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NETWORKING TOOLS IN VIRTUAL EXCHANGE FOR COOPERATION AT UNIVERSITIES IN BULGARIA AND UKRAINE

Abstract. Innovative information technologies and the rapid rate of information updates reveal the need for more effective two-way communication, facilitation of interaction and collaboration, information exchange and flexibility. The article presents a research on cooperation tools in the virtual exchange project between the Pereiaslav-Khmelnytskyi Hryhorii Skovoroda State Pedagogical University (Ukraine) and the Trakia University (Bulgaria). A brief description of a specialized course in virtual exchanges related to energy efficiency psychology for future entrepreneurs and industrial workers is presented. In addition to covering the subject matter, educational information is designed in such a way that it enables one to acquire and practice ICT skills, in particular, to use various collaboration tools allowing interaction between students and teachers and having implications for learning strategies. The article's goal is to test software tools that can be used for virtual exchange in higher education institutions at international level, evaluate their attractiveness to students, and determine whether the use of already familiar collaboration tools influences the general impression from virtual exchange. The experimental work involved 12 useful tools for cooperation in the information field. Leaders and outsiders were identified, that is, tools that participants in the virtual exchange preferred outside the exchange process and those that the participants never used. During each week of the virtual exchange course, new tools for teamwork were used. Leaders in terms of satisfaction with the process of virtual exchange were Skype, Zoom, Webex, Google G-suite, Workplace by Facebook, Cliqtalk, Padlet. The study provides a theoretical basis for informing all individuals interested in the virtual exchange about the relationship between specific tools for collaborative work in the process of virtual exchange and their influence on each other. The results will be taken into account for a more in-depth analysis of the tools functionality in the virtual exchange process. It was also important that absolutely new tools for virtual exchange could have a high assessment in terms of satisfaction with the process and its results. This suggests the motivation to learn, especially in the field of cooperation with the help of information technology, which is so appreciated by young people.

Keywords: collaboration tools; virtual exchange; IT skills.

1. INTRODUCTION

Learning and exchange of experience between students and teachers from different countries are important aspects in solving cultural, linguistic and psychological problems. Gaining international knowledge and experience, challenging and enlarging their intercultural competences, improving language proficiency are just a few advantages students have by taking part in such learning journey [1, p.91].

Globalization, increasing competition between educational institutions, emerging and new technologies, socioeconomic changes in the society call for a new scenario where the quality of education is no longer just one of the possible strategies, but a survival strategy. More and more countries invest in strategies to attract more international students. The quality of the educational process is addressed in three aspects: academic standards, societal value added and economic efficiency. It is dependent on the techniques and technologies applied in the training process, the quality of the academic staff, as well as the motivation and the capacity of the students. Educational systems are more than a formal structure and positioning of hierarchical roles, responsibilities and functions. Identification of educational institutions as open systems emphasizes their interdependence and interaction with the eco-system. This eco-system includes such factors as economic conditions, and in particular financial resources and access to them, the public role and positions of educational institutions, the labor market and the demand for skilled workers. To meet these requirements and limitations, higher education institutions rely on their input resources, which include information resources, administrative and academic staff, a legislative framework and financial resources, as well as sources of new ideas and projects. A key point in the education system model is the feedback between the inputs and the resulting final product – quality of education and research. This process allows for adaptation to changes in global trends and demand.

The problem statement. Studying in another country is a more and more frequent option for modern students [2, p.91]. Whichever way the flow of international student patterns runs, it is clear that there are financial, societal, economic and cultural benefits in encouraging students to study abroad [3]. However, only a small share of young people get a chance to participate. The general statistics signify that only 7.5% of the total EU student population – which is considered to be the most mobile part of the youth cohort – is mobile (amounting to more than 1.4 million students). Even if the EU benchmark for 2020 of 20% is to be achieved, this will still leave 80% of students with limited international, intercultural experiences as part of their university studies. International exchange opportunities for young workers, school pupils, and other individuals are also very limited due to a variety of financial, socio-economic and personal circumstances [4, p.21]. By using low-cost, high-impact technology, virtual exchange makes it possible for every young person to access high-quality international and cross-cultural education, and it enables deep and meaningful exchange where it is most needed.

Virtual exchanges can offer novel solutions to current issues and can tackle global challenges. Alongside physical exchanges, they may prove to be effective tools in fostering dialogue across cultures and promoting both formal and non-formal learning among youth.

Analysis of recent studies and publications. Notably, the practice of virtual exchanges is also known as Collaborative Online International Learning (COIL) [5, 6] and Globally Networked Learning (GNL) [7,8,9]. The term “collaborative online international learning” combines the four essential dimensions of virtual mobility: it is a collaborative exercise of teachers and students; it makes use of online technology and interaction; it has potential international dimensions; and it is integrated into the learning process [10].

In foreign language education it is more commonly known as Tele-collaboration and Online Intercultural Exchange (OIE) [11, 12, 13, 14] and is employed to foster intercultural dialogue, development of digital literacy as well as foreign language skills.

The article's goal is to test software tools that can be used for virtual exchange in higher education institutions at international level, evaluate their attractiveness to students, and determine whether the use of already familiar collaboration tools influences the general impression from virtual exchange.

2. THEORETICAL BACKGROUND

2.1. Virtual exchange

Virtual Exchanges function in a synergistic and complementary way with physical exchange tools. They can prepare, deepen, and extend physical exchanges, and, by reaching new populations and larger numbers, fuel new demand for physical exchange.

Virtual exchanges complement physical exchange tools by offering young people online access to some of the same benefits. They use the same technologies to build mutually affirming relationships and foster constructive and meaningful dialogue among youth. Employing a wide variety of platforms and educational methods, virtual exchanges teach participants 21st-century skills that prepare them to more effectively deal with difference and to collaborate and communicate across cultures, thereby enhancing global peace and prosperity.

Virtual Exchange is a practice, supported by research, that consists of sustained, technology-enabled, people-to-people education tools or activities in which constructive communication and interaction take place between geographically separated individuals or groups from different cultural backgrounds, with the support of educators or facilitators. Virtual Exchange distinguishes itself from other forms of online learning in several ways:

- the focus is primarily on people-to-people interaction and dialogue, whereas the primary focus in many e-learning tools is on content;
- the learning goals or outcomes include soft skills that are often not formally recognized, such as the development of intercultural awareness, digital literacy, group work, etc;
- it is primarily learner-led: following the philosophy of dialogue where participants are the main recipients and the main drivers of knowledge; learning through dialogue means that participants will be seeking mutual understanding and co-creating knowledge, based on their own experiences.

Finally, a key tenet of virtual exchange is that intercultural understanding and awareness are not automatic outcomes of contact between different groups/cultures, and virtual exchange tools explicitly address intercultural understanding and engaging with difference.

2.2. Collaboration tools

Cooperation is of great importance in the use of virtual exchanges. Collaboration is a social structure in which two or more people interact with each other and, in some circumstances, some types of interaction occur that have a positive effect [15, p. 21]. Cooperation as a process should cause interaction that manifests itself in the exchange of experience, the expression of students' views, the formation of beliefs, knowledge, skills, etc. Within this process, the information technologies have a huge impact on its effectiveness. A wide variety of initiatives in higher education have crystallized around the above three areas - from institutions that publish the materials they use in their own teaching (e.g. syllabi, lecture notes, reading lists etc.), to projects that support the creation, provision and sharing of open content through developing software, standards and licensing tools or building communities of use [16, p. 4].

Technology plays a key role especially in promoting interaction, delivering education and providing communication between individuals [17, p. 818]. Moreover, on-line

collaborative communication represents a practical method to transmit knowledge and experience from the teacher to students overcoming physical distance and isolation [18].

From a social constructivist point of view, learning is considered an active process in which people construct their knowledge by relating it to their previous experiences in real situations through interaction with the social environment. Thus, learning occurs as learners improve their knowledge through collaboration and information sharing in authentic contexts.

The following common features are part of social collaboration software:

User profiles – Give detailed information about each user

Connections – Help users connect with others

Activity streams – Contain discussions and other activities.

Spaces – Help users post content and share it with others.

Wikis – Users can access content through this feature.

Forums – Customers can post their opinions and comments, and reply to others' queries.

Documents – You can create and share documents.

Websites – Customer portals can be created for self-service.

Dashboards – Provide a quick glance at important data.

Calendars – Help to keep track of appointments and deadlines.

Tasks management – Helps you manage tasks and get them done on schedule.

Mobile apps – You can use them to access the system on your smartphone or tablet.

Since the curriculum did not contain a course in virtual exchange, it was introduced as an optional course in Pereiaslav-Khmelnyskyi Hryhorii Skovoroda State Pedagogical University¹ and Trakia University².

Course Information³

Exchange course materials:

1. MOOC video lecture on motivating pro-environmental behavior for future specialists in industrial business and entrepreneurship is shown at Trakia University.

2. One online session - students discuss the group assignment. Subsequently, it is defined in a specific online session.

3. Students will work together for online exchange and online sessions.

Task design. What kinds of tasks do you intend to implement? Briefly describe the objective and global content of the intended tasks.

In what way will your students' learning be enriched or enhanced by having them work on these tasks with international peers in an online environment?

What kinds of technologies do you intend to use? Do not think exclusively of synchronous voice and video-based conferencing (Skype, Hangouts, BB Collaborate, etc), but also of asynchronous text-based work (wikis, reflection blogs, writing assignments).

Exchange course materials. We will exchange materials on a specific topic that is covered in both courses, namely energy efficiency psychology for future entrepreneurs and industrial workers. Through these materials the students will get a concise overview of the psychological aspect of energy use (Groningen part) and the context of energy use. Through these materials (e.g. lecture recording, teacher's personal notes), the students will also learn the teachers' perspective on these topics, thereby indirectly experiencing the teaching from the partner university. The materials should be uploaded on the web portal so that students can access them at their own convenience.

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³ Instructors: Nataliia Rzhetskaya (has a digital badge that demonstrates the ability to organize and implement virtual exchange programs, resulting from the training under the Erasmus virtual exchange program), Darina Zaimova.

Group assignment: Writing a collective essay on “Implementing energy efficiency in my future professional activity”. This topic is close to students from both Bulgaria and Ukraine. Unfortunately, the curriculum for preparing students in both countries has not yet provided for a discipline on energy efficiency, energy conservation, etc. Therefore, considering a particular topic of the course, the teacher finds relevant material to the selected problems for virtual exchange. When writing a collective essay, it is planned that students will be able to use this as an example to identify important psychological and contextual factors that affect energy consumption. We hope that this assignment will stimulate students’ group discussions about their everyday energy behavior, thereby helping students to begin communication and collaboration with their peers in another country, and in this case even with other experiences. With the help of two online sessions (more, if necessary, plus further use of an online platform for sharing ideas), students will train their intercultural communication and collaboration skills.

Outline group assignment:

1. Identify three important contextual factors (for example, available technology, and energy price) that could affect differences in views on energy efficiency. Briefly explain the impact of each factor. Compare key contextual factors in Bulgaria and Ukraine (if necessary, discuss the contextual factors of other countries and cultures).

2. Identify three important individual factors (for example, values, norms, attitudes) that could influence differences of opinion on the problem of energy efficiency in the process of future professional activity. Briefly explain the influence of each factor. Compare the key individual factors in Bulgaria and Ukraine (if necessary, discuss the individual factors of other cultures).

3. If you had to develop an intervention in order to form a psychology of energy efficiency among university students, what kind of intervention would you choose? Think about what behavior (s) you are targeting (i.e., choosing behavior with high impact), how likely it is that the behavior can be changed, and contextual and individual factors that influence the behavior. Would you choose the same intervention in Bulgaria and Ukraine, and why?

Follow-up tasks. Ideally, the tasks could be reused for teaching purposes later, for example in subsequent course of the MA program Environmental Psychology in Groningen. For example, the students could use the reports on carbon footprint to do a small research project or pick one energy behavior and prepare a concrete intervention.

Competences and learning outcomes

The tasks are relevant for a number of current goals of the course Commodity Science, namely they:

- appraise the contribution of psychologists to promoting a sustainable society;
- identify individual, social and cultural factors affecting environmental behavior;
- apply psychological theories, methods and interventions to understand and manage environmental problems;
- identify which interventions can be implemented to manage environmental problems.

At the same time, the tasks are relevant for a number of current overarching goals of the “Business economics” course, namely:

- develop and apply theories to explain the interaction between humans and natural environment, and to explain the human dimension of environmental and energy problems;
- critically evaluate theories and state-of-the-art knowledge in Environmental Psychology;
- develop and evaluate theory-based interventions to change behavior and to reduce environmental and energy problems;
- communicate knowledge and research findings in a clear way to diverse audiences.

The tasks will contribute to students' development of international competences and collaboration and team working skills, which we consider highly valuable learning outcomes.

Integration and assessment. The tasks will deepen students' knowledge and understanding of the problem of energy use which is not yet taught as a separate discipline such as Ecology, but it is unconditionally important for future specialists from Bulgaria and Ukraine. The tasks will help students to envision how the knowledge that they gain in their courses applies to addressing concrete environmental and energy problems, including problems across different countries and cultures.

Beyond covering the subject content, the task was to be designed with the intention of providing opportunities for students to acquire and practice ICT skills, in particular applications and technologies allowing for engaging and connecting with others, as well as experiencing implications for learning strategies.

Key elements of the case study. Researchers have developed a specialized course that has been implemented as part of the relevant disciplines at both universities.

The course development was based on the following assumptions and ideas:

- attention should be focused on new information, and not on technical skills, which will allow the student not to feel constraints in the process of virtual exchange. Therefore, educational information should be as up-to-date as possible, accessible and cause motivation to learn;
- it is assumed that the tools for cooperation in the framework of virtual exchange should be easy to use and take little time to learn.

3. RESEARCH METHODS

The research was conducted during 2018 with a total of 102 students from the State Higher Educational Institution “Pereiaslav-Khmelnytskyi Hryhorii Skovoroda State Pedagogical University” and the Trakia University (Bulgaria). Second-year students majoring in “Vocational education. Commodity Science” participated in the experiment from Ukraine. Second-year students of the specialty “Business economics” took part in the experiment from the Trakia University.

Students were divided into 12 experimental groups (according to the choice of a leading tool for cooperation).

One of the questionnaires at the end of the virtual exchange procedure contained two types of questions:

1. Regarding the frequency of use of the proposed tools;
2. Satisfaction with the process of virtual exchange.

Methodology. This study is about students' perception of virtual exchange tools in a higher education setting, where the main focus is on educational goals, not learning tools. The case study is based on a number of research questions and baseline hypotheses and uses both quantitative and qualitative data collection methods. This article is only about the quantitative part of the work. The case study also relies on a theoretical basis related to learning theories and a connection with collaborative tools.

The case study was selected for three reasons. First, it provides a suitable context for research questions and research hypotheses. Secondly, it helps to find out if the results confirm the theoretical basis and existing research. Thirdly, it uses the methods of collecting both quantitative and qualitative data and their triangulation to achieve an adequate understanding of the students' perception of tools for virtual exchange. Also, this study is caused by the topical issue of the formation of digital literacy and IT skills in students of non-engineering specialties (according to Strategy for the development of higher education in Ukraine until 2020 and the National Educational Strategy of Bulgaria). We interviewed students and identified familiar and unfamiliar tools for interaction. The survey involved

students from both universities who planned to participate in a virtual exchange. A total of 100 students were interviewed (66 women, 44 men). The results are shown in Table 1.

Table 1

Distribution of opinions of participants of the virtual exchange regarding the frequency of using the proposed tools for cooperation

Tool	Every day (%)	Once a week (%)	Once a month (%)	Less than once a month (%)	Used only once (%)	Never used (%)
Skype	56,23	27,66	10,34	5,77	-	-
Zoom	57,55	21,33	10,06	11,06	-	-
webex	64,16	17,87	10,65	4,78	2,54	-
Ready Talk	2,08	4,98	4,96	61,62	15,82	10,54
RealtimeBoard	-	4,98	4,96	63,70	15,82	10,54
Google G-suite	-	36,87	24,52	14,36	-	24,25
Workplace by Facebook	-	-	1,03	2,07	68,32	28,58
Cliqtalk	12,15	18,96	17,44	15,47	17,84	18,14
OnStream Media	-	-	-	54,79	32,67	12,54
Discord	-	-	21,32	34,45	41,59	2,64
Padlet	-	-	-	64,31	20,64	15,05
Wrike	-	-	61,85	21,13	14,15	2,87

Data collection methods. After completing the virtual exchange, students were asked to take a survey using Google web forms. The survey used a five-point Likert scale as follows: I fully agree (SA), I agree (A); neither agree nor disagree (NAD); Disagree (D); and strongly disagree (SD). In addition, the “I do not know” category was added, since it can be expected that some students are not sure how to answer. The survey questionnaire reflects research questions.

Initially, the survey was conducted within 5 days after the end of the virtual exchange procedure in both universities.

The survey had the following characteristics:

- the respondents were not anonymous, therefore the gender, age and size of the group were known a priori;
- questions included feedback on satisfaction with tools for collaboration in the virtual exchange process and opinions on virtual sharing in general. Students were also asked to indicate how much they like working with digital tools and with which specifically.

4. THE RESULTS AND DISCUSSION

The work is focused on the quantitative results of the survey. Since we are looking for differences in the distribution of responses between groups, the results are presented in the form of tables of frequency distribution with comparisons of groups. In total, 100 students who took part in a virtual exchange participated in the survey. Preliminary results describe students' perceptions about collaborative process supported by the use of tools. So, according to the hypothesis of our research, the more familiar the tool is, the more satisfactory feedback on virtual exchange will be. During each week of the virtual exchange course, new tools for teamwork were used.

Outside the virtual exchange, **Skype, Zoom, and Webex were used the most frequently.** Three outsiders were represented by **Workplace by Facebook, Cliqtalk and Padlet.**

Post-test using the questionnaire shows the level of satisfaction with tools for cooperation in the process of virtual exchange. The results are shown in Table 2.

Table 2

Students' perceptions on the process of virtual exchange

Statement	Evaluation					
	Strongly agree (SA)	Agree (A)	Neither agree nor disagree	Disagree (D)	Strongly disagree(SA)	Don't know
Skype						
Opinion	96,77	2,87	0,36	0	0	0
Zoom						
Opinion	90,61	8,56	1,77	0	0	0
Webex						
Opinion	87,32	11,22	2,03	0	0	1,29
Ready Talk						
Opinion	51,40	33,42	12,25	0	0	2,93
RealtimeBoard						
Opinion	44,21	28,70	15,87	0	0	11,22
Google G-suite						
Opinion	94,19	3,25	2,56	0	0	0
Workplace by Facebook						
Opinion	98,30	1,20	0,50	0	0	0
Cligtalk						
Opinion	61,15	23,25	15,6	0	0	0
OnStream Media						
Opinion	68,30	30,00	0,50	0	0	1,20
Discord						
Opinion	38,70	38,56	12,29	0	0	10,45
Padlet						
Opinion	96,06	3,44	0,50	0	0	0
Wrike						
Opinion	55,34	44,16	0,50	0	0	0

The leaders in terms of satisfaction with the process of virtual exchange are **Skype, Zoom, Webex, Google G-suite, Workplace by Facebook, Cligtalk and Padlet.**

The more familiar the collaboration tool, the higher the satisfaction from the virtual process.

4. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

The case study allowed exploring research questions and hypotheses through questionnaires. The results were analyzed using the method of a statistical analysis based on the breakdown of the frequency of use.

Firstly, the results seem to confirm the hypothesis that the more often a tool for cooperation was used before the virtual exchange procedure, the higher was the satisfaction with the process and its results.

Secondly, the results show an interesting fact that the tool that had never been used also caused maximum satisfaction with the process of virtual exchange (Google G-suite and Workplace by Facebook).

Of course, the problems that students face are not limited solely to the technical features of the tools, because other factors could play an important role in how students used the tools, worked together and collaborated, such as course content, pedagogy, time management, familiarization with tools and their integration, necessary knowledge and skills, as well as institutional and administrative constraints.

It should be noted that these results are relevant only for the specific groups studied, since they are based on the students' individual experience. But they are very significant for shaping ideas about pedagogical strategies and give teachers the opportunity to learn that with new information, new type of work, new ways of interaction, you need to leave room for something checked and familiar so that students can feel comfortable.

As the next step, it will be possible to develop a pedagogical model that will help to understand how students perceive and use tools for cooperation in the process of virtual exchange to achieve the goals of education. The model will also provide a better understanding of the collaboration tools in terms of benefits, mode of operation, capabilities and limitations. In addition, the model will allow a more thorough assessment of the theoretical framework and its potential for supporting collaborative learning and practical communities in terms of active participation, group interaction and building common knowledge.

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МЕРЕЖНІ ІНСТРУМЕНТИ ВІРТУАЛЬНОГО ОБМІНУ ДЛЯ СПІВПРАЦІ В УНІВЕРСИТЕТАХ БОЛГАРІЇ ТА УКРАЇНИ

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Анотація. Інноваційні інформаційні технології та швидке оновлення інформації вимагають необхідності більш ефективної двосторонньої комунікації, співпраці, обміну та гнучкості. У статті представлено дослідження інструментів співробітництва у віртуальному обміні між Переяслав-Хмельницьким державним педагогічним університетом ім. Григорія Сковороди (Україна) та Тракійським університетом (Болгарія). Наведено короткий опис спеціалізованого курсу для віртуального обміну, пов'язаного з психологією енергоефективності для майбутніх підприємців та промислових працівників. Освітня інформація розроблена подана у такий спосіб, що дозволяє набувати нові навички та використовувати навички ІКТ, які дозволяють взаємодіяти з іншими людьми, а також мають вплив на стратегії навчання. Мета дослідження полягала у визначенні ефективних інструментів для співпраці, щоб забезпечити віртуальний обмін між студентами, та пошуку закономірностей щодо впливу вже знайомих інструментів на загальне враження від віртуального обміну. Експериментальна робота охоплювала дослідження 12 інструментів для співпраці в інформаційному полі в процесі віртуального обміну. Лідери та аутсайтери були ідентифіковані, тобто ті програми, яким учасники віртуального обміну віддають перевагу за межами процесу обміну, та ті, які учасники ніколи не використовували. Протягом кожного тижня курсу віртуального обміну використовувались нові інструменти для спільної роботи. Лідерами з точки зору задоволеності процесом віртуального обміну стали Skype, Zoom, Webex, Google G-Suite, Workplace by Facebook, Cliqtalk, Padlet. Дослідження дає теоретичну основу для інформування всіх осіб, зацікавлених у віртуальному обміні, про співвідношення між конкретними інструментами спільної роботи та їхнім впливом безпосередньо на задоволення процесом віртуального обміну. Результати будуть враховані для більш глибокого аналізу можливостей інструментів для співпраці в процесі віртуального обміну. Важливим було також те, що абсолютно нові інструменти для роботи в процесі віртуального обміну можуть сформувати високу оцінку задоволеності процесом та його результатами. Це свідчить про мотивацію до навчання, особливо у сфері співпраці за допомогою інформаційних технологій, які так цінує молодь.

Ключові слова: інструменти співпраці; віртуальний обмін; ІТ-навички.

СЕТЕВЫЕ ИНСТРУМЕНТЫ ВИРТУАЛЬНОГО ОБМЕНА ДЛЯ СОТРУДНИЧЕСТВА В УНИВЕРСИТЕТАХ БОЛГАРИИ И УКРАИНЫ

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Аннотация. Инновационные информационные технологии и быстрое обновление информации свидетельствуют о необходимости более эффективной двусторонней коммуникации, сотрудничества, обмена и гибкости. В статье представлено исследование инструментов сотрудничества в рамках виртуального обмена между Переяслав-Хмельницким государственным педагогическим университетом имени Григория Сковороды (Украина) и Тракийским университетом (Болгария). Приведено краткое описание специализированного курса для виртуального обмена, который касается психологии энергоэффективности для будущих предпринимателей и промышленных работников. Образовательная информация разработана таким образом, что она позволяет приобретать новые навыки и использовать навыки ИКТ, которые позволяют взаимодействовать с другими людьми, а также влияют на стратегии обучения. Цель исследования заключалась в определении эффективных инструментов для сотрудничества, чтобы обеспечить виртуальный обмен между студентами, и поиске закономерностей по влиянию уже знакомых инструментов на общее впечатление от виртуального обмена. Экспериментальная работа включала исследования 12 инструментов для сотрудничества в информационном поле в процессе виртуального обмена. Были идентифицированы лидеры и аутсайдеры, то есть те программы, которые участники виртуального обмена предпочитают за пределами процесса обмена, и те, которые участники никогда не использовали. В течение каждой недели курса виртуального обмена были использованы новые инструменты для совместной работы. Лидерами с точки зрения удовлетворенности процессом виртуального обмена стали Skype, Zoom, Webex, Google G-Suite, Workplace by Facebook, Cliqtalk, Padlet. Исследование дает теоретическую основу для информирования всех заинтересованных лиц в виртуальном обмене о соотношении между конкретными инструментами совместной работы и их влиянии непосредственно на удовлетворение процессом виртуального обмена. Результаты будут учтены для более глубокого анализа возможностей инструментов для сотрудничества в процессе виртуального обмена. Важным было и то, что совершенно новые инструменты для работы в процессе виртуального обмена могут сформировать высокую оценку удовлетворенности процессом и его результатами. Это говорит о мотивации к обучению, особенно в сфере сотрудничества с помощью информационных технологий, которые так ценит молодежь.

Ключевые слова: инструменты сотрудничества; виртуальный обмен; ИТ-навыки.



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