In the Search for the Golden Mean: Students' Satisfaction with Face-to-Face, Blended and Distance Learning

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Abstract: At the present time, digital educational technologies are gradually being introduced into the sectors of education aimed at the complex competencies that combine psychomotor skills and soft skills. Particularly, special tactical police training is aimed at the formation of specific police skills of tactical progression, disposition, communication, as well as decision-making and problem-solving skills. Considering the prevailing tendency in post-Soviet countries to use traditional apprenticeship in police special tactical training, the most justified is the implementation of the concept of cognitive apprenticeship. This concept, on the one hand, allows to create such complex police skills for an unpredictable, chaotic workplace environment, as decision-making and problem-solving, and on the other hand, is based on the teaching experience accumulated by instructors. The important outcome of the orientation of police training on soft skills by the above approaches is the satisfaction of students. In this regard, the study examines the levels of academic satisfaction from traditional, blended, and distance learning. Distance learning was implemented during quarantine due to the Covid-19 pandemic. The study found a higher degree of the students' satisfaction with blended learning than satisfaction with face-to-face and satisfaction with distance learning.

Keywords: *police training; student satisfaction; blended learning; distance learning; face-to-face learning; station rotation; flipped classroom; cognitive apprenticeship; SUSS; SSS.*

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1. Introduction

Distance learning around the world is gaining popularity due to its flexibility, convenience, providing wide access to education, diversity, and financial savings. Quarantine measures related to the Covid-19 pandemic sharply increased the interest of educators. For quite some time, computer technology remained just one of the possible teaching tools. However, to date, digital technologies are beginning to prevail at all sectors of education.

Together with the widespread introduction of information and communication technology in education, the analysis of relevant empirical material, until recently, certain educational sectors had remoted from this popular trend. So, practical and hands-on police training for a long time almost did not use computer technology, so far as it focuses on physical psychomotor skills. In addition, policing is carried out in a chaotic workplace environment (Tyler & McKenzie, 2014). Harsh conditions of service cause a high level of burnout of Ukrainian police officers and low job satisfaction (Valieiev, Polyvaniuk, Antonenko, Rebkalo, Sobakar, & Oliynyk, 2019). It can be stated that in post-Soviet countries the assessment prepared by Egon Bitner (as cited in Makin, 2016) in the USA 50 years ago, remains relevant: police education is more likely to prepare compliant soldier-bureaucrats.

However, already in the 21st century, new technologies have driven the development of effective simulators and a highly realistic immersive environment. Hi-fidelity allows you to achieve highly realistic immersion and simulate, for example, critical incidents. However, such simulators require major financial investments and are often too expensive for educational institutions in transitional societies. In this regard, in post-Soviet countries, information technologies actually do not play any role in the formation of a wide layer of police skills, such as police interview, stop-search-seizure, ambushes, suspect apprehension, handling disputes, crowd-containment measure, etc.

Initial analysis suggests that a number of reasons hinder the implementation of modern electronic educational technology in the practical training of police officers. Firstly, the very nature of police skills (their realization in physical actions) to a certain extent contradicts the virtuality of computerized environments. Secondly, the methods of traditional, conservative, almost patriarchal mentoring and apprenticeship dominate in the hands-on training of police officers. Thirdly, there are facts of unjustified reduction, simplification in the training of police skills. For example, the technique of the multiple repeated repetition is appropriate in the

development of the so-called tactical step, when recruits learn silent and safe movement with weapons in their hands. However, the implementation of tactical progression requires not only clear physical actions, but also a quick assessment of the situation, decision making, team interaction, communication, problem-solving. Accordingly, the development of such skills should be carried out not by the method of repeated repetition of the same actions, but by a complex of methods, among which distance techniques are also appropriate.

The experience of the Dnipropetrovsk State University of Internal Affairs on the gradual integration of distance learning elements for police training testifies to positive results. So, we have developed an approach to implement the concept of cognitive apprenticeship using blended learning models. Cognitive apprenticeship developed by Collins, Brown & Newman (1987), assumes that the traditional model of skills training only by demonstrating the actions of the master (instructor) and adjusting the cadet's actions is not suitable for complex skills. Collins, Brown & Holum (1991) identified four phases (aspects) of traditional apprenticeship: modeling, scaffolding, fading, and coaching. Methods were added to them: articulation, reflection, exploration. These stages help students: to formulate opinions about tasks, connection with previous tasks, necessary skills, about solutions, resources, risks and threats and their consequences (articulation and reflection stages) and study them (exploration stage). These methods are necessary for the development of complex skills since many aspects of their implementation easily elude the attention of not only students but also masters. This is because experts implement them automatically, without conscious implicit control.

Therefore, we use cognitive apprenticeship to provide police officers with complex tactical skills, including decision-making, problem-solving and interpersonal skills. For these purposes, the concept of cognitive apprenticeship integrates with such blended learning models, as station rotation and flipped classroom. Note that the idea of combining these two models of hybrid learning suggests itself and has already been implemented (see, for example, Tucker, 2016; Govindaraj & Silverajah, 2017).

The first stage of modeling is implemented distantly, according to the flipped classroom model. Cadets watch videos of various types: 1) training videos with a demonstration of the actions by the instructor; 2) videos of the actions of cadets with their inherent errors; 3) recordings from body-worn video recorders of policemen filmed in situations of skills implementation.

The next three stages are implemented simultaneously, in accordance with the station rotation model (Fig. 1). The academic group is divided into three subgroups, each of them is rotating sequentially in three stages. Given that the lesson is conducted by two teachers, each of them work in two subgroups at these stages, and in the third subgroup the information technology functions as mediator and coordinator.

Fig. 1. The model of the implementation of cognitive apprenticeship conception in blended learning

At the coaching stage, under the guidance of the most experienced teacher, cadets demonstrate the application of skills. The teacher corrects their actions, analyzes errors, selects and gives new situational learning tasks and training scenarios within controlled environments which simulates real policing tasks.

At the scaffolding and fading stage, under the supervision of a second lecturer, a subgroup of cadets is working out new situational tasks and case scenarios. Scaffolding is implemented with the help of verbal prompts, facilitating tasks, help from other cadets. Fading, in turn, involves the gradual elimination of prompts and the implementation of scenario-based practical assessments.

At the articulation stage, cadets share their impressions and thoughts about the viewed videos, completed tasks, and scenarios. They verbalize tasks performed by police officers, obstacles, mistakes, solutions to problems, etc.

The lesson ends with the reflection stage, during which the teachers organize a discussion of the whole group with a demonstration of their actions by certain cadets. To do this, either the most trained cadets or those who make the most common mistakes are selected. Particular attention at this stage is given to problem-solving and decision-making skills.

The sixth stage of exploration is implemented outside the classroom. Cadets create project teams, each of which carries out its own task. The content of the assignment is determined by the educational topic, and a rather common form is the writing of a practice-oriented learning scenario, its staging and video recording. These videos will be used later on in the modeling phase with cadets of subsequent years of study.

The introduction of blended learning models based on cognitive apprenticeship and targeting to proactive policing skills, such as problem-solving and decision-making skills, is appropriate to compare with traditional and distance learning. An important criterion for this comparison is student satisfaction, which in turn affects academic performance, learning motivation and student retention.

Hypothesis 1. Students' satisfaction with blended learning higher than students' satisfaction with face-to-face learning.

Hypothesis 2. Students' satisfaction with blended learning higher than students' satisfaction with online distance learning.

The aim of the study is to determine the level of Ukrainian cadets' satisfaction at police university and improve it via blended learning models integration with the cognitive apprenticeship approach.

The study may be interesting not only to specialists of transitional societies since a certain conservatism is inherent in the police training in different countries. However, the pandemic is forcing the active introduction of blended and distance learning.

2. Materials and Methods

2.1. Participants

The experiment participants were 222 students (cadets) of the first and second years of study of the Dnipropetrovsk State University of Internal Affairs (93 female and 129 male). The age of the students was 17 to 21 years old (at the end of the experiment $M = 17.99$, $SD = 0.84$).

The experimental group included 105 cadets. In the control group, 117 students completed the questionnaires in full. The demographic differences of both groups, as well as the results of academic performance, did not have statistical significance.

The data were collected from September 2019 to April 2020 at the Dnipropetrovsk State University of Internal Affairs (Dnipro, Ukraine). All participants had been informed of the withdrawing possibility and voluntarily agreed to take part in the experiment.

2.2. Instruments

Student satisfaction was measured using the Academic Quality Scale taken from the Students University Satisfaction Scale (SUSS; Hussain & Bhamani, 2012a). This instrument has previously been translated into Ukrainian (Rembach, Liubych, Antonenko, Kovalenko, & Valieiev, 2019). The Academic Quality Scale includes 16 questions to measure satisfaction with learning facilities (5 items), curriculum (5 items), teaching and learning (6 items). These aspects are measured using a 3-point rating scale: (1) never, (2) sometimes, always). Cronbach's alpha coefficient was good in this study ($\alpha=0.86$ and standardized $\alpha=0.95$).

Also in the blended and distance learning stages, the Student Satisfaction Survey (Strachota, 2003) was used to measure cadets' satisfaction. This tool uses a four-point Likert scale of (1) strongly disagree, (2) disagree, (3) agree, and (4) strongly agree. Survey measures satisfaction with learner-content interactions (7 items), satisfaction with learner-instructor interactions (6 items), satisfaction with learner-learner interactions (7 items), satisfaction with learner-technology interactions (9 items), as well as general satisfaction (6 items). Cronbach's alpha coefficient was good in this study too ($\alpha=0.89$ and standardized $\alpha=0.91$).

2.3. Data Analysis

Statistical processing of the results was carried out using the StatSoft Statistica software. So, descriptive statistics for the survey results were applied. To check the normality of the data distribution the histograms were built, as well as the Kolmogorov-Smirnov test and the Shapiro-Wilk test were applied. A comparison of the two independent samples (experimental and control groups) was made with the t-test and the Mann-Whitney U-test. A comparison of the two dependent samples (student satisfaction with an online course on the blended and distance stages) was made with the t-test.

The significance of data was determined by the Fisher's criterion with significance level $p \leq 0.05$. The correlation analysis was performed by the Kendall rank correlation coefficient.

3. Results

At the preparatory stage, teachers of special police tactics using LMS MOODLE designed a distance course. Using the iSpring software were developed specific resources for the course, such as interactive presentations, instructive animation (Figure 2), dialogue simulators (Figure 3), training quizzes (for students' self-control) saturated with graphic schemes (Figure 4). A library of educational texts structured on topics has been created, as well as a media library of various video materials with questions and explanations for them. The media library includes both educational video materials and recordings from police officers' body-worn cameras. The use of such videos in the police training of cadets and recruits has proven its effectiveness (Phelps, Strype, Le Bellu, Lahlou, & Aandal (2016).

Fig. 2. Example of instructive animation

Fig. 3. Example of dialogue simulators

Fig. 4. Example of training quizzes

In the first stage, students of the control group continued their traditional face-to-face learning, while students of the experimental group studied using the developed online course as part of blended learning models such as flipped classroom and station rotation. Descriptive statistics are presented in table 1.

Table 1. Students' satisfaction with face-to-face learning (control group) and blended learning (experimental group)

	Control group				Experimental group			
	<i>Mean</i> 1	<i>Min</i> 2	<i>Max</i> 3	<i>SD</i> 4	<i>Mean</i> 5	<i>Min</i> 6	<i>Max</i> 7	<i>SD</i> 8
Learning Facility (5-15)	13.67	8	15	1.67	14.10	10	15	1.19
Curriculum (5-15)	13.09	6	15	2.02	13.85	10	15	1.36
Teaching & Learning (6-18)	16.04	10	18	2.24	16.87	12	18	1.42
Academic Quality Scale (16-48)	42.79	25	48	5.46	44.81	34	48	3.39

Note. measuring with SUSS, *Mean* – average mean, *Min* – minimum scores, *Max* – maximum scores, *SD* – standard deviation

In March 2020, Ukraine introduced quarantine measures, including universities transferred to distance learning. We had taken advantage of that provision to measure student satisfaction with distance learning. Descriptive statistics are presented in table 2.

Table 2. Students' satisfaction with distance learning

		<i>Control group</i>				<i>Experimental group</i>			
		<i>Mean</i>	<i>Min</i>	<i>Max</i>	<i>SD</i>	<i>Mean</i>	<i>Min</i>	<i>Max</i>	<i>SD</i>
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
SUSS	Learning Facility (5-15)	13.03	8	15	1.79	13.43	8	15	1.47
	Curriculum (5-15)	12.40	7	15	1.76	12.77	7	15	1.75
	Teaching & Learning (6-18)	15.65	10	18	2	16.58	11	18	1.87
	Academic Quality Scale (16-48)	41.08	28	48	4.71	42.78	29	48	4.37
SSS	Learner-Content Interaction (7-28)	22.49	15	28	3.61	24.87	15	28	3.22
	Learner-Instructor Interaction (6-24)	18.38	11	24	2.84	20.03	11	24	2.82

	<i>Control group</i>				<i>Experimental group</i>			
	<i>Mean</i>	<i>Min</i>	<i>Max</i>	<i>SD</i>	<i>Mean</i>	<i>Min</i>	<i>Max</i>	<i>SD</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>
Learner-Learner Interaction (7-28)	21.19	8	28	3.33	23.10	14	28	3.34
Learner-Technology Interaction (9-36)	29.32	18	36	5.24	30.20	19	36	5.17
General Satisfaction (6-24)	18.32	9	24	3.22	19.64	12	24	2.80

Note. measuring with SUSS and SSS, *Mean* – average mean, *Min* – minimum scores, *Max* – maximum scores, *SD* – standard deviation

Given that the data of not all variables are distributed normally, to compare two independent samples (experimental and control groups), we used both the parametric criterion (results of t-test on table 3) and the nonparametric criterion (results of the Mann-Whitney U Test on table 4).

Table 3. T-test analysis of students` satisfaction in the experimental and control groups

	<i>Face-to-face and blended learning</i>		<i>Distance learning</i>	
	<i>t-value</i>	<i>p-value</i>	<i>t-value</i>	<i>p-value</i>
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
Learning Facility ¹	2.18	0.03	1.82	0.07
Curriculum ¹	3.26	0.00	1.57	0.12
Teaching & Learning ¹	3.23	0.00	3.57	0.00
Academic Quality Scale ¹	3.26	0.00	2.79	0.01
Learner-Content Interaction ²	-	-	5.16	0.00
Learner-Instructor Interaction ²	-	-	4.32	0.00
Learner-Learner Interaction ²	-	-	4.26	0.00
Learner-Technology Interaction ²	-	-	1.26	0.21
General Satisfaction ²	-	-	3.22	0.00

Note. Displayed independent samples t-tests results; *1* - measuring with SUSS; *2* – measuring with SSS

Table 4. Comparison of students' satisfaction in the experimental and control groups using nonparametric methods

	<i>Face-to-face and blended learning</i>					<i>Distance learning</i>				
	<i>Rank</i>	<i>Rank</i>	<i>U</i>	<i>Z</i>	<i>p-value</i>	<i>Rank</i>	<i>Rank</i>	<i>U</i>	<i>Z</i>	<i>p-value</i>
	<i>sum</i>	<i>sum</i>				<i>sum</i>	<i>sum</i>			
	<i>(control group)</i>	<i>(exp. group)</i>				<i>(control group)</i>	<i>(exp. group)</i>			
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>
Learning Facility ¹	12394.0	12359.0	5491.0	1.36	0.17	12319.0	12434.0	5416.0	1.52	0.13
Curriculum ¹	11804.5	12948.5	4901.5	2.60	0.01	12242.0	12511.0	5339.0	1.68	0.09
Teaching & Learning ¹	12104.5	12648.5	5201.5	1.97	0.05	11090.5	13662.5	4187.5	4.09	0.00
Academic Quality Scale ¹	12097.0	12656.0	5194.0	1.98	0.05	11338.5	13414.5	4435.5	3.57	0.00
Learner-Content Interaction ²				-	-	10695.5	14057.5	3792.5	4.92	0.00
Learner-Instructor Interaction ²				-	-	11043.5	13709.5	4140.5	4.19	0.00
Learner-Learner Interaction ²				-	-	11202.0	13551.0	4299.0	3.86	0.00
Learner-Technology Interaction ²				-	-	12370.0	12383.0	5467.0	1.41	0.16
General Satisfaction ²				-	-	11567.5	13185.5	4664.5	3.09	0.00

Note. Displayed Mann-Whitney U-Test results; 1 - measuring with SUSS; 2 – measuring with SSS

Table 5. Comparison of students` satisfaction with blended and distance learning in the experimental group

	<i>Blended and distance learning</i>	
	<i>t-value</i>	<i>p-value</i>
	<i>1</i>	<i>2</i>
Learner-Content Interaction	14.16	0.00
Learner-Instructor Interaction	21.84	0.00
Learner-Learner Interaction	9.68	0.00
Learner-Technology Interaction	10.7	0.00
General Satisfaction	10.4	0.00

Note. Displayed dependent samples t-tests results; measuring with SSS

Thus, students in the experimental group were more satisfied with learning in the blended approach than students in the control group were satisfied with traditional learning. This is especially evident in satisfaction with curriculum (t-value = 3.26), with teaching & learning (t-value = 3.23) and the Academic quality scale in general (t-value = 3.26), which confirms our hypothesis 1.

In addition, cadets who had the experience of blended learning were easier to adapt to the distance approach and even in distance learning showed a greater degree of satisfaction than students in the control group who, after traditional training were forced to adapt to online learning during the period of quarantine. This was especially clear when comparing satisfaction with Learner-Content Interaction (t-value = 5.16), satisfaction with Learner-Instructor Interaction (t-value = 4.32), satisfaction with Learner-Learner Interaction (t-value = 4.26).

When comparing the satisfaction of students of the experimental group with mixed and distance learning, a statistically significant difference was found in satisfaction with all four types of interactions. This is especially manifested in satisfaction with Learner-Content Interaction (t-value = 14.16) and satisfaction with Learner-Instructor Interaction (t value = 21.84), which confirms our hypothesis 2.

4. Discussion

The implemented approach to integrating cognitive apprenticeship with blended learning models is based on a preliminary analysis of the main trends of policing and police training. Bradford & Pynes (1999) concluded

that the policing role expanded significantly, and for this reason “*training methods and curriculum needs must also be targeted to assist police officers in fulfilling their expanded responsibility*”. Accordingly, current requirements for effective policing necessitate a policeman who has the skills to communicate, make decisions, and solve problems. In our opinion, even special tactical training should be aimed at these skills. But now police education in Ukraine is still excessively focused on studying the law, and not on developing skills and competencies (Beck, Barko, & Tatarenko (2002).

At the same time, among police instructors, there is an increasing distrust towards the “academicization” of police training. This trend is also noted in Germany by Brand & Mahlke (2017). Indeed, over-academicizing police education can lead to a serious gap between theory and practice, as marked by Birzer (2003).

Considering the tendencies in post-Soviet countries to use the approach similar to traditional apprenticeship in police special tactical training, the most justified is the introduction of the concept of cognitive apprenticeship. This concept, on the one hand, allows to create such complex police skills for an unpredictable chaotic workplace environment, as decision-making and problem-solving, and on the other hand, is based on the teaching experience accumulated by instructors and does not require them cardinal transformations and abandonment of previous experience.

In turn, such blended learning models as flipped classroom and station rotation are effective tools for implementing the concept of cognitive apprenticeship. So, the flipped classroom allows to pre-immerses the cadets in the problem field, the context of the educational topic, and to transfer the most difficult phases of training to the stage of direct face-to-face contact with the teacher and other cadets. The station rotation model allows us to seamlessly implement different methods in one lesson and to pay greater personal instructor attention due to group dividing.

In general, the results of research on the perceptions of e-learning and blended learning and their consequences around the world are quite diverse. A number of researchers have noted a positive effect on the learning outcomes (Martin, & Trigwell (2005), Clusky, Hodges, & Smith (2006), Lim, Kim, Chen, & Ryder (2008), and many others), on the student satisfaction (Powers, Davis, & Torrence, 1999), Navarro (2000) , Wagner, Werner & Schramm (2002), Albrecht (2006), Vernadakis, Giannousi, Tsitskari, Antoniou, & Kioumourtzoglou (2012) , Flowers, Moore & Flowers (2008), Cole, Shelley & Swartz (2014)). At the same time, some studies found negative results in the introduction of distance technologies, techniques, and courses (Roach & Lemasters, 2006; Powell, 2007). Student dissatisfaction

was due to the need for a high degree of student self-organization (Hollis & Madill (2006), and the unusualness of studying using a computer (Zhang & Perris, 2004) , and the lack of access to technical support (Bykov & Kukhareenko, 2008; Kukhareenko, Berezenska, Buhaichuk, et al., 2016). When developing e-learning approaches, it is necessary to take into account the identified disadvantages, among which, without a doubt, the most common and substantial is the lack of contact with teachers (Cole et al., 2014; Krsmanovic, Djuric & Dmitrovic, 2011), lack of “Immediacy” in the relations or “unnaturalness”, the formality of online contacts (Swan, 2001; Biesenbach-Lucas, 2003). Undoubtedly, over time, even generation X will get used to virtual forms of communication, especially digital aborigines from generations Y and Z. But for now, our training approach was based on the concepts of a blended, and not exclusively distant learning.

Many researchers emphasize the instructor's important role in online and blended learning, and the opportunities for communicating with him (Solinas, Masia, Maida & Muresu, 2012). The results of the correlation analysis (tables 6 – 7) indicate a statistically significant relationship in distance learning between the satisfaction from Learner-Instructor Interactions and Academic Quality Scale, the satisfaction from Learner-Content Interactions, , the satisfaction from Learner-Technology Interaction and General Satisfaction (Kendall rank correlation coefficient was 0.26, 0.64, 0.67 and 0.46 respectively). However, Academic Quality Scale had been a slightly stronger impacted by the satisfaction with Learner-Content Interactions (τ -Kendall=0.3). And the General satisfaction had been a slightly stronger impacted by the satisfaction with Learner-Technology Interactions (τ -Kendall=0.64).

Table 6. Correlation between various aspects of students` satisfaction with distance learning and some demographic/biographic variables

	Gender	Entrance exams	Grades	Entrance motivation	Learning Facility	Curriculum	Teaching & Learning Academic Quality Scale	Learner-Content Interaction	Learner-Instructor Interaction	Learner-Learner Interaction	Learner-Technology Interaction	General Satisfaction
Gender	1	0.06	0.20	0.11	0.01	0.00	0.04	0.01	0.06	0.07	0.13*	0.13*

Entrance exams	1	0.3305	-	0.04	0.01	0.02	0.01	0.00	0.12*	0.11*	0.14*	0.11*	0.09*
University Grades		1	0.02	0.12*	0.01	0.03	0.00	0.07	0.06	0.08	0.04	0.00*	0.03
Entrance motivation			1	0.11*	0.10*	0.08	0.09*	0.08	0.04	-	0.02	0.08	0.03*
Learning Facility ¹				1	0.39*	0.35*	0.65*	0.29*	0.24*	0.19*	0.19*	0.33*	0.22*
Curriculum ¹					1	0.39*	0.70*	0.22*	0.21*	0.15*	0.15*	0.55*	0.08
Teaching & Learning ¹						1	0.65*	0.27*	0.23*	0.22*	0.13*	0.33*	0.00*
Academic Quality Scale ¹							1	0.30*	0.26*	0.22*	0.16*	0.36*	0.11*
Learner-Content Interaction ²								1	0.64*	0.58*	0.46*	0.64*	0.44*
Learner-Instructor Interaction ²									1	0.67*	0.48*	0.86*	0.46*
Learner-Learner Interaction ²										1	0.50*	0.90*	
Learner-Technology Interaction ²											1	0.64*	
General Satisfaction ²													1

Note. Displayed τ -Kendall, 1 - measuring with SUSS, 2 – measuring with SSS,

* - correlation is significant at the 0.05 level (2-tailed).

At the same time, the correlation analysis of student satisfaction with face-to-face and blended learning (table 7) revealed only one significant relationship (of course, in addition to the closely interconnected aspects of Academic Quality Scale). Thus, a weak but statistically significant relationship was found between Entrance motivation and the satisfaction with learning facility and the satisfaction with teaching & learning (Kendall rank correlation coefficient was 0.12 and 0.1 respectively). The motivation for entering a university was measured using the question of external or internal motives for enrollment: random choice (1 point); parental opinion (2 points); personal choice, but at the last moment (3 points); personal decision and long preparation for enrollment to the university (4 points).

Accordingly, individuals who have chosen the university on their own are now more satisfied with their learning.

Table 7. Correlation between various aspects of the students' satisfaction with face-to-face and blended learning and some demographic/biographic variables

	Gender	Entrance exams	Grades	Entrance motivation	Learning Facility	Curriculum	Teaching & Learning	Academic Quality Scale
Gender	1	0,06	0,20	0,11	0,02	0,03	0,04	0,02
Entrance exams		1	0,33	-0,05	-0,01	0,07	0,01	0,02
University Grades			1	0,02	-0,01	-0,02	-0,02	-0,03
Entrance motivation				1	0,12*	0,08	0,10*	0,09
Learning Facility ¹					1	0,58*	0,49*	0,72*
Curriculum ¹						1	0,58*	0,81*
Teaching & Learning ¹							1	0,75*
Academic Quality Scale ¹								1

Note. Displayed τ -Kendall, 1 - measuring with SUSS, * - correlation is significant at the 0.05 level (2-tailed).

The study did not reveal a statistically significant relationship between gender and student satisfaction. Similar results were obtained by Rodriguez, Ooms, & Montañez (2008), Hussain & Bhamani (2012b), Sorden & Munene (2013), and other researchers. However, a number of researchers have noted a more positive perception of e-learning by male students (Ong & Lai, 2006; Lu & Chiou, 2010).

Our study in this aspect corresponds to the overall picture. Thus, according to the review by Kay (2009), about 30% of studies revealed preferences for computers on the part of males learners, about 15% revealed preferences on the part of females learners, and the rest did not reveal a significant difference. In this regard, we consider it necessary to emphasize that in the 2010s the situation is changing and more research is revealing women's predisposition to online and blended learning (Fredericksen, Swan, Pelz, Pickett, & Shea, 1999), (Johnson, 2011; González-Gómez, Guardiola, Rodríguez, & Alonso, 2012)).

The results also did not reveal a relationship between age and satisfaction from all forms of learning. Similar results have been established, in particular by Rodriguez et al. (2008). Meanwhile, there are both results on higher satisfaction of older students (Osoian, Nistor, Zaharie, & Flueras, 2010), and younger ones (Fredericksen et al., 1999).

The study has a number of limitations: 1) the sample included mainly cadets of the first year of study; 2) the distance learning phase lasted only two months; 3) there is an abnormality in the distribution of some variables; 4) the use of nonparametric statistics is controversial due to the large sample.

It is advisable to focus the directions of subsequent studies on the research of the effectiveness of the proposed approach, its impact on students' academic performance. An interesting direction of the study is also the identification of the impact on satisfaction with online learning of the learners' level of computer literacy.

5. Conclusions

In general, in our opinion, blended learning undoubtedly wins in comparison with traditional approaches, since it is able to preserve all its positive aspects and expand them with a wide range of innovative technologies. The decisive advantage of a wide range of technologies and techniques is the ability to create an environment for self-directed learning instead of instructor-led learning. That's why we share the point of view of Horn & Staker (2015) that blended learning becomes a driver of student-centered learning.

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