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A Model for Assessing the Qquality of a Distance Education Programme in an Online Environment: China's Experience

Weijuan Li
Yellow River Conservancy Technical Institute, Dean's office

Abstract

The COVID-19 pandemic has significantly altered the course of the educational process around the world. The digitalisation of learning through distance learning has become the key to ensuring the quality of education. The study aims to develop a model for continuous assessment of the quality of teaching distance education programmes in an online environment. The main components of the model, two variables, 14 dimensions, and 75 indicators are identified. The validity was assessed by 22 experts from the USA, China, Chile, Portugal, the Netherlands, Poland, and Spain. The research is based on a bibliographic analysis of standards, models and guidelines which formulate principles and methods created by academic researchers and governments in the USA, Latin America and European countries for evaluating distance learning programmes. Experts rated the proposed measurements as clear, important and appropriate for evaluating distance education programmes. Indicators and measurement indicators were assessed by experts as relevant for evaluating distance learning programmes. The main study result is the developed quality assessment model for distance learning programmes for universities. The final model included two main variables, 14 measures, and 75 indicators. The model received content in the form of measurements and corresponding indicators. Among the main features of the proposed model is the possibility of a complete assessment of the quality of teaching within the curriculum in order to subsequently take steps to improve it. The research findings may be of interest to educational researchers, educators, university administrators, distance course coordinators and training programmes.

Keywords: *distance learning; learning programme quality; online learning environment; quality of teaching; quality of training.*

Introduction

The digital transformation of the education system has led to the formation of a renewed teaching and learning ecosystem called e-learning. These educational changes have become even more urgent in the wake of the COVID-19 pandemic, which has led to massive classroom closures across countries, forcing 1.5 billion students and 63 million faculty members (The World Bank, 2020; UNESCO, 2020) to change the way they approach learning and teaching. The e-learning market has received a boost that will allow it to continue to grow rapidly. According to Duffin (2020), the worldwide distance learning market will be valued at over $243 billion in 2022. Under the new conditions, sustainability in distance learning is becoming an urgent problem as a property of adapting to changes with the required efficiency and quality (Stansfield et al., 2009). The increasing percentage of students receiving education through participation in e-learning environments makes it urgent to ensure high-quality distance education (Valverde-Berrocoso et al., 2020). The quality of educational activities from the perspective of the future is critical to creating a suitable environment that provides students with the necessary educational services in terms of content, accessibility, speed, flexibility, timeliness, etc., so that not only the process but also the results reflect quality standards (Misuta & Pribilovab, 2015).

In a research environment and among practitioners, there is debate about the possibility of evaluating learning and teaching in an electronic environment using methods applicable to a traditional educational programme (Chmielewski, 2013; Veytia-Bucheli & Chao González, 2013). It has been established that today there is no generally accepted approach that regulates the components required for inclusion in distance learning programmes or their assessment (Rushby & Surry, 2016). This can be explained by the uniqueness of each curriculum – its content, structure and components depend on the resources available to a university, teaching goals, teacher's approach, etc.

To achieve the goal of improving the quality of distance education, it must be defined and measured. However, the distance education system in China has emerged recently, so there are still no quality standards comparable to those developed by US organisations and accreditation agencies in Europe. There is no regional accreditation agency or an organisation tasked with coordinating and developing overarching quality criteria. Every Chinese educational institution is experimenting and setting quality criteria independently.

The results demonstrate significant differences in the quality of these distance learning programmes. To speed up the development process of quality standards, it is necessary to adopt the best practices of other countries with more experience in this area. This is confirmed by government decisions: in the National Education Plan 2020, the Chinese government called on higher education institutions to improve the quality of work and strengthen ties with the international academic community (MOE, 2010).

An important aspect of the study of online learning is a system of student assessment with objectivity and mobility in mind. On the one hand, the use of interactive platforms allows educators to carry out rapid and automatic assessments of student work, which greatly simplifies the process of tracking the academic success of the subject (Setiawan, 2020). However, on the other hand, distance learning establishes many barriers related to the assessment of student work. Swiss researchers identify the main ones: the lack of digital competence of teachers, the representativeness of feedback from a teacher to a student, and the decrease in the objectivity of assessment in distance learning (Gurajena et al., 2021).

The purpose of the study is to develop a model for assessing the quality of educational programmes in a distance learning environment based on a bibliographic analysis of world standards, guidelines and models, which formulate the principles and methods for evaluating distance learning programmes.

Assessment of the quality of educational programmes in the online learning environment

Technology-supported distance learning in an electronic environment is usually characterised as the application of knowledge, information and educational technologies to connect people both with each other and with educational resources for educational purposes (Beketova et al., 2020; Nuryyev et al., 2020). With the rapid growth of e-learning, stakeholders are concerned that higher education institutions may provide users of programmes with greater access but lower quality (O'Brien, 2012). Quality was assessed based on the quality of the courses and predetermined learning outcomes. This approach has changed in recent years (Valverde-Berrocoso et al., 2020) when process-oriented approaches began to prevail.

The curriculum standard plays a critical role in assessing the quality of teaching and the effectiveness of student learning. Curriculum standards stipulate the goal that students must achieve after completing their studies within a specified period. A training programme implemented in an electronic educational environment is a document describing actions designed for a certain time and aimed to achieve educational goals. It includes a set of components necessary for teaching an academic discipline in an electronic format (Jung et al., 2011). Such a programme is implemented using information and communication technologies and remote support of teachers (Marciniak, 2016). Assessment of the curriculum as a whole is understood as the systematic collection of information about its quality, structure, basic elements, and degree of development (Chmielewski, 2013). Assessment of the quality of the curriculum of an academic discipline proposed by a teacher is defined as an assessment of all its elements (Marciniak, 2016).

Most researchers hold the view that a distance learning discipline programme should include student profiles, the thematic content of a course, learning strategy, characteristics of educational technologies and educational activities, sources of

information and an approach to assessing the learning process (Barnard & Echols, 2014; Rushby & Surry, 2016). Continuous evaluation of a programme enables constant monitoring of information on the progress of its implementation. Subsequently, the learning and teaching programme can be improved by receiving feedback. It is proposed to evaluate a training programme in several stages (Esfijani, 2015; Lockee et al., 2010). Initial stage – the evaluation of a programme is carried out even before its launch in order to establish the degree of readiness and minimise the risk of disruption of the learning process. Process stage – the potential effectiveness of a programme is assessed and opportunities for its improvement are determined. Final stage – the achievements of a curriculum are assessed and the effect and satisfaction of students are measured.

The characteristics of a quality distance learning programme include:
1) a clear statement of educational goals;
2) maintaining institutional commitment to student support;
3) engaging in a collaborative discovery process; and
4) improving the teaching and learning environment (Parker, 2008).

In practice, however, the importance of quality for distance education is a very complex issue. It should cover all aspects of online teaching and learning, including planning, teachers, students, technology, teaching and learning, and assessment (Dai, 2014).

Research of the world practice of assessing the quality of distance learning programmes in an electronic environment

The specificity of teaching and learning in an electronic environment requires the development of a series of actions to develop and improve quality, as well as the implementation of governance principles that ensure that such actions lead to quality results. Standards and models for ensuring the quality of distance education are aimed at solving such problems. Some standards and models have received not only national but also international recognition and can be used for implementation in the educational practice of China.

For example, the United States has developed many quality standards for online education to help educational institutions plan and evaluate online programmes. For example, the Commission on Higher Education of the New England Association of Schools and Colleges (NEASC) has proposed a set of guidelines for assessing the quality of online programmes (NECHE, 2009), which presents eight categories with guidelines that schools can use to measure the quality of online programmes. As a well-known promoter of online education in the United States, the Sloan Consortium (Sloan-C) has also proposed a five-tier structure that includes five core components of quality in online education, namely, learning performance, scale, access, teacher satisfaction, and student satisfaction (Moore, 2011). The US Online Learning Consortium has developed the Quality Distance Education Model (OLC, 2002), which aims to set goals for online education and measure their progress. It is proposed to evaluate five components of the programme quality: the effectiveness of training, the satisfaction of teachers, student satisfaction, scale, and availability. The Caribbean Institute for

Quality Online Higher Education has developed a Self-Assessment Guide for Distance Bachelor's Programmes (CALED, 2010), offering assessment of technology, learning, instructional design, student information, and services. In 1995, the Western Cooperative for Educational Telecommunications (WCET) developed a draft quality standard for online education called Best Practices for Electronic Diploma and Certificate Programmes. The guide has been expanded into five categories by adding faculty and student support (WCET, 2001). Consequently, the updated WCET guidelines have become one of the most cited quality standards in online education. The European Foundation for Management Development has proposed the Advanced Technology Learning Accreditation Programme (EFMD, 2006), which provides an opportunity to evaluate a distance education programme based on its profile, pedagogy, economics, technology, organisation and culture. In Spain, the Agency for Quality of the University System of Catalonia has developed a model for evaluating online higher education programmes (AQU, 2007), which includes five parameters: the strategic position of the degree; training programme (educational profile); instructional design (teaching methodology, teaching organisation, leadership system and interpersonal communication systems); performance assessment and results (academic, professional and personal). Table 1 summarises some models for assessing the quality of distance education.

Table 1
Generalisation of models and approaches to assessing the quality of distance learning

Model	Specifications	Main components
E-learning maturity model	Provides insight into e-learning opportunities and helps assess its quality	Training Development Support Assessment Organisation
Model CALED (the Latin American and Caribbean Institute for Quality in Distance Education)	Assesses the strengths and weaknesses of distance learning programmes and determines the parameters of the main indicators	Pedagogy Technologies Learning Assessment Learning development
Comprehensive Approach to Programme Evaluation in Open and Distributed Learning (CAPEODL)	Critical review of e-learning products and services by evaluating all aspects of educational programmes	Pedagogy Technologies Assessment Control Resources and support Ethics Institutions
Conceptual Model for Measuring the Quality of E-Learning Using Knowledge Sharing Indicators	Assessment of the knowledge exchange process through online education programmes using two groups of indicators: indicators for measuring the quality of e-learning in relation to knowledge exchange; indicators that directly affect the e-learning process	Individual indicators Organisational Indicators Technical Indicators

Model	Specifications	Main components
Quality assessment approach US Excellence EADTU (the European Association of Distance Teaching Universities)	Focused on a generalised quantitative and qualitative assessment of distance learning	Availability Interactivity Personalisation Participation Assessment
PDPP Model (Planning, Evaluation, Development, Process Evaluation and Product Evaluation)	Based on the CIPP (Context Evaluation, Input Evaluation, Process Evaluation, Product Evaluation) evaluation model and the characteristics of online programmes. It allows one to evaluate both the results and the process of learning and development itself	Planning assessment Assessment of the development context Assessment of the learning process Product evaluation
Conceptual framework for the quality of e-learning	Leads in the development, implementation, evaluation and internalisation of e-learning in higher education	Availability Flexibility Transparency Interactivity Personalisation Participation Performance
Model for assessing the quality of online education	Offers several parameters and criteria for assessing the quality of education in order to improve it continuously	Professional education Institutional and administrative management Support for vocational training
Model and index for assessing the quality of e-learning	Focuses on measures for a generalised quantitative assessment of the quality of distance learning programmes.	It offers a geometric index of the final generalised assessment of the quality of e-learning based on the calculation of various factors and sub-factors (interaction, support, institutional quality and reliability, learning objectives, etc.)
ACODE (the Australasian Council of Open, Distance and eLearning) approach	Uses benchmarks rather than standards that can be interpreted as prescriptive but allow divergence based on organisational contextual policies and strategic differences.	Benchmarks in Teaching with Improved Technology (TEL), using benchmarking as a quality assurance process to assess an identified best practice

Note: compiled on the basis of (Castaño-Muñoz et al., 2014; Giorgetti et al., 2013; Hong et al., 2019; Mapstone et al., 2014; Ossiannilsson & Landgren, 2012; Ossiannilsson et al., 2015; Petkova & Radeva, 2014; Torres & Rama, 2018; Zhang & Cheng, 2012).

The differences between the considered models lie in the grouping of criteria and details applied at the levels of performance indicators and not in the internal approach to ensuring the quality of the educational programme. Some models use numerical criteria with performance targets, while others rely on more subjective qualitative assessments. Some models require an assessment of 20-30 points, while others require more than 100. Many of them are integrated with national quality assurance systems for higher education based on peer review and study of institutional self-assessment documents.

Global practices embody the peculiarities of implementing different educational standards in different countries, reflecting the degree of difficulty in implementing distance learning. A charter containing a number of rigid norms is forced to fall under the global challenges of modernity, while programmes with a high level of mobility and digitalisation have much less resistance to such changes in education.

The Chinese Ministry of Education has introduced an annual reporting and censorship procedure that includes annual internal audits by institutions and an external audit by the Department of Distance and Continuing Education of the Ministry of Education (Jung et al., 2011). The trend in education reform has been to design and implement teaching based on curriculum standards that set rules and learning outcomes, showing what the national government expects from students (Cui et al., 2008). However, modern Chinese curriculum standards are still just documents that do not have a significant impact on teaching and teaching quality assessment (Zhang & Hu, 2016).

Materials and methods

The study is based on a bibliographic analysis of standards and models that formulate principles and methods for evaluating distance learning programmes (Agariya & Singh, 2012; Esfijani, 2015; Gaskell & Mills, 2015; Giorgetti et al., 2013), as well as specific bibliographic study standards, models and guidelines created in the USA, Latin America and European countries to assess the quality of e-learning (AQU, 2007; CALED, 2010; EFMD, 2006; NECHE, 2009; WCET, 2001).

Neither the results of this study as a whole nor any of its segments were previously presented in any publications and were not presented within the framework of a wider project.

Study design

A bibliographic analysis made it possible to conclude that the distance learning programme should clarify and include the following main components: rationale for the training programme; objectives of the educational programme; student user profile and teacher profile; the thematic content of a discipline; educational activities; didactic materials, reference and information resources; approach to learning assessment; educational materials and manuals. The proposed components should undergo a separate assessment so that a comprehensive assessment of a training programme in the electronic educational environment is completed.

Based on the results of the bibliographic analysis, a draft model was developed that included two variables, 14 measurements, and 80 indicators. Each indicator has been included in a descriptive table containing its main characteristics and applications.

Since the proposed model had no experience of implementation in practice, it was checked to determine the reliability and degree of evaluation of the components. The validity assessment was carried out with the participation of foreign and Chinese experts. In total, 22 experts (average age=43.4 years; SD=3) representing the USA, China, Chile, Portugal, the Netherlands, Poland, and Spain were involved. The sample of experts included nine men and 13 women. The experts were selected by determining the vector of their activities in the field of distance learning modernisation and at least one publication or work on the higher education system in China. Communication with experts was carried out through electronic correspondence from February to June 2020. After receiving confirmation of their willingness to cooperate, the experts received a descriptive document with the main provisions of the model and its components, as well as a link to the assessment form.

The experts determined the validity of the parameters and indicators included in the model based on value judgments designed to confirm the unambiguity, relevance, and usefulness. The assessment was carried out by filling out an online form developed by the researcher. The form proposed to the experts included questions regarding the experience of practical and scientific work in the field of assessing the quality of training programmes, as well as sections in which experts rated the suitability of calculations, the relevance of the arguments, the validity and importance of measurements and criteria. The form included a field for comments on each indicator, in which an expert could propose improvements and transformations.

To confirm the parameters of the assessment by experts, the following criteria have been established: 0 % to 69 % of positive feedback – the measurement received an insufficient rating; 70 % to 79 % of positive feedback – the measurement received a sufficient rating; 80 % to 89 % of positive feedback – the measurement was highly rated; 90 % to 100 % of positive feedback – the measurement received the maximum rating.

The minimum score required to include a dimension in the model was defined as 70 % of positive feedback.

Research tools

Two scales were used to check the reliability: a dichotomous check, which included the presence of '"yes' (positive answer) and '"no' (negative answer) responses; and a Likert check (values from 1 to 4) –3 and 4 points were considered somewhat positive and positive marks, respectively, while 1 and 2 points implied a negative and somewhat negative assessment, respectively.

Qualitative feedback from experts was not required but was used to change measurements.

After collecting assessment questionnaires, quantitative verification of the model's reliability was carried out using the tools of the Statistica 5.0 applied package (the

content reliability index and the reliability index of all model indicators were calculated). Assessment of the agreement between experts to determine the reliability for different experts was carried out using Fleiss' Kappa.

Research limitations

Among the limitations of the study, it should be noted that the bibliographic research was limited to the analysis of a small number of reference materials in the form of foreign standards and models for assessing distance education in an online environment. This is explained by the fact that a vast number of specialised sources and research papers provide fundamentally different sets of indicators and measurements for assessing the quality of student training programmes. It was not possible to analyse all the sources; therefore, only the most relevant ones were selected for the purposes of the study.

Ethical issues

After identifying experts and collecting questionnaires, each of them was assigned a number. The respondents are guaranteed confidentiality and non-disclosure of personal and professional data.

Results and discussion

The quality assessment model for distance learning programmes in an online environment, formed on the basis of the integrated opinion of 22 experts, presented in the study demonstrates an assessment of the multiple components of modern distance learning and ways to improve it based on the region under study. The main components include programme rationale and objectives, learner and teacher profile, thematic content, learning activities, didactic material, learning strategies, learning materials and quality of the learning environment.

The main result of the research is to develop a model for assessing the quality of distance learning programmes for a university. The final model included two main variables, 14 dimensions, and 75 indicators.

It should be noted that not all components of the draft model were included in the final model. Thus, due to expert assessments, several indicators were removed from the model. The first indicator – selection of the thematic content of a programme – most of the experts (51 %) considered that the content is formed in accordance with the knowledge and experience of a programme developer. The second indicator – requirements of knowledge and practical application of information and communication technologies by students – 46 % of experts expressed confidence that a briefing on the use of a distance course is enough for modern students. The third indicator – requirements of knowledge and practical application of information and communication technologies by teachers – 42 % of experts considered that a modern teacher should be able to work in a remote environment, which is dictated by the very conditions of modern educational activities. The fourth indicator – a variety of teaching aids and

didactic materials – 53 % of experts expressed the opinion that diversity is not the same as the quality of a programme. The fifth indicator – interactivity of programme components – 63 % of experts believe that this is desirable, but not necessarily as a criterion for assessing the quality of a programme.

A qualitative assessment of the model was carried out by summarising comments and suggestions from experts. The results of the qualitative validation are triangulated with the results of the quantitative validation to transform or retain each of the proposed indicators. An example of the procedure for triangulating the indicators of the assessment model is shown in Table 2.

Table 2
An example of data triangulation for one of the model indicators

Indicator: Coach for a student	
Check type	Conclusion
Quantitative check	The indicator has high validity: Index = 1 (maximum). Average CVR = 1 (maximum). Average Fleiss' Kappa index = 0.79.
Qualitative check	The indicator is highly rated. 11 experts consider it necessary to clarify the name 'Coach for a 'student'.
Decision on the indicator: the indicator remains unchanged in the model; the name of the indicator 'Individual student 'support' has been clarified	

Note: developed by the author.

The final model for assessing the quality of a distance learning programme was drawn up after triangulating all indicators.

Validation of the model for assessing the quality of distance learning programmes was obtained as a result of a summary of the qualitative verification of measurements in terms of their uniqueness (U), suitability (S) and importance (I), carried out by invited experts (Table 3). Additionally, examples of experts' comments are given in Table 3.

The experts rated all the proposed measurements as clear and appropriate for evaluating distance education programmes. Besides, all measurements received a positive assessment in terms of their importance for assessing the quality of programmes. For example, dimension 14 scored 100 % in terms of clarity of definition, 94 % in terms of suitability, and 96 % in terms of importance. The indicators included in the final model were assessed by experts as relevant and important for evaluating distance learning programmes.

Expert judgment and commentary gave the researcher the opportunity to adjust the model.

Table 3
Results of qualitative validation of measurements included in the model

No.	Measurement	Uniqueness			Suitability			Importance		
		M	*%*	*SD*	*M*	*%*	*SD*	*M*	*%*	*SD*
1.	Rationale for the training programme	48	92	9.02	43	82	4.54	44	82	2.27
2.	Objectives of the programme	52	100	11.35	49	95	5.67	49	95	7.95
3.	Student profile	52	91	10.21	53	95	5.67	46	85	6.81
4.	Thematic plan	51	93	8.75	55	98	8.75	51	98	9.02
5.	Learning Activity	53	98	9.02	47	92	4.54	51	100	2.27
6.	Teacher profile	49	94	10.21	48	98	9.02	52	98	5.67
7.	Components of learning activities	53	100	8.75	50	96	5.67	46	92	10.21
8.	Educational strategies	49	82	7.95	49	88	7.49	49	94	9.02
9.	Individual student support	44	94	4.54	51	92	6.81	50	88	4.54
10.	Assessment of progress	45	96	6.81	51	92	2.27	52	94	4.54
11.	Virtual auditorium quality	48	96	7.95	53	96	5.67	52	100	2.27
12.	Assessment of the starting readiness of a programme	49	96	2.27	46	88	4.54	58	94	7.95
13.	Process assessment of an educational programme	56	99	6.81	41	92	4.54	51	92	6.81
14.	Final assessment of an educational programme	54	100	7.95	48	94	2.27	44	96	5.67

Note: developed by the author.

As a result, there are a few main components of the model. There are two variables: 1 – the quality of a distance learning programme (necessary to assess the quality of all components of a programme), and 2 – an ongoing (process) evaluation of a programme (necessary to obtain continuous information about the implementation of a training programme and receive feedback). Furthermore, the model includes 14 measurements – measurements 1-11 are aimed at assessing the quality of components of a distance learning programme, while measurements 12-14 are aimed at checking the quality of stages of programme implementation. The measurements are shown in Table 4.

Table 4
Measurements included in a distance programme quality assessment model

Dimension	Characteristic
1	Rationale for a programme
2	Implementation programme objectives
3	Student profile
4	Thematic plan
5	Components of learning activities
6	Teacher profile
7	Learning Activity
8	Educational strategies
9	Individual student support
10	Assessment of progress
11	Virtual platform
12	Assessment of the preliminary readiness of an educational programme
13	Process assessment of an educational programme
14	Final assessment of an educational programme

Note: developed by the author.

Finally, the model included 75 indicators – quality assessment tools needed to test a distance education programme. The indicators are distributed according to measurements.

The distribution of indicators by the variables proposed in the model is shown in Table 5.

Table 5
Distribution of indicators by variables of the model for assessing the quality of a distance programme

Variable 1: Assessment of the quality of a distance learning programme in an online environment		
Measurement	Number of indicators	Objectives
1. Justification of a training programme	3	Assessment of the arguments in favour of the implementation of a distance programme; students should identify its usefulness for learning and professional development
2. Objectives of a programme	5	Assessment of the clarity and measurability of the objectives of a programme, knowledge, skills, competencies, their compliance with a programme and the requirements of the labour market
3. Student profile	7	Assessment of access and performance profiles

Measurement	Number of indicators	Objectives
4. Thematic plan	5	Assessment of the quality of the thematic content of a programme, its relevance, degree of workload, consistency with goals, etc.
5. Learning activity	8	Assessment of the compliance of educational activities with quality criteria in terms of typology, contribution to achieving goals, encouraging teamwork, encouraging individual activity, training schedule, methods of completing assignments
6. Teacher profile	3	Assessment of qualifications and compliance with a programme in terms of pedagogical and technological skills, including those required for distance learning
7. Components of learning activities	8	Assessment of the quality of educational materials (how appropriate they are, can they be considered sufficient, relevant, motivating and accessible)
8. Educational strategies	3	Assessment of the quality of learning strategies, including their typology and compliance with the educational goals of a programme
9. Individual student support	6	Assessment of the quality of individual work and teamwork, assessment of feedback from a teacher
10. Assessment of academic performance	4	Evaluating continuous assessment strategies for student learning, including the clarity of assessment criteria and rules
11. The quality of an online environment	7	Assessment of the quality of an online environment and its ability to manage all stages of a programme (content preparation, implementation, student assessment, etc.)
Variable 2: current assessment of a distance learning programme		
1. Assessment of the starting readiness of a programme	4	Assessment of all stages of the implementation of a distance programme
2. Process assessment of an educational programme	6	
3. Final assessment of an educational programme	6	
Totally	75	

Note: developed by the author.

The developed model for assessing the quality of distance learning programmes allows one to evaluate the pedagogical and technological components of a programme, as well as its planning, development and results. However, in the future, the researcher intends to implement measures to improve it, ensuring a continuous increase in the adequacy of educational programmes in the remote environment of Chinese universities.

The complexity of implementing the described model is mainly measured by local peculiarities of distance learning in each region and educational institution in China. In this case, a more specific and subjective approach to the implementation of this model in practice is essential, as Chinese universities have quite differentiated levels of digitalisation and formalisation of the learning process.

Discussion

The problem of the quality of education does not lose its relevance for both traditional and distance learning programmes for students. The study concludes that the quality assessment of e-learning programmes must be continuous to provide the possibility of upgrading a programme before it is completed by students, which is confirmed in the works of several researchers (Beketova et al., 2020; Butcher & Hoosen, 2014). The assessment of the quality of a programme should be comprehensive, and provide the most complete diagnosis of the current state of an online programme in order to ensure the adoption of timely decisions to ensure high quality (Eby & Yuzer, 2015). One of the most urgent requirements for assessing distance learning programs is the regularity of such checks, which is associated with changes in teaching tools and technologies and an increase in the amount of knowledge (Mejía-Madrid & Molina-Carmona, 2016; Misuta & Pribilovab, 2015). Evaluation of the quality of distance learning programmes can be considered complete if it supports the continuity of the collection of data and their analysis with an assessment of the quality of a programme itself, the quality of pedagogical components and the quality of the virtual environment (Sebastianelli et al., 2015).

Many of the approaches include data that can only be collected after graduation (Li min/Xiaoyan, 2013; Zhang & Xiangyang, 2014). The main problem is that the proposed variables and indicators rarely emphasise the need to assess the quality of an educational programme. In addition, it should be noted that there is no consensus on the number of measurements, which could be considered common for all models. Since online education is very recent in China, Chinese quality standards are not comparable to those developed by organisations in the United States or Europe (Dai, 2014). The existing Chinese way of collecting data for evaluating online programmes, according to Chinese scholars, focuses on infrastructure and programme management. It can be assumed that the main reason lies in the lack of a knowledge base in this area, especially in the area of teaching quality assessment.

An interesting model for assessing the quality of higher distance education based on information and communication technologies is the CEAACES (the Council for Evaluation, Accreditation and Quality Assurance of Higher Education Institutions) model, aimed at checking the quality of an online course, academic programme or

career; proposing the improvements necessary to achieve the set goals (Mejía-Madrid & Molina-Carmona, 2016). It is also proposed to apply the assessment with behavioural scales to assess the quality of teaching under the BARS (Behaviourally anchored rating scales) methodology. The importance of such aspects of blended learning as communication between a teacher and a student, learning resources, course design and technical competence of a teacher is also considered (Matosas-López et al., 2019). An assessment questionnaire with a Likert scale was used to improve the quality of education in the context of online learning and blended learning. This tool contains 43 items and uses four grading levels from 0 to 3 (Ralston-Berg et al., 2015).

Researchers' integrated approaches to optimise online learning are expressed by meeting students' communication needs. Researchers from a university in Indonesia propose a cooperative model where all tasks are performed by the whole academic group or in small groups (Bojović et al., 2020). This would help maintain the traditional communicative effect of teaching and encourage students to engage in active scientific collaboration. In doing so, the model involves the active use of a variety of Internet platforms and forms, depending on the profile area, in order to involve a large number of independent expert teachers and the unrestricted use of the flow of information.

Unlike most of the models mentioned above, the models proposed in this study differ in that they take into account a larger number of components and are more integral. Opportunities for regular assessment and changes in the way of teaching and its tools based on the results of the assessment are provided by the program, which also distinguishes this model from other existing ones (Sebastianelli et al., 2015; Valverde-Berrocoso et al., 2020; Zhang & Cheng, 2012). The inclusion of feedback in the assessment model has also been highlighted by a number of researchers as an effective tool for changing and improving educational programs in the future (Esfijani, 2015; Gaskell & Mills, 2015; Zhang & Hu, 2016).

Conclusions

The model for assessing the quality of distance learning programmes in an online environment presented in the study combines two types of assessment and includes parameters for assessing all components of a programme. The main components include the rationale and objectives of a programme, the profile of a student and a teacher, thematic content, learning activity, didactic material, learning strategies, teaching materials, and the quality of a learning environment. The components of the assessment of planning, implementation and the final results of a programme are highlighted separately. The model received content in the form of measurements and indicators corresponding to these measurements. The experts rated the proposed measurements as understandable and suitable for evaluating distance education programmes and gave a positive assessment in terms of their importance for assessing the quality of programmes. The indicators included in the final model were assessed by experts as relevant and important for evaluating distance learning programmes. Expert judgment and comments provided directions for correcting the model.

The final model received content in the form of two variables (variable 1 – the quality of a distance learning programme and variable 2 – process assessment of a programme), 14 measurements (measurements 1-11 are aimed at evaluating variable 1, measurements 12-14 are aimed at checking measurement 2), and 75 indicators (which are distributed by dimensions and are tools for assessing the quality of a programme). These components demonstrate specific directions for assessing the quality of a training programme implemented in a remote environment.

About half of the experts (46 %) assessed the importance of correspondence between a distance learning programme and the digital and technical capabilities of the educational institution. At the same time, the vast majority of the experts surveyed - 63 % - noted "interactivity" as an additional component of the online education model that would be recognised as a significant learning advantage in the context of the region studied.

Further research can be aimed at assessing the stability of various components of the model and its universality for programmes of various orientations and areas of knowledge. A test of the suitability of the final model was carried out by testing it as a tool for assessing three distance learning programmes. Each programme was evaluated by the researcher using the self-assessment protocol of a distance learning programme, which allowed conclusions to be drawn about the capabilities of the quality assessment model. After validation and feedback from stakeholders, the model can be improved. The research findings may interest educational researchers, educators, university administrators, distance course coordinators and training programmes.

The results of the study express the need to transform current distance education in China in order to improve its level in the face of today's global challenges. The significant overall level of digitalisation in the region constitutes a non-uniform success factor for online learning in universities and requires changes in student communication, process integration and improved student assessment.

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Weijuan Li
Yellow River Conservancy Technical Institute, Dean's office
Dongjing Avenue No.1, Kaifeng, 475004, China
liweijuan@yahoo.com
554338339@qq.com

Model procjene kvalitete programa obrazovanja na daljinu u mrežnom okruženju: kinesko iskustvo

Sažetak

Pandemija virusa COVID-19 značajno je promijenila tijek obrazovnoga procesa širom svijeta. Digitalizacija učenja putem učenja na daljinu postala je ključna za osiguranje kvalitete obrazovanja. Cilj je istraživanja razvoj modela za kontinuiranu procjenu kvalitete nastave programa obrazovanja na daljinu u online okruženju. Definirane su glavne komponente modela – dvije varijable, 14 dimenzija i 75 indikatora. Valjanost istraživanja ocijenila su 22 stručnjaka iz SAD-a, Kine, Čilea, Portugala, Nizozemske, Poljske i Španjolske. Istraživanje se temelji na bibliografskoj analizi standarda, modela i smjernica koje artikuliraju principe i metode koje su stvorili akademski istraživači i vlade u SAD-u, Latinskoj Americi i europskim zemljama kako bi procijenili programe učenja na daljinu. Stručnjaci su ocijenili predložena mjerenja jasnima, važnima i prikladnima za procjenu programa obrazovanja na daljinu. Ocijenili su pokazatelje i mjerne pokazatelje relevantnima za procjenu programa učenja na daljinu. Glavni je rezultat istraživanja razvijeni model za procjenu kvalitete programa učenja na daljinu za sveučilišta. Konačni model uključivao je dvije glavne varijable, 14 mjera i 75 pokazatelja. Sadržaji modela zaprimljeni su u obliku mjerenja i odgovarajućih pokazatelja. Među glavnim značajkama predloženoga modela jest mogućnost potpune procjene kvalitete nastave u okviru kurikula kako bi se naknadno poduzele mjere za njegovo poboljšanje. Rezultati istraživanja mogu biti od interesa za istraživače u polju obrazovanja, nastavnike, sveučilišne administratore, koordinatore tečajeva na daljinu i programe usavršavanja.

Ključne riječi: *kvaliteta nastave; kvaliteta obrazovnih programa; kvaliteta usavršavanja; okruženje za učenje preko interneta; učenje na daljinu.*

Uvod

Digitalna transformacija obrazovnoga sustava rezultirala je obnovljenim ekosustavom poučavanja i učenja koji nazivamo e-učenje. Ove promjene u obrazovanju postale su još hitnije nakon pandemije virusa COVID-19, koja je dovela do masovnoga zatvaranja

učionica u svim zemljama, prisilivši 1,5 milijardi učenika i 63 milijuna nastavnika (Svjetska banka, 2020; UNESCO, 2020) da promijene svoj pristup učenju i poučavanju. Tržište e-učenja naglo je poraslo, što mu je omogućilo i dalji strelovit rast. Prema Duffinu (2020), globalno tržište učenja na daljinu vrijedit će više od 243 milijarde dolara u 2022. Održivost učenja na daljinu u ovakvim novim uvjetima postaje bitan problem u smislu svojstva prilagodbe promjenama s potrebnom učinkovitošću i kvalitetom (Stansfield i sur., 2009). Pružanje kvalitetnoga obrazovanja na daljinu nužno je zbog sve većega postotka učenika i studenata koji se obrazuju putem e-učenja (Valverde-Berrocoso i sur., 2020). Kvaliteta obrazovnih aktivnosti iz perspektive budućnosti presudna je za stvaranje odgovarajućega okruženja koje učenicima i studentima pruža potrebne obrazovne usluge u smislu sadržaja, pristupačnosti, brzine, fleksibilnosti, pravovremenosti itd., tako da ne samo proces, već i njegovi rezultati odražavaju visoke standarde kvalitete (Misuta i Pribilovab, 2015).

U istraživačkom okruženju i među praktičarima vode se rasprave o izvedivosti ocjenjivanja učenja i poučavanja u elektroničkom okruženju uz uporabu metoda primjenjivih na tradicionalni obrazovni program (Chmielewski, 2013; Veytia-Bucheli i Chao González, 2013). Utvrđeno je da trenutačno ne postoji općeprihvaćeni pristup koji bi regulirao sastavnice potrebne za uključivanje u programe učenja na daljinu ili njihovu procjenu (Rushby i Surry, 2016). Ovo se može objasniti jedinstvenošću svakog kurikula – njegov sadržaj, struktura i sastavnice ovise o resursima dostupnim određenom sveučilištu, nastavnim ciljevima, pristupu nastavnika itd.

Da bi se postigao cilj poboljšanja kvalitete obrazovanja na daljinu, on se mora definirati i izmjeriti. Međutim, kineski sustav obrazovanja na daljinu tek je nedavno nastao, tako da još uvijek ne postoje standardi kvalitete usporedivi s onima koje su razvile američke organizacije i agencije za akreditaciju u Europi. U Kini ne postoji nikakva regionalna agencija za akreditaciju, odnosno organizacija zadužena za koordinaciju i razvoj sveobuhvatnih kriterija kvalitete. Svaka kineska obrazovna ustanova eksperimentira i samostalno određuje svoje kriterije kvalitete.

Rezultati pokazuju značajne razlike u kvaliteti ovih programa učenja na daljinu. Kako bi se ubrzao proces razvoja standarda kvalitete, potrebno je usvojiti najbolje prakse drugih zemalja s više iskustva u tom području. Vladine odluke to potvrđuju: u Nacionalnom obrazovnom planu 2020, kineska vlada pozvala je visokoškolske ustanove da poboljšaju svoju kvalitetu rada i ojačaju veze s međunarodnom akademskom zajednicom (Ministarstvo obrazovanja, 2010).

Važan aspekt proučavanja *online* učenja je sustav vrednovanja učenika i studenata pri čemu se u obzir uzimaju objektivnost i mobilnost. S jedne strane, uporaba interaktivnih platformi omogućuje nastavnicima brzo i automatsko vrednovanje rada učenika i studenata, što uvelike pojednostavljuje postupak praćenja akademskoga uspjeha u određenom predmetu (Setiawan, 2020). Međutim, s druge strane, učenje na daljinu stvara mnoge prepreke kod vrednovanja rada učenika i studenata. Švicarski istraživači izdvajaju glavne: nedostatak digitalne kompetencije učitelja, reprezentativnost povratnih

informacija od učitelja do učenika i smanjenje objektivnosti vrednovanja u učenju na daljinu (Gurajena i sur., 2021).

Cilj ovoga istraživanja jest razvitak modela za procjenu kvalitete obrazovnih programa u okruženju za učenje na daljinu na temelju bibliografske analize svjetskih standarda, smjernica i modela koji formuliraju principe i metode ocjenjivanja programa učenja na daljinu.

Procjena kvalitete obrazovnih programa u okruženju za online učenje

Učenje na daljinu omogućeno tehnologijom u elektroničkom okruženju obično se karakterizira kao primjena znanja, informacija i obrazovne tehnologije u svrhu povezivanja ljudi – kako međusobno, tako i s obrazovnim resursima u obrazovne svrhe (Beketova i sur., 2020; Nuryyev i sur., 2020). Brzim rastom e-učenja, interesne su skupine zabrinute da bi visokoškolske ustanove mogle korisnicima programa pružiti veći pristup, ali nižu kvalitetu (O'Brien, 2012). Kvaliteta se ocjenjivala na temelju kvalitete tečajeva i unaprijed definiranih ishoda učenja. Ovaj se pristup promijenio posljednjih godina (Valverde-Berrocoso i sur., 2020) kad počinju prevladavati pristupi usmjereni na proces.

Kurikulni standard ima ključnu ulogu u procjeni kvalitete nastave i učinkovitosti učenja studenata. Standardi kurikula definiraju cilj koji studenti moraju postići nakon završetka studija u određenom razdoblju. Program osposobljavanja i usavršavanja koji se provodi u elektroničkom obrazovnom okruženju jest dokument koji opisuje aktivnosti osmišljene za određeno razdoblje i usmjerene na postizanje obrazovnih ciljeva. Uključuje skup komponenti potrebnih za poučavanje određene akademske discipline u elektroničkom formatu (Jung i sur., 2011). Takav se program provodi pomoću informacijske i komunikacijske tehnologije i daljinske podrške profesorima (Marciniak, 2016). Evaluacija kurikula općenito se shvaća kao sustavno prikupljanje informacija o njegovoj kvaliteti, strukturi, osnovnim elementima i stupnju svladavanja (Chmielewski, 2013). Procjena kvalitete nastavnoga plana i programa akademske discipline koji predlaže profesor definira se kao procjena svih njegovih elemenata (Marciniak, 2016).

Većina istraživača smatra da bi program učenja određene akademske discipline na daljinu trebao uključivati profile studenata, tematske sadržaje kolegija, strategiju učenja, karakteristike obrazovnih tehnologija i obrazovnih aktivnosti, izvore informacija i pristup procjeni procesa učenja (Barnard i Echols, 2014; Rushby i Surry, 2016). Kontinuirana evaluacija programa omogućuje konstantno praćenje informacija o napretku njegove provedbe. Nakon toga program učenja i poučavanja može se i poboljšati dobivanjem povratnih informacija. Predlaže se procjena programa osposobljavanja i usavršavanja u nekoliko faza (Esfijani, 2015; Lockee i sur., 2010). Početna faza – procjena programa provodi se i prije njegova pokretanja kako bi se utvrdio stupanj spremnosti i smanjio rizik od poremećaja ili prekida procesa učenja. Faza procesa – procjenjuje se potencijalna

učinkovitost programa te se utvrđuju mogućnosti njegova poboljšanja. Završna faza – ocjenjuju se postignuća kurikula, a mjeri se učinak i zadovoljstvo studenata.

Karakteristike kvalitetnoga programa učenja na daljinu uključuju: 1) jasno navedene obrazovne ciljeve; 2) održavanje institucijske predanosti u smislu podrške studentima; 3) sudjelovanje u procesu suradničkoga otkrivanja i 4) poboljšanje okruženja za poučavanje i učenje (Parker, 2008). Međutim, u praksi je važnost kvalitete za obrazovanje na daljinu iznimno zahtjevan problem. Ova bi stavka trebala obuhvatiti sve aspekte *online* poučavanja i učenja, uključujući planiranje, profesore, studente, tehnologiju, poučavanje i učenje te evaluaciju (Dai, 2014).

Istraživanje svjetske prakse procjene kvalitete programa učenja na daljinu u elektroničkom okruženju

Specifičnost poučavanja i učenja u elektroničkom okruženju zahtijeva razvoj niza mjera za razvoj i poboljšanje kvalitete, kao i primjenu načela upravljanja koja osiguravaju da navedeni koraci dovedu do kvalitetnih rezultata. Standardi i modeli osiguranja kvalitete obrazovanja na daljinu usmjereni su na rješavanje takvih problema. Neki su standardi i modeli stekli ne samo nacionalno, već i međunarodno priznanje i mogu se primijeniti u kineskoj obrazovnoj praksi.

Na primjer, Sjedinjene Države razvile su mnoge standarde kvalitete *online* obrazovanja kako bi pomogle obrazovnim institucijama u planiranju i ocjenjivanju njihovih programa učenja na daljinu. Primjerice, Komisija za visoko obrazovanje Udruženja škola i fakulteta Nove Engleske (NEASC) predložila je skup smjernica za procjenu kvalitete *online* programa (NECHE, 2009), u kojemu je predstavljeno osam kategorija sa smjernicama koje škole i fakulteti mogu koristiti za mjerenje kvalitete *online* programa. Kao istaknuti promotor mrežnoga obrazovanja u Sjedinjenim Državama, konzorcij Sloane (Sloan-C) također je predložio okvir od pet razina koji uključuje pet glavnih sastavnica kvalitete mrežnoga obrazovanja, a to su: učinkovitost učenja, opseg, pristup, zadovoljstvo profesora i zadovoljstvo studenata (Moore, 2011). Američki konzorcij za *online* učenje razvio je Model kvalitetnoga obrazovanja na daljinu (OLC, 2002) čiji je cilj postaviti ciljeve mrežnoga obrazovanja i izmjeriti njihov napredak. Predlaže se procjena pet sastavnica kvalitete programa: učinkovitost učenja, zadovoljstvo profesora, zadovoljstvo studenata, opseg i dostupnost. Karipski institut za kvalitetno mrežno visoko obrazovanje razvio je Vodič za samoprocjenu za programe preddiplomskih studija na daljinu (CALED, 2010) koji nudi procjenu tehnologije, učenja, oblikovanja nastave, informacija o studentima i usluga. Zapadna zadruga za obrazovne telekomunikacije (WCET) izradila je 1995. godine nacrt standarda kvalitete mrežnog obrazovanja pod nazivom „Najbolje prakse za programe e-diploma i certifikat". Vodič je proširen u pet kategorija dodavanjem podrške profesorima i studentima (WCET, 2001). Slijedom toga, njihove ažurirane smjernice za internetsko obrazovanje postale su jednim od najcitiranijih standarda kvalitete u internetskom obrazovanju. Europska zaklada za razvoj menadžmenta predložila je Program akreditacije za naprednu tehnološku izobrazbu

(EFMD, 2006) koji pruža priliku za procjenu programa obrazovanja na daljinu na temelju njegova profila, pedagogije, ekonomije, tehnologije, organizacije i kulture. U Španjolskoj je Agencija za kvalitetu sveučilišnoga sustava u Kataloniji razvila model ocjenjivanja mrežnih programa visokoga obrazovanja (AQU, 2007) koji uključuje pet parametara: strateški položaj stupnja, program osposobljavanja (obrazovni profil), oblikovanje nastave (metodologija poučavanja, organizacija poučavanja, sustav vodstva i međuljudski komunikacijski sustavi) te procjenu izvedbe i rezultata (akademskih, profesionalnih i osobnih). Tablica 1 ukratko prikazuje neke modele procjene kvalitete obrazovanja na daljinu.

Tablica 1

Generalizacija modela i pristupa procjeni kvalitete učenja na daljinu

Model	Specifikacije	Glavne sastavnice
Model zrelosti e-učenja	Pruža uvid u mogućnosti e-učenja i pomaže u procjeni njihove kvalitete	Osposobljavanje i usavršavanje Razvoj Podrška Procjena Organizacija
CALED model (Latinoamerički i karipski institut za kvalitetu obrazovanja na daljinu)	Procjenjuje snage i slabosti programa učenja na daljinu, određuje parametre glavnih pokazatelja	Pedagogija Tehnologija Procjena naučenoga Razvoj učenja
Integrirani pristup ocjenjivanju programa u otvorenom i distribuiranom učenju (CAPEODL)	Kritički pregled proizvoda i usluga e-učenja putem procjene svih aspekata obrazovnih programa	Pedagogija Tehnologija Procjena Kontrola Resursi i podrška Etika Institucije
Konceptualni model za mjerenje kvalitete e-učenja pomoću pokazatelja o razmjeni znanja	Procjena procesa razmjene znanja putem mrežnih obrazovnih programa uz uporabu dviju skupina pokazatelja: pokazatelja za mjerenje kvalitete e-učenja u odnosu na razmjenu znanja te pokazatelja koji izravno utječu na proces e-učenja	Pojedinačni pokazatelji Organizacijski pokazatelji Tehnički pokazatelji
Pristup ocjenjivanju kvalitete US Excellence EADTU (Europsko udruženje sveučilišta s učenjem na daljinu)	Usredotočen na uopćenu kvantitativnu i kvalitativnu procjenu učenja na daljinu	Dostupnost Interaktivnost Personalizacija Sudjelovanje Procjena
PDPP Model (planiranje, ocjena, razvoj, vrednovanje postupaka i proizvoda)	Temeljeno na CIPP modelu vrednovanja (ocjena konteksta, ulaza, postupaka i proizvoda) i značajkama internetskih programa. Omogućuje vrednovanje rezultata, kao i samoga procesa učenja i razvoja	Procjena planiranja Procjena razvojnoga konteksta Procjena procesa učenja Procjena proizvoda

Model	Specifikacije	Glavne sastavnice
Konceptualni temelji kvalitete e-učenja	Vodi u razvoju, provedbi, vrednovanju i internalizaciji e-učenja u visokoškolskim ustanovama	Dostupnost Fleksibilnost Transparentnost Interaktivnost Personalizacija Sudjelovanje Izvedba
Model procjene kvalitete mrežnoga obrazovanja	Nudi nekoliko parametara i kriterija za procjenu kvalitete obrazovanja s ciljem kontinuiranoga poboljšanja	Stručna izobrazba Institucijsko i administrativno upravljanje Podrška strukovnom osposobljavanju
Model i indeks za procjenu kvalitete e-učenja	Usredotočen na mjere za uopćenu kvantifikacijsku procjenu kvalitete programa učenja na daljinu.	Nudi geometrijski indeks konačne uopćene ocjene kvalitete e-učenja na temelju izračuna različitih čimbenika i podčimbenika (interakcija, podrška, kvaliteta i pouzdanost institucije, ciljevi učenja itd.).
ACODE (Australsko vijeće za otvoreno, daljinsko i eLearning učenje) pristup	Umjesto standarda, koristi referentne točke koje se mogu tumačiti kao propisane, ali dopuštaju odstupanja na temelju organizacijske kontekstualne politike i strateških razlika.	Mjerila u učenju s poboljšanom tehnologijom (TEL), koristeći referentne vrijednosti kao postupak osiguranja kvalitete za procjenu identificiranih najboljih praksi

Napomena: sastavljeno na temelju (Castaño-Muñoz i sur., 2014; Giorgetti i sur., 2013; Hong i sur., 2019; Mapstone i sur, 2014; Ossiannilsson i Landgren, 2012; Ossiannilsson i sur., 2015; Petkova i Radeva, 2014; Torres i Rama, 2018; Zhang i Cheng, 2012).

Razlike između razmatranih modela nalaze se u grupiranju kriterija i detalja koji se primjenjuju na razinama izvedbenih pokazatelja, a ne u internom pristupu osiguravanju kvalitete obrazovnoga programa. Neki modeli koriste numeričke kriterije s ciljevima izvedbe, dok se drugi oslanjaju na subjektivnije, kvalitativne procjene. Neki modeli zahtijevaju ocjenu od 20 do 30 bodova, dok drugi zahtijevaju više od 100. Mnogi su modeli integrirani s nacionalnim sustavima osiguranja kvalitete visokoga obrazovanja na temelju stručnih pregleda i istraživanja dokumenata o samoprocjeni institucija.

Svjetske prakse utjelovljuju osobitosti primjene različitih obrazovnih standarda u različitim zemljama, odražavajući tako i stupnjeve problematičnosti u provedbi učenja na daljinu. Povelje koje sadrže niz krutih normi prisiljene su podvrgnuti se globalnim izazovima modernoga doba, dok programi s visokom razinom mobilnosti i digitalizacije pružaju mnogo manji otpor takvim promjenama u obrazovanju.

Kinesko Ministarstvo obrazovanja uvelo je godišnji postupak izvještavanja i cenzure koji uključuje godišnje interne revizije institucija i vanjske revizije Odjela za daljinsko i kontinuirano obrazovanje Ministarstva obrazovanja (Jung i sur., 2011). Trend reforme obrazovanja bio je osmisliti i implementirati nastavu na temelju kurikulnih standarda koji postavljaju pravila i ishode učenja, pokazujući što nacionalna vlada očekuje od studenata (Cui i sur., 2008). Međutim, suvremeni kineski standardi kurikula i dalje su samo dokumenti koji nemaju značajan utjecaj na nastavu i procjenu kvalitete nastave (Zhang i Hu, 2016).

Materijali i metode

Istraživanje se temelji na bibliografskoj analizi standarda i modela koji formuliraju načela i metode evaluacije programa učenja na daljinu (Agariya i Singh, 2012; Esfijani, 2015; Gaskell i Mills, 2015; Giorgetti i sur., 2013), kao i specifičnih standarda bibliografskoga istraživanja, modela i priručnika za procjenu kvalitete e-učenja stvorenih u SAD-u, Latinskoj Americi i europskim zemljama (AQU, 2007; CALED, 2010; EFMD, 2006; NECHE, 2009; WCET, 2001).

Ni rezultati ove studije u cjelini, niti bilo koji od njezinih segmenata, nisu prethodno predstavljeni ni u jednoj publikaciji niti su predstavljeni u okviru nekog šireg projekta.

Oblikovanje istraživanja

Bibliografska analiza omogućila nam je zaključak da bi program učenja na daljinu trebao razjasniti i uključiti sljedeće glavne sastavnice: obrazloženje programa osposobljavanja i usavršavanja, ciljeve obrazovnoga programa, korisnički profil studenata i profesora, tematske sadržaje određene akademske discipline, obrazovne aktivnosti, didaktičke materijale, izvore informacija i referenci, pristupe procjeni naučenoga te nastavne materijale i priručnike. Predložene sastavnice trebale bi proći zasebnu procjenu kako bi se dovršila sveobuhvatna procjena obrazovnoga programa u elektroničkom obrazovnom okružju.

Na temelju rezultata bibliografske analize razvijen je nacrt modela koji je obuhvaćao dvije varijable, 14 dimenzija i 80 pokazatelja. Svaki je pokazatelj uključen u opisnu tablicu koja sadrži njegove glavne značajke i područja primjene.

Budući da predloženi model još nije primijenjen u praksi, testirana je njegova pouzdanost, kao i stupanj procjene njegovih sastavnica. Procjena valjanosti provedena je uz sudjelovanje stranih i kineskih stručnjaka. Ukupno su bila uključena 22 stručnjaka (prosječna dob = 43,4 godine; SD = 3) koji su predstavljali SAD, Kinu, Čile, Portugal, Nizozemsku, Poljsku i Španjolsku. Uzorak stručnjaka uključivao je devet muškaraca i trinaest žena. Stručnjaci su odabrani određivanjem vektora njihovih aktivnosti u polju modernizacije učenja na daljinu i barem jedne publikacije ili rada o sustavu visokoga obrazovanja u Kini. Komunikacija sa stručnjacima odvijala se putem elektroničke korespondencije od veljače do lipnja 2020. Nakon što smo primili potvrde o njihovoj spremnosti za suradnju, stručnjaci su dobili opisni dokument s glavnim odredbama modela i njegovih komponenti, kao i poveznicu na obrazac za procjenu.

Stručnjaci su utvrdili valjanost parametara i pokazatelja uključenih u model na temelju vrijednosnih prosudbi osmišljenih da potvrde nedvosmislenost, relevantnost i korisnost. Procjena je provedena ispunjavanjem mrežnoga obrasca koji je razvio istraživač. Obrazac predložen stručnjacima uključivao je pitanja koja se odnose na iskustvo praktičnoga i znanstvenoga rada u procjeni kvalitete obrazovnih programa, kao i odjeljke u kojima su stručnjaci ocjenjivali prikladnost izračuna, relevantnost argumenata te valjanost i važnost mjerenja i kriterija. Obrazac je sadržavao okvir za komentare za svaki pokazatelj, u kojem je stručnjak mogao predložiti poboljšanja i izmjene.

Kako bismo potvrdili parametre procjene koje su dali stručnjaci, utvrđeni su sljedeći kriteriji: do 0 % do 69 % pozitivnih povratnih informacija – mjerenje je dobilo nedovoljnu ocjenu; od 70 % do 79 % pozitivnih povratnih informacija – mjerenje je dobilo dovoljnu ocjenu; od 80 % do 89 % pozitivnih povratnih informacija – mjerenje je visoko ocijenjeno; od 90 % do 100 % pozitivnih povratnih informacija – mjerenje je dobilo maksimalnu ocjenu.

Minimalni rezultat potreban za uključivanje mjerenja u model definiran je kao 70 % pozitivnih povratnih informacija.

Metodološka sredstva

Za ispitivanje pouzdanosti korištene su dvije ljestvice: dihotomna provjera koja je uključivala prisutnost odgovora „da" (pozitivan odgovor) i „ne" (negativan odgovor) te Likertova ljestvica (vrijednosti od 1 do 4) – ocjene 3 i 4 smatrale su se donekle pozitivnim i pozitivnim ocjenama, dok su se ocjene 1 i 2 smatrale negativnim, odnosno donekle negativnim ocjenama.

Kvalitativne povratne informacije stručnjaka nisu bile nužne, ali su korištene u svrhu izmjene mjerenja.

Nakon prikupljanja upitnika za procjenu, provedena je kvantitativna provjera pouzdanosti modela pomoću softverskih statističkih paketa (izračunati su indeks pouzdanosti sadržaja i indeks pouzdanosti svih pokazatelja modela). Procjena konsenzusa među stručnjacima kako bi se utvrdila pouzdanost za različite stručnjake provedena je postupkom Fleissove Kappe.

Ograničenja istraživanja

Među ograničenjima studije valja napomenuti da je bibliografsko istraživanje ograničeno na analizu maloga broja referentnih materijala u obliku stranih standarda i modela za procjenu obrazovanja na daljinu u mrežnom okruženju. Ovo možemo objasniti činjenicom da postoji ogroman broj specijaliziranih izvora i istraživačkih radova koji pružaju bitno različite skupove pokazatelja i mjerenja za procjenu kvalitete programa obuke studenata. Nije bilo moguće analizirati sve izvore, pa su za potrebe ovoga istraživanja odabrani samo najrelevantniji.

Etička pitanja

Nakon identificiranja stručnjaka i prikupljanja upitnika, svakom je stručnjaku dodijeljen broj. Ispitanicima je zajamčena povjerljivost i neotkrivanje osobnih i profesionalnih podataka.

Rezultati i rasprava

Model za procjenu kvalitete programa učenja na daljinu u *online* okružju, formiran na temelju mišljenja 22 stručnjaka, koji je predstavljen u ovom istraživanju, pokazuje procjenu višestrukih sastavnica modernoga učenja na daljinu i načina za njegovo poboljšanje, ovisno o regiji koja se proučava. Glavne sastavnice uključuju obrazloženje i ciljeve programa, profile studenata i profesora, tematske sadržaje, nastavne aktivnosti, didaktičke materijale, strategije učenja, nastavna sredstva i materijale te kvalitetu okružja za učenje.

Glavni je rezultat istraživanja razvoj modela za procjenu kvalitete programa učenja na daljinu za sveučilište. Konačni je model uključivao dvije glavne varijable, 14 dimenzija i 75 indikatora.

Valja napomenuti da u konačni model nisu uključene sve sastavnice nacrta modela. Stoga je nekoliko pokazatelja uklonjeno iz modela zbog stručnih procjena. Prvi je pokazatelj izbor tematskih sadržaja programa – većina stručnjaka (51 %) smatrala je da se sadržaj oblikuje u skladu sa znanjem i iskustvom razvijatelja programa. Drugi pokazatelj uključuje uvjete studentskoga znanja i primjene informacijskih i komunikacijskih tehnologija u praksi – 46 % stručnjaka izrazilo je uvjerenje da su kratke upute o održavanju kolegija na daljinu dovoljne za većinu studenata. Treći pokazatelj uključuje uvjete profesorskoga znanja i primjene informacijskih i komunikacijskih tehnologija u praksi – 42 % stručnjaka smatra da bi moderni profesori trebali imati mogućnost rada na daljinu, što diktiraju i sami uvjeti modernih obrazovnih aktivnosti. Četvrti je pokazatelj raznolikost nastavnih sredstava i didaktičkih materijala – 53 % stručnjaka izrazilo je mišljenje da raznolikost nije isto što i kvaliteta programa. Peti je pokazatelj interaktivnost softverskih komponenti – 63 % stručnjaka smatra da je to poželjna značajka, ali ne i nužan kriterij za ocjenu kvalitete programa.

Kvalitativna procjena modela provedena je sažimanjem komentara i prijedloga stručnjaka. Rezultati kvalitativne validacije trianguliraju se s rezultatima kvantitativne validacije kako bi se transformirao ili sačuvao svaki od predloženih pokazatelja. Primjer postupka triangulacije pokazatelja modela procjene prikazan je u Tablici 2.

Konačni model procjene kvalitete programa učenja na daljinu sastavljen je nakon triangulacije svih pokazatelja.

Validacija modela za procjenu kvalitete programa učenja na daljinu proizašla je iz kratke kvalitativne provjere mjerenja s obzirom na njihovu jedinstvenost (U), prikladnost (S) i važnost (I) koju su proveli pozvani stručnjaci (Tablica 3). Osim toga, primjeri komentara stručnjaka prikazani su u Tablici 3.

Tablica 2
Primjer triangulacije podataka za jedan od pokazatelja modela

Pokazatelj: Trener za studenta	
Vrsta provjere	Zaključak
Kvantitativna provjera	Pokazatelj ima visoku valjanost: Indeks = 1 (maksimum). Prosječni koeficijent varijacije = 1 (maksimum). Prosječni indeks Fleissove Kappe = 0,79.
Kvalitativna provjera	Pokazatelj je visoko ocijenjen. Jedanaest stručnjaka smatra potrebnim pojasniti termin „trener za studenta".
Odluka o pokazatelju: pokazatelj ostaje nepromijenjen u modelu; naziv pokazatelja „individualna podrška studentima" je razjašnjen.	

Napomena: razvio autor.

Tablica 3
Rezultati kvalitativne validacije mjerenja uključenih u model

Br.	Mjerenje	Jedinstvenost			Prikladnost			Važnost		
		M	*%*	*SD*	*M*	*%*	*SD*	*M*	*%*	*SD*
1.	Obrazloženje programa osposobljavanja / usavršavanja	48	92	9,02	43	82	4,54	44	82	2,27
2.	Ciljevi programa	52	100	11,35	49	95	5,67	49	95	7,95
3.	Profil studenta	52	91	10,21	53	95	5,67	46	85	6,81
4.	Tematski plan	51	93	8,75	55	98	8,75	51	98	9,02
5.	Nastavne aktivnosti	53	98	9,02	47	92	4,54	51	100	2,27
6.	Profil profesora	49	94	10,21	48	98	9,02	52	98	5,67
7.	Sastavnice aktivnosti učenja	53	100	8,75	50	96	5,67	46	92	10,21
8.	Obrazovne strategije	49	82	7,95	49	88	7,49	49	94	9,02
9.	Individualna podrška studentima	44	94	4,54	51	92	6,81	50	88	4,54
10.	Procjena napretka	45	96	6,81	51	92	2,27	52	94	4,54
11.	Kvaliteta virtualnoga auditorija	48	96	7,95	53	96	5,67	52	100	2,27
12.	Procjena početne spremnosti programa	49	96	2,27	46	88	4,54	58	94	7,95
13.	Procjena procesa obrazovnoga programa	56	99	6,81	41	92	4,54	51	92	6,81
14.	Konačna procjena obrazovnoga programa	54	100	7,95	48	94	2,27	44	96	5,67

Napomena: razvio autor.

Stručnjaci su ocijenili predložena mjerenja jasnima, važnima i prikladnima za procjenu programa obrazovanja na daljinu. Osim toga, sva su mjerenja pozitivno ocijenjena u smislu njihove važnosti za procjenu kvalitete programa. Primjerice, dimenzija 14 postigla je 100 % u smislu jasnoće definicije, 94 % u smislu prikladnosti i 96 % u smislu važnosti. Stručnjaci su ocijenili pokazatelje uključene u konačni model relevantnima i važnima za procjenu programa učenja na daljinu.

Stručno mišljenje i komentari omogućili su istraživaču da prilagodi model.

Kao rezultat toga, model ima nekoliko glavnih sastavnica. Postoje dvije varijable: 1 – kvaliteta programa učenja na daljinu (nužna za procjenu kvalitete svih programskih sastavnica) i 2 – tekuća (procesna) evaluacija programa (nužna za dobivanje kontinuiranih informacija o provedbi programa osposobljavanja/usavršavanja i za dobivanje povratnih informacija). Nadalje, postoji 14 mjerenja – mjerenja 1-11 usmjerena su na procjenu kvalitete sastavnica programa učenja na daljinu, dok su mjerenja 12-14 usmjerena na provjeru kvalitete faza provedbe programa. Mjerenja su prikazana u Tablici 4.

Tablica 4
Mjerenja uključena u model procjene kvalitete programa na daljinu

Dimenzija	Značajka
1	Obrazloženje programa
2	Ciljevi provedbe programa
3	Profil studenta
4	Tematski plan
5	Sastavnice aktivnosti učenja
6	Profil profesora
7	Nastavne aktivnosti
8	Obrazovne strategije
9	Individualna podrška studentima
10	Procjena napretka
11	Virtualna platforma
12	Procjena preliminarne spremnosti obrazovnoga programa
13	Procjena procesa obrazovnoga programa
14	Konačna procjena obrazovnoga programa

Napomena: razvio autor.

Model uključuje 75 pokazatelja – alata za procjenu kvalitete potrebnih za ispitivanje programa obrazovanja na daljinu. Pokazatelji su raspoređeni prema mjerenjima.

Raspodjela pokazatelja prema varijablama predloženim u modelu prikazana je u Tablici 5.

Tablica 5
Raspodjela pokazatelja prema varijablama modela procjene kvalitete programa na daljinu

Varijabla 1: Procjena kvalitete programa učenja na daljinu u mrežnom okruženju		
Mjerenje	Broj pokazatelja	Ciljevi
1. Obrazloženje programa osposobljavanja / usavršavanja	3	Procjena argumenata za provedbu programa na daljinu; studenti trebaju utvrditi njegovu korisnost za svoje učenje i stručno usavršavanje
2. Ciljevi programa	5	Procjena jasnoće i mjerljivosti programskih ciljeva, znanja, vještina, kompetencija, njihove usklađenosti s programom i zahtjevima tržišta rada
3. Profil studenta	7	Procjena profila pristupa i izvedbe
4. Tematski plan	5	Procjena kvalitete tematskih sadržaja programa, njihove relevantnosti, stupnja opterećenja, usklađenosti s ciljevima itd.
5. Nastavne aktivnosti	8	Procjena usklađenosti obrazovnih aktivnosti s kriterijima kvalitete u smislu tipologije, doprinosa postizanju ciljeva, poticanja timskoga rada, poticanja individualne aktivnosti, rasporeda učenja te metoda izvođenja zadataka
6. Profil profesora	3	Procjena kvalifikacija i usklađenosti s programom u smislu pedagoških i tehnoloških vještina, uključujući i one potrebne za učenje na daljinu
7. Sastavnice nastavnih aktivnosti	8	Procjena kvalitete nastavnih materijala (koliko su prikladni, mogu li se smatrati dovoljnima, relevantnima, motivirajućima i pristupačnima)
8. Obrazovne strategije	3	Procjena kvalitete nastavnih strategija, uključujući njihovu tipologiju i usklađenost s obrazovnim ciljevima programa
9. Individualna podrška studentima	6	Procjena kvalitete individualnoga i timskoga rada, procjena povratnih informacija profesora
10. Procjena akademskog uspjeha	4	Procjena kontinuiranih strategija vrednovanja učenja studenata, uključujući jasnoću kriterija i pravila ocjenjivanja
11. Kvaliteta internetskog okruženja	7	Procjena kvalitete mrežnoga okružja i njegove sposobnosti upravljanja svim fazama programa (priprema sadržaja, provedba, vrednovanje učenika itd.)

Varijabla 2: trenutačna procjena programa učenja na daljinu		
Mjerenje	Broj pokazatelja	Ciljevi
Procjena početne spremnosti programa	4	Procjena svih faza provedbe programa na daljinu
2. Procjena procesa obrazovnoga programa	6	
3. Konačna procjena obrazovnoga programa	6	
Ukupno	75	

Napomena: razvio autor.

Razvijeni model za procjenu kvalitete programa učenja na daljinu omogućuje procjenu pedagoških i tehnoloških komponenti programa, njegova planiranja, razvoja i rezultata; međutim, autor namjerava u budućnosti provesti mjere za njegovo poboljšanje, osiguravajući kontinuirano poboljšanje adekvatnosti obrazovnih programa u okružju učenja na daljiu kineskih sveučilišta.

Složenost provedbe opisanoga modela uglavnom se mjeri lokalnim osobitostima učenja na daljinu u svakoj pojedinoj regiji i obrazovnoj ustanovi u Kini. U ovome je slučaju potreban konkretniji i subjektivniji pristup provedbi ovoga modela u praksi jer kineska sveučilišta imaju prilično različite razine digitalizacije i formalizacije procesa učenja.

Rasprava

Pitanje kvalitete obrazovanja ne gubi na važnosti kako za tradicionalne programe učenja, tako i za programe učenja na daljinu za studente. Ovim se istraživanjem zaključuje da bi procjena kvalitete programa e-učenja trebala biti kontinuirana kako bi se osiguralo da se program može nadograditi prije nego što ga studenti završe, što potvrđuju i radovi ostalih istraživača (Beketova i sur., 2020; Butcher i Hoosen, 2014). Procjena kvalitete programa trebala bi biti sveobuhvatna i pružiti potpunu dijagnozu trenutačnoga stanja *online* programa kako bi se osiguralo donošenje pravovremenih odluka temeljem kojih bi se osigurala i visoka kvaliteta programa (Eby i Yuzer, 2015). Jedan od najvažnijih zahtjeva za procjenu programa za učenje na daljinu jest redovitost takvih provjera, što je povezano s promjenama u nastavnim alatima i tehnologijama učenja, kao i s povećanjem obima znanja (Mejía-Madrid i Molina-Carmona, 2016; Misuta i Pribilovab, 2015). Procjena kvalitete programa učenja na daljinu može se

smatrati dovršenom ako podržava kontinuitet prikupljanja podataka i njihove analize s procjenom kvalitete samoga programa, kvalitete pedagoških sastavnica i kvalitete virtualnoga okružja (Sebastianelli i sur., 2015).

Mnogi pristupi uključuju podatke koji se mogu prikupiti tek nakon završetka studija (Li min i Xiaoyan, 2013; Zhang i Xiangyang, 2014). Glavni je problem što predložene varijable i pokazatelji rijetko naglašavaju potrebu za procjenom kvalitete obrazovnoga programa. Nadalje, treba napomenuti da ne postoji konsenzus o broju dimenzija koje bi se mogle smatrati zajedničkima za sve modele. Kako se mrežno obrazovanje pojavilo u Kini tek nedavno, kineski standardi kvalitete nisu usporedivi s onima koje su razvile organizacije u Sjedinjenim Državama ili Europi (Dai, 2014). Postojeći se kineski način prikupljanja podataka za procjenu *online* programa, prema kineskim znanstvenicima, usredotočuje na infrastrukturu i upravljanje programima. Može se pretpostaviti da je glavni razlog tome u nedostatku baze znanja u ovom području, posebice u području procjene kvalitete nastave.

Zanimljiv model za procjenu kvalitete visokoga obrazovanja na daljinu temeljenoga na informacijsko-komunikacijskim tehnologijama jest model CEAACES-a (Vijeća za ocjenu, akreditaciju i osiguranje kvalitete visokoškolskih ustanova), čiji je cilj provjeriti kvalitetu internetskoga tečaja, akademskoga programa ili karijere, odnosno predlaganje poboljšanja potrebnih za postizanje postavljenih ciljeva (Mejía-Madrid i Molina-Carmona, 2016). Također se predlaže primjena ocjenjivanja na bihevioralnim ljestvicama kako bi se procijenila kvaliteta nastave u skladu s BARS metodologijom (ljestvicama ponašajnih očekivanja). Razmatra se i važnost aspekata kombiniranoga učenja kao što su komunikacija između profesora i studenata, resursi za učenje, oblikovanje kolegija i tehnička kompetencija profesora (Matosas-López i sur., 2019). Kako bi se poboljšala kvaliteta obrazovanja u kontekstu mrežnoga učenja i kombiniranoga učenja, uporabljen je upitnik za procjenu s Likertovom ljestvicom. Ovaj alat sadrži 43 elementa i koristi četiri razine bodovanja od 0 do 3 (Ralston-Berg i sur., 2015).

Integrirani pristupi istraživača za optimizaciju *online* učenja izraženi su u zadovoljavanju komunikacijskih potreba studenata. Istraživači sa Sveučilišta u Indoneziji predlažu suradnički model u kojem sve zadatke obavlja cijela akademska skupina ili male skupine (Bojović i sur., 2020). Ovo bi pomoglo očuvanju tradicionalnoga komunikacijskog učinka poučavanja i potaknulo studente na aktivnu znanstvenu suradnju. Istodobno, ovakav model pretpostavlja aktivnu uporabu različitih internetskih platformi i oblika, ovisno o području profila, kako bi se privukao velik broj neovisnih stručnjaka i omogućila neograničena uporaba protoka informacija.

Modeli predloženi u ovom istraživanju razlikuju se od većine navedenih modela po tome što u obzir uzimaju veći broj sastavnica te su cjelovitiji. Program pruža mogućnosti za redovitu procjenu i promjene u načinu poučavanja i njegovim alatima na temelju rezultata evaluacije, što također razlikuje ovaj model od ostalih postojećih modela (Sebastianelli i sur., 2015; Valverde-Berrocoso i sur., 2020; Zhang i Cheng, 2012). Nekoliko istraživača također je istaknulo uključivanje povratnih informacija

u model evaluacije kao važan alat za promjenu i poboljšanje obrazovnih programa u budućnosti (Esfijani, 2015; Gaskell i Mills, 2015; Zhang i Hu, 2016).

Zaključci

Model procjene kvalitete programa učenja na daljinu u *online* okružju predstavljen u studiji kombinira dva tipa procjene i uključuje parametre za procjenu svih sastavnica programa. Glavne sastavnice uključuju obrazloženje i ciljeve programa, profil studenata i profesora, tematske sadržaje, nastavne aktivnosti, didaktičke materijale, strategije učenja, nastavne materijale i kvalitetu okružja za učenje. Sastavnice procjene planiranja, provedbe i krajnjih rezultata programa odvojeno su istaknute. Model je dobio sadržaje u obliku mjerenja i pokazatelja koji odgovaraju tim mjerenjima. Stručnjaci su ocijenili predložena mjerenja razumljivima i prikladnima za procjenu programa obrazovanja na daljinu i pozitivno ih ocijenili s obzirom na njihovu važnost u procjeni kvalitete programa. Stručnjaci su ocijenili pokazatelje uključene u konačni model relevantnima i važnima za procjenu programa učenja na daljinu. Stručne prosudbe i komentari dali su smjernice za ispravljanje modela.

Konačni model dobio je sadržaje u obliku dvije varijable (varijabla 1 – kvaliteta programa učenja na daljinu i varijabla 2 – procjena procesa programa), 14 mjerenja (mjerenja 1-11 usmjerena su na procjenu varijable 1; mjerenja 12-14 usmjerena su na provjeru mjerenja 2) i 75 pokazatelja (raspoređenih prema dimenzijama – pokazatelji služe kao alati za procjenu kvalitete programa). Ove sastavnice pokazuju specifične smjernice za procjenu kvalitete programa osposobljavanja/usavršavanja koji se provodi na daljinu.

Otprilike polovica stručnjaka (46 %) ocijenila je važnost usklađenosti između programa učenja na daljinu i digitalnih i tehničkih mogućnosti obrazovne ustanove. Istodobno, velika većina anketiranih stručnjaka – 63 % – istaknula je „interaktivnost" kao dodatnu sastavnicu modela mrežnoga obrazovanja koja bi se prepoznala kao značajna prednost u učenju u kontekstu regije koja se proučava.

Daljnja istraživanja mogu se usredotočiti na procjenu stabilnosti različitih sastavnica modela i njegove univerzalnosti za programe različitih orijentacija i područja znanja. Provjera prikladnosti konačnoga modela provedena je ispitivanjem modela kao alata za procjenu tri programa učenja na daljinu. Svaki je program istraživač procijenio pomoću protokola samoprocjene programa učenja na daljinu, što je omogućilo donošenje zaključaka o mogućnostima modela procjene kvalitete. Nakon provjere valjanosti i povratnih informacija od strane interesnih skupina, model se može poboljšati. Rezultati istraživanja mogu biti od interesa za istraživače u polju obrazovanja, nastavnike, sveučilišne administratore, koordinatore tečajeva na daljinu i programe usavršavanja.

Također, rezultati istraživanja ukazuju na potrebu transformacije postojećega obrazovanja na daljinu u Kini kako bi se povisila njegova razina u okviru današnjih globalnih izazova. Značajna ukupna razina digitalizacije u regiji nejednolik je čimbenik uspjeha *online* učenja na sveučilištima i zahtijeva promjene u studentskoj komunikaciji, integraciji procesa i poboljšanju vrednovanja studenata.