not only within one group of students but also conduct similar classes in different groups of students both within the faculty and between faculties.

References

[1] Demcheko TS, Karácsony P, Ilina IY, Vinichenko MV & Melnichuk AV (2017), Self-Marketing of Graduates of High Schools and Young Specialists in the System of Personnel Policy of the Organization. *Modern Journal of Language Teaching Methods*, 7(9).

[2] Gostev AN, Demchenko TS & Borisova E (2015), Corruption in the System of Higher Education: Problems and Ways to Prevent Them. *Russian Education and Society* 57(3), 163-188.

[3] Gostev AN & Demchenko TS (2014), Russian Traditions in the System of Student Government. *Russian Education and Society* 56(4), 3-26.

[4] Buley NV, Demchenko TS, Makushkin SA, Vinichenko MV & Melnichuk AV (2016), Human resource management in the context of the global economic crisis. *International Journal of Economics and Financial Issues* 6(8S), 160-165.

[5] Ghazal S, Aldowah H, Umar I & Bervell B (2018), Acceptance and Satisfaction of Learning Management System Enabled Blended Learning Based on a Modified DeLone-McLean Information System Success Model. *International Journal of Information Technology Project Management* 9(3), 52-71.

[6] Vinichenko MV, Karácsony P, Demcheko TS, Ilina IY & Makuchkin SA (2017), Improvement of Youth Personnel Policy: Social Inspection (2017). *Eurasian Journal of Analytical Chemistry* 12(7b), 1069-1077.

[7] Vinichenko MV, Karácsony P, Demcheko TS, Melnichuk AV & Makuchkin SA (2017), Satisfaction of Employees of Moscow Region Organizations by Implementation of Youth Personnel Policy. *Eurasian Journal of Analytical Chemistry* 12(5b), 97-704.

[8] Rogach OV, Frolova EV, Kirillov AV, Bondaletov VV & Vinichenko MV (2016), Development of Favorable Learnıng Envıronment and Labor Protection in the Context of Harmonization of Social Interaction of Educational System Objects. *IEJME — Mathematics Education* 11(7), 2547-2558.

[9] Albert LS & Moskowitz DS (2014), Quarrelsomeness in the Workplace: An Exploration of the Interpersonal Construct within the Organizational Context. *Organizational Psychology Review* 4*(*1), 27-48.

[10] Lai H-M, Hsiao Y-L & Hsieh P-J (2018), The Role of Motivation, Ability, and Opportunity in University Teachers' Continuance Use Intention for Flipped Teaching. *Computers and Education* 124, 37-50.

[11] Ferro LS (2018), An Analysis of Players' Personality Type and Preferences for Game Elements and Mechanics. *Entertainment Computing* 27, 73-81.

[12] Suh A, Wagner C & Liu L (2018), Enhancing User Engagement through Gamification. *Journal of Computer Information Systems* 58(3), 204-213.

[13] Nousiainen T, Kangas M, Rikala J & Vesisenaho M (2018), Teacher Competencies in Game-Based Pedagogy. *Teaching and Teacher Education* 74, 85-97.

[14] Garcia-Sanjuan F, Jurdi S, Jaen J & Nacher V (2018), Evaluating a Tactile and a Tangible Multi-Tablet Gamified Quiz System for Collaborative Learning in Primary Education. *Computers and Education* 123, 65-84.

[15] Hsu C-L & Chen M-C (2018), How Does Gamification Improve User Experience? An Empirical Investigation on the Antecedences and Consequences of User Experience and Its Mediating Role. *Technological Forecasting and Social Change 132*, 118-129.

[16] Van Benthem J (2018), Computation as Social Agency: What, How and Who. *Information and Computation* 261, 519-535.

[17] Malwade S, Abdul SS, Uddin M, Nursetyo AA, Fernandez-Luque L, Zhu X, Cilliers L, Wong CP, Bamidis P & Li Y-CJ (2018), Mobile and Wearable Technologies in Healthcare for the Ageing Population. *Computer Methods and Programs in Biomedicine* 161, 233-237.

[18] Timpel P, Cesena FHY, da Silva CC, Romo GM & Roepke RML (2018), Efficacy of Gamification-Based Smartphone Application for Weight Loss in Overweight and Obese Adolescents: Study Protocol for a Phase II Randomized Controlled trial. *Therapeutic Advances in Endocrinology and Metabolism* 9(6), 167-176.

[19] Eppmann R, Bekk M & Klein K (2018), Gameful Experience in Gamification: Construction and Validation of a Gameful Experience Scale [GAMEX]. *Journal of Interactive Marketing 43*, 98-115.

[20] Özdener N (2018), Gamification for Enhancing Web 2.0 Based Educational Activities: The Case of Pre-Service Grade School Teachers Using Educational Wiki Pages. *Telematics and Informatics* 35(3), 564-578.

[21] Chulanova OL, Kucherenko GH, Chulanov DV, Kirillov AV & Melnichuk AV (2017), Crowd-Technology in the Selection of Personnel. *European Research Studies Journal* XX(4B), 380-397.

[22] Kabanova EE, Frolova EV, Medvedeva NV, Vinichenko MV & Shimanskaya IY (2016), Cultural and Educational Tourism in the Russian Federation: Basic Problems and Development Resources. *International Review of Management and Marketing* 6(S5), 206-210.

[23] Frolova E, Ryabova T & Rogach O (2018), Electronic Educational Environment as the Tool of Manager Student Media Competence Development. *Media Education* 1, 68-76.