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# INVESTIGATING EFFECTIVENESS OF TEACHING FOREIGN STUDENTS WITH THE USE OF E-LEARNING TECHNOLOGIES (RUSSIAN EXPERIENCE)

## INVESTIGACIÓN DE LA EFICACIA DEL APRENDIZAJE DE ESTUDIANTES EXTRANJEROS MEDIANTE TECNOLOGÍAS DE EDUCACIÓN DIGITAL: UNA PERSPECTIVA DESDE LA (EXPERIENCIA RUSA

Morozova Ilona Gennadyevna[1]
E-mail: imorozova@ieml.ru
ORCID: https://orcid.org/0000-0002-7818-5573
[1]Kazan Innovative University named after V. G, Timiryasov, Russia.
*Corresponding author

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ABSTRACT

In the global learning environment, education using distance learning technologies has become more essential and increasingly popular. The realization of international e-learning projects is considered as a complex process which includes specific pedagogical, technological, organizational aspects. This study describes the designing an e-learning project (main stages), author's view at e-learning environment and its components, conditions for ensuring effective e-learning. The study queried 82 Malagasy students who were enrolled in an online course «Russian Language». The project was conducted at Kazan Innovative University named after V.G. Timiryasov with the support of Fund «Russian World» while the students were learning «at a distance» being in Madagascar and using the integrated system Moodle and Open Meetings in a special equipped classroom. The final results showed that the implementation of conditions mentioned above enhanced the effectiveness of e-learning projects and all the indicators of effectiveness (level of quality of knowledge, level of socio-cultural competence, level of intercultural competence, applying valuable skills and knowledge in study and professional activity). On the control stage of experiment the number of students with «***high level***» of knowledge increased by 10 %, those with **«*high*»** level of socio-cultural competence - by 15 %. The level of intercultural competence increased by 15 %. Students started to effectively use skills knowledge in their professional activity. The author proved the effectiveness of e-learning project.

Keywords:

E-learning, Foreign students, E-learning environment, E-learning project, Effectiveness of e-learning project.

RESUMEN

En el contexto global educativo, la formación mediante tecnologías de educación a distancia ha adquirido creciente relevancia y popularidad. La implementación de proyectos internacionales de educación digital constituye un proceso complejo que engloba aspectos pedagógicos, tecnológicos y organizacionales específicos. Este estudio describe el desarrollo de un proyecto de educación digital (etapas principales), la perspectiva del autor sobre el entorno virtual de aprendizaje y sus componentes, las condiciones para garantizar una educación digital efectiva. El estudio consultó a 82 estudiantes de Madagascar que estaban inscritos en el curso en línea «Idioma Ruso», implementado por la Universidad Innovadora de Kazán a nombre de V.G. Timiryásov con apoyo de la Fundación «Mundo Ruso». Los estudiantes realizaron su formación a distancia desde Madagascar, utilizando un sistema integrado Moodle y reuniones abierta en un aula virtual especializada. Los resultados finales mostraron que la implementación de las condiciones mencionadas anteriormente mejoró la efectividad de los proyectos de aprendizaje electrónico y todos los indicadores de efectividad (nivel de calidad del conocimiento, nivel de competencia sociocultural, nivel de competencia intercultural, aplicación de habilidades y conocimientos valiosos en el estudio y la actividad profesional). En la etapa de control del experimento, el número de estudiantes con «alto nivel» de conocimiento aumentó en un 10%, aquellos con «alto» nivel de competencia sociocultural, en un 15 %. El nivel

de competencia intercultural aumentó en un 15%. Los estudiantes comenzaron a utilizar eficazmente el conocimiento de habilidades en su actividad profesional. El autor demostró la efectividad del proyecto de educación digital.

Palabras clave:

Educación digital, Estudiantes extranjeros, Entorno virtual de aprendizaje (EVA), Proyecto de educación digital, Eficacia del proyecto de educación digital.

## INTRODUCTION

One of the modern tendencies in higher education is teaching foreign students using online technologies. This modern current trend in education strengthens social and cultural ties with educational institutions all over the world, forms world online learning community and builds intercultural dialogue.

Teaching foreign students using online technologies has long been considered to be complicated process because of several circumstances: language barriers, low level of intercultural competence, low self-confidence in using ICT. The problems mentioned above need a systematic approach to teaching foreign students using online technologies. Considering the growth of distance learning technologies, the most important concern for the educational institutions is how to organize effective online educational projects. The online format of teaching foreign students is not an easy process also because of different ethnic background, social and cultural experiences, individual students' abilities, as well as their own culture's norms and values. In order to realize an effective international e-learning project, it is necessary to identify which aspects and conditions promote effective learning among international students using online learning technologies.

### Theoretical frameworks

### E-learning opportunities for foreign students

The key components of this study are: «online learning», «foreign student», «project approach to teaching foreign students with the use of distance learning technologies».

Distance learning has been a challenging issue for decades due to the specific view of our community. Distance Learning is considered as the teacher - student interaction at a distance. This process is realized with the use of special Internet-technologies (Akhmetova et al., 2013). Distance learning also means purposeful and methodically organized management of educational and cognitive activities.

The use of online learning environments for education and training has significantly enhanced the importance of learning management systems, particularly amid the COVID-19 pandemic (Huang et al., 2020; Kwon et al., 2021; Raza et al., 2020; Turnbull, 2021). They provide a highly inclusive environment for learning, including online collaborative learning groups, discussion activities, and frameworks that encourage learners to connect with content (Barut, 2023).

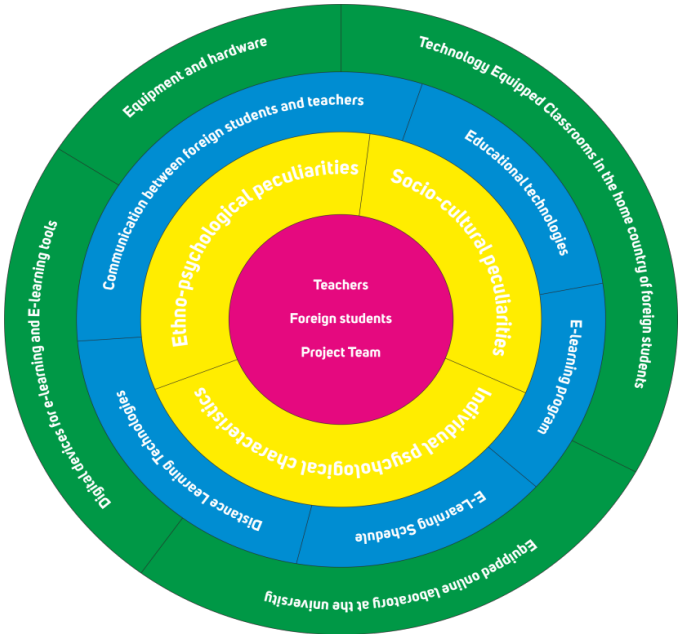
Moodle can be considered as a great tool for tutors and it helps to make teaching more effective. The implementation of ICT with e-learning through Moodle promotes effectiveness of the learning process. Integration of Moodle and Open Meetings in a learning management system is a successful option for realizing online educational projects between geographically dispersed students and teachers. The use of Adobe Connect and Open Meetings in distance education does not only provide a way for unlimited access to specific information but also makes distance learning process independent of time and place.

### E-learning environment

The environment issues related to educational contexts have been studied in different researches. Mutlu &Yıldırım (2019) investigated English as a Foreign Language (EFL) classroom learning. The learning environment is also defined as the set of three factors (The Glossary of Education Reform, 2013; Bates, 2015; Andersone, 2017): diversified physical space, context for what the pupil is learning, culture of what and how the pupil is learning (cooperation, relations, attitude).

The following structure of e-learning environment where foreign students are engaged into was proposed. It includes the following components: the core, personal component, communicative component, context and technical component (Figure 1).

Fig. 1: E-learning environment



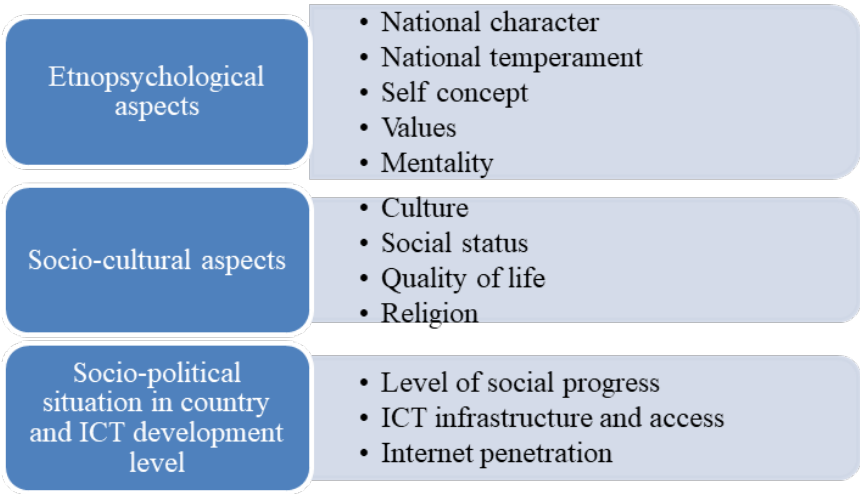

Source: Own elaboration

**Conditions for ensuring effective e-learning**

Five necessary conditions for ensuring e-learning project success were proposed.

*First condition.* Socio-cultural and ethno-psychological peculiarities of foreign students should be taken into consideration during building the learning environment (Figure 2). For example, when choosing the e-learning content it is necessary to include cultural components in it, carry out a comparative analysis of the social, economic, political situation in different countries, including the country of foreign students' residence. The special module in e-learning platform can include information about traditions and customs of foreign students, their values and worldview.

Fig. 2: Socio-cultural and ethno-psychological peculiarities of foreign students




Source: Own elaboration



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Second condition. The second condition is enhancing the intercultural and infocommunication competence of teachers and managers involved in e-learning project. In order to enhance the intercultural competence of the project participants, a 16-hours training seminar «Let's learn another culture» was developed. The most important is a practical part which is presented as a simulation game. Teachers, IT specialists and a Project Manager participate in a realistic simulation through videoconferencing. This technology is based on the «intercultural sensitivity» technique, also known as «cultural assimilator» which appeared in the 1980s thanks to the research of Brislin et al. (1986).

Another important aspect is enhancing infocommunicative competence. The short 36 hours course «ICT in teaching foreign students» was developed for Malagasy students. The teachers can discover E-learning platform with an overview of Moodle elements/ components and Open Meetings videoconferencing system.

Third condition. The key condition that influences effective learning process is the psycho-pedagogical and infocommunicative (IT) readiness of foreign students. There is a systematic literature review of digital readiness models. Digital readiness can be considered as the readiness of individuals in adopting and utilizing digital technology to acquire the maximum benefits from those technologies (Nasution et al, 2018). In order to form IT-readiness, the author developed a six-day training for foreign students «Distance is not an obstacle. Learning using the Moodle and Open Meetings system».

There are different factors which influence the readiness levels of students such as personal (motivation levels and understanding of the expected standard and quality of work), family (support of family) and social issues (poor education system, low level of life, crisis situation in country). The students' perception of motivating factors of online class discussions are also important (Lee & Martin, 2017).

Morozova (2014) argues that foreign students readiness includes the motivation level, personal attitude for online learning and readiness for online intercultural communication. The students' readiness can be formed by the following ways: using pedagogical technologies based on collaboration learning, technology supported collaborative learning tools and techniques (Dahri et al., 2019).

Fourth condition. Another important condition is implementing an effective e-learning strategy and tactical plans. Manager of Project can develop a special Project Plan which includes goal, objectives, list of events, project participants responsible for the implementation of these actions. Technical difficulties, academic problems can occur. In this case, Situational Project Management plays an important role when IT specialists and managers, teachers can react in a timely manner to different IT challenges.

Fifth condition. The necessity to develop the facilitation skills of teachers who work using distance learning technologies is another important condition for the quality assurance of e-learning. The practice shows that foreign students often face psychological and language barriers when they study using online technologies. Maybe the reason is imperfect speech: stress and anxiety with online learning (Ajmal & Ahmad, 2019), students' language and culture barriers (Lutfiana et al., 2020); lack of motivation and other barriers to e-learning. Foreign students tend to be motivated when they feel support from their e-learning tutors and teachers. Therefore, facilitation in e-learning plays an important role. Facilitation is a technique used by teachers which promotes positive result during e-learning process. In order to develop facilitation skills a special course was developed at Kazan Innovative University (Kazan Russia). The course includes the following sections: ICT skills, psychological-pedagogical competence, e-learning and students' motivation.

## MATERIALS AND METHODS

A study has been carried out to investigate the effectiveness of e-learning process. A cross-sectional study with the Malagasy students who were enrolled in e-learning course «Russian Language» was conducted. The project was conducted at Kazan Innovative University named after V.G. Timiryasov by teachers and IT-specialists while the students were studying in their home country Madagascar using the integrated system Moodle and Open Meetings in a special classroom equipped with computers, audio and video-devices, Internet access. The 520 – hours course program included 3 times a week video lectures for Malagasy students using Open Meetings videoconference system, three times a week students did assignments and tasks in Moodle. Malagasy students had an opportunity to do several tasks on their own flexible schedule.

The Russian course included 6 modules: Active Processes in the Vocabulary and Word Formation of the Russian Language, Russian Grammar, Practical Stylistics, Teaching Russian Language as a Foreign Language, Translation issues, Individual lessons with Malagasy curator. The educational course in Moodle was divided into sections. This course included rich audio and video-files, Power Point presentations about culture, history and traditions of Russia and Tatarstan Republic. Forums were used as powerful intercultural communication tool within a Moodle course.

A total of 82 students participated in this study. Demographic data on the participants is presented in the following table (Table 1)

Table 1: Demographic of course participants

| Category | Variable | N | Percent |
|---|---|---|---|
| Gender | Male | 56 | 69.0 |
| | Female | 26 | 31.0 |
| Age | 18-21 years | 35 | 43.0 |
| | 21-25 years | 15 | 18.0 |
| | 26-35 years | 10 | 18.0 |
| | 35-45 years | 10 | 18.0 |
| | 45years or older | 12 | 55.0 |
| Race/ Ethnicity | Malagasy | 68 | 83.0 |
| | Mixed | 22 | 17.0 |
| Marital status | Married | 32 | 39.0 |
| | Not married | 50 | 61.0 |
| Occupation | Student | 52 | 63.0 |
| | Teaching | 30 | 37.0 |
| Total | | 82 | 100.0 |

Source: Own elaboration

**Instrumentation**

In order to define the effectiveness of the e-learning project the following indicators were used: level of quality of knowledge, level of socio-cultural competence, level of intercultural competence, applying valuable skills, experience and knowledge in study and professional activity . These indicators were assessed on a four point scale (high, average, below average, low). We divided Malagasy students into two groups: control and experimental. The conditions for ensuring the effective e-learning into the educational process of experimental group were implemented. The level of intercultural competence was measured with the use of Bogardus social distance scale. Intercultural Development Inventory (IDI) which is a 50 - item questionnaire was used. It included questions that allowed Malagasy students to describe their intercultural experiences, the challenges they faced navigating cultural differences between Madagascar and Russia, intercultural incidents they faced around cultural differences (Hammer et al., 2003). The individual results of the IDI were placed in the following categories: Denial, Polarization (reversal or defense), Minimization, Acceptance, and Adaptation.

Applying knowledge, abilities and skills in study and professional activity was measured by the method of expert assessment. The experts can access students from different aspects: professional, academic, research. Respondents answered 12 survey questionnaire items. Each item had a 4 point scale ranging from 1 = never apply knowledge and skills in study and professional activity to 4 = strongly apply knowledge and skills in study and professional activity.

The level of quality of knowledge was assessed during tests, learner's performance and outcomes during video-lectures, seminars, during midterm and final exams. The special protocol was used in order to track the students' progress. Assessment results were evaluated on a 100-point scale: high (100-86), average (85-71), below average (70-60), low (59 and less).

*Content validity*

To provide content validity, the author used the core statements of intercultural dialogue by Bakhtin (1979). The survey was reviewed by 4 professors in the field of pedagogy, e-learning, multicultural education. The following methods were used: inductive and deductive research approaches; empirical research methods (pedagogical experiment, observation and monitoring, diagnostics, questionnaires, students' self-assessment); forecasting methods and projection.

**Exploratory factor analysis**

In order to examine whether inter-indicator correlation exists among the survey questionnaire indicators, The Wilcoxon signed-rank test with 82 Malagasy students' survey responses was used. Spearman's rank-order correlation in order to measure the strength and direction of association that existed between two variables on ascertaining and control

stages of experiment was applied. All the obtaining P-values (Table 2) were statistically significant. Therefore, it proved the hypothesis of study.

Table 2: Statistical differences between patterns

| Students' groups | Level of quality of knowledge | Level of socio-cultural competence | Level of intercultural competence | Applying valuable skills, experience and knowledge in study and professional activity |
|---|---|---|---|---|
| Forming stage of experiment | | | | |
| Experimental group | | | | |
| Wilcoxon signed-rank test | P-value = 32 | P-value = 155 | P-value = 53,5 | Spearman's rank correlation coefficient = 0,9 |
| Control stage of experiment | | | | |
| Experimental group | | | | |
| Wilcoxon signed-rank test | P-value = 34, 5 | P-value = 90 | P-value = 130, 5 | Spearman's rank correlation coefficient = 0,8 |

Source: Own elaboration

The author conducted the correlation research in order to figure out if the following indicators are related. The strong correlation exists between the level of intercultural competence and applying valuable skills, experience and knowledge in study and professional activity (Table 3).

Table 3: Correlation research

| Indicators | Level of quality of knowledge | Level of socio-cultural competence | Level of intercultural competence | Applying valuable skills, experience and knowledge in professional activity |
|---|---|---|---|---|
| Level of quality of knowledge | 1 | | | |
| Level of socio-cultural competence | 0,2 | 1 | | |
| Level of intercultural competence | 0,2 | 0,3 | 1 | |
| Applying valuable skills, experience and knowledge in study and professional activity | 0,3 | 0,9 | 0,7 | 1 |

Source: Own elaboration

**Data collection and Analysis Procedure**

The survey was administered via interviews, questionnaires and surveys using Google Forms, observations and Focus-groups.

**Results**

**The level of tolerance**

Table 4 present the participants' level of tolerance to Russian teachers using social distance scale (ascertaing stage of experiment).

Table 4: Social distance scale

| Nationality | Social distance indicator |
|---|---|
| Malagasians | 3, 7 |

Source: Own elaboration

The obtained indicator 3,7 can be explained by the existing negative stereotypes about Africa, mentality, culture of African peoples. The respondents associated Madagascar region with poverty, disease, high crime, low culture, low literacy.

Table 5 presents the indicators obtained on the ascertaining stage of experiment among experimental and control group of students.

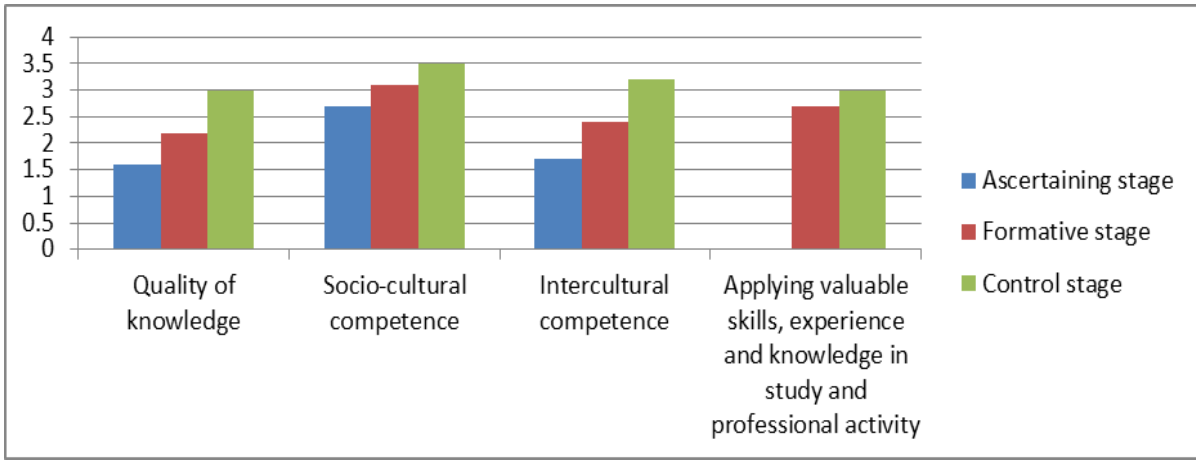
Table 5: The results of the study on the on the ascertaining stage of experiment

| | Indicators | | | |
|---|---|---|---|---|
| Groups | Level of quality of knowledge | Level of socio-cultural competence | Level of intercultural competence | Level of applying valuable skills, experience and knowledge in study and professional activity |
| Experimental group (41 students) | 10 % - «average»; 56 % - «below average»; 34 % - low» | 20 % - «high»; 44 % - «average»; 34 % - «below average»; 2 % - «low» | 2 % - «high»; 30 % - «average»; 66 % - «below average»; 2 % - «low» | N/A |
| Control group (41 students) | 12 % - «average»; 51 % - «below average»; 37 % - «low» | 12 % - «high»; 59 % - «average»; 27 % -«below average»; 2 % - «low» | 4,% - «high»; 32 % - «average»; 59 % - «below average»; 5 % - «low» | N/A |

Source: Own elaboration

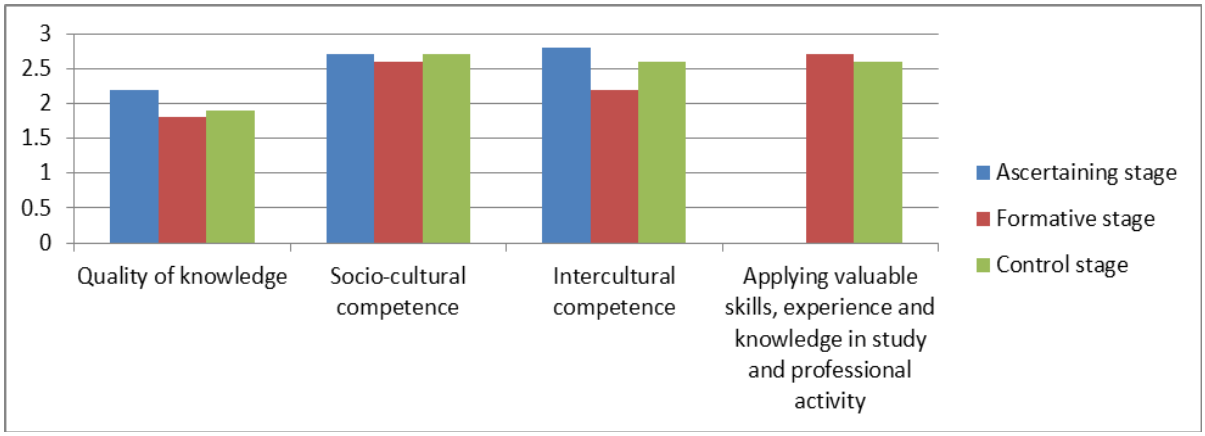
From Figure 3, figure 4 the dynamics of indicators on three stages of experiment: ascertaining stage, formative stage and control stage (experimental group) can be seen.

Fig. 3: The dynamics of indicators on three stages of experiment: ascertaining stage, formative stage and control stage (experimental group)




Source: Own elaboration

Fig. 4: The dynamics of indicators on three stages of experiment: ascertaining stage, formative stage and control stage (control group).




Source: Own elaboration

It can be noticed that the dynamics of indicators on different stages of experiment in control group of students was not significant in comparison with the dynamics in experimental group where the conditions for effective e-learning were implemented.

## RESULTS AND DISCUSSION

### Discussion

### The level of quality of knowledge

On the accelerating stage of experiment, it was revealed that 10 % of Malagasy students (experimental group) had «average level» of knowledge, 56 % - «below average» and 34 % - «low level». This level difference can be explained by different professional skills, experience in teaching Russian language. Taking into consideration these factors, the first and forth conditions for ensuring the effectiveness for e-learning were implemented into the educational process: the educational process was organized in accordance with the individual possibilities and ethno-psychological characteristics of foreign students. On the forming stage of experiment the author revealed that the number of Malagasy students who had «high level» of knowledge increased by 2 %; those who had «average level » - by 32 %. On the control stage of experiment the number of students with «high level» of knowledge increased by 10 %, those with «average level» - by 7 %. The number of students with «low level» of knowledge decreased by 14 %.

### The level of socio-cultural competence

On the accelerating stage of experiment 20 % of Malagasy students (experimental group) had «high level» of sociocultural competence, 44 % - « average level» and 34 % - «low average» level, 2 % - «low level». To promote the students' socio-cultural competence the additional version of Russian language course which included audio-, videomaterial devoted to Russian culture, Russian history and art, traditions and worldview was developed.

On the forming stage of experiment number of Malagasy students with «high level» of sociocultural competence increased by 21 %, the number of those who had «low average» decreased by 19 % . The change in IDI (Intercultural Development Inventory) score from forming stage of experiment to the control stage was the following. Approximately 3 % of Malagasy students fell within the «denial» category, 12% fell in the «polarization», 44% – in «acceptance», 36 % – «minimization». Control stage: number of Malagasy students with «adaptation», increased by 12 % . On the control stage of experiment number of Malagasy students with «high level» of sociocultural competence increased by 15 %. In the end participants showed a high knowledge of Russian culture and traditions, the desire to achieve mutual understanding with other cultures, the learn the sociocultural world of the target-language.

### The level of intercultural competence

On the accelerating stage of experiment, we found that 2 % of Malagasy students (experimental group) had «high level» of intercultural competence, 30 % - « average» level and 66 % - «low average» level, 2 % - «low» level. In order to enhance the intercultural competence, the special topic section «Culture in conversation» was added to the Russian Language Course in Moodle. Students studied sociocultural specifics of conversation: listening behavior, verbal and non-verbal specifics of communication. In order to improve communicative skills, they learned various forms of response in Russian conversational interaction. On the forming stage of experiment number of Malagasy students with «high level» of intercultural competence increased by 15 % . On the control stage of experiment this number also increased by 15 %.

### Level of applying valuable skills, experience and knowledge in study and professional activity

On the forming stage of experiment, we found that 34 % of Malagasy students had «high level» of applying valuable skills, experience and knowledge in study and professional activity, 27 %– «low average», 39 % – «average level». To enhance this level, Russian language teachers developed online practice-oriented lessons in Moodle. Such kind of practice-oriented training can be considered as an effective mechanism for development of students' professional potential. The change on the control stage of experiment was the following: number of Malagasy students with «high level» increased by 5 %, while the number of those who had «low average» level decreased by 17 %.

### Limitations and future research

This study focuses on teaching students from French-speaking country in Africa (Madagascar) region using integrated system Moodle and Open Meetings, but these results can't be applied to students from all countries. Students from different regions have their own ethno-psychological characteristics, ICT-literacy level, opportunities and possibilities. Future research could project different models for teaching students from English-speaking countries in Africa, from Asia, Europe. This study can be applied to different regions with their cultural specifics.

Additional variable for future research includes the necessity to measure not only the level of intercultural and sociocultural competence among foreign students, but also the level of ICT-competence. The research could study the digitalization in a culturally inclusive environment (Akhmetova et al, 2020).

## CONCLUSIONS

Teaching international students has been considered as an important and relevant issue. Using distance learning technologies allows organizing interesting and unique e-learning projects. However, there are many factors which should be considered during the e-learning process: teachers' and students' ICT competence, students' cultural and social experiences, technical conditions in the country of foreign students' residence.

5 conditions for ensuring effective e-learning were implemented in the international e-project «Russian Language» for Malagasy students realized on Moodle platform. The educational process was organized in accordance with the individual possibilities and ethno-psychological characteristics of Malagasy students. To promote the sociocultural competence of students the additional version of Russian language course which included culture studies block was included. The special topic section «Culture in conversation» was added to the Russian Language Course in Moodle in order to enhance the intercultural competence. To develop teachers' facilitation skills, we developed a special course «Facilitation in e-learning». On the control stage of experiment, we observed positive dynamics in all of the key indicators. In conclusion, this study proved the effectiveness of the conditions for ensuring e-learning project success.

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