Methodology for Ensuring Quality Management of Higher Education

Liudmyla V. Krymets[1]; Oleksandr H. Saienko[2]; Olha O. Bilyakovska[3]; Oleg Yu. Zakharov[4];
Dora H. Ivanova[5]

[1]Department of Social Sciences, National Defense University of Ukraine named after Ivan Cherniakhovskyi Povitroflotsky Ave., Kyiv, Ukraine.

[2]Department of Military and Humanitarian Disciplines, Military Institute of Telecommunications and Informatization named after Heroes of Kruty, Moskovska Str., Kyiv, Ukraine.

[3]Department of General Pedagogy and Pedagogy of High School, Ivan Franko National University of Lviv Universytetska Str., Lviv, Ukraine.

[4]Regional Scientific Centre of the Russian Academy of Education, Southern Federal University Mikhail Nagibin Ave., Rostov-on-Don, Russian Federation.

[5]Department of Preschool and Primary Education, Izmail State University of Humanities, Repin Str., Izmail, Ukraine.

Abstract

Higher education's quality management requires an understanding of the needs of end users (customers, interested parties) and involves the application of new methodologies for the formation and implementation of strategic plans in order to meet the needs of external (employers) and internal consumers (students and teachers). The purpose of the academic paper is to investigate the current state of quality management of higher education based on the study of the requirements of different interested parties' groups by surveying consumers of educational services in Ukraine. The methodology is built on the basis of interested parties' theory and TQM (Total Quality Management) methodology in quality management of higher education. The methodology has been used to study the requirements of the administration and departments of higher educational institutions (HEI), students and employers in Ukraine towards quality of education. The methodology is based on a survey, which involves the formation of a structure of customers' requirements (interested parties) and sets of questions for different groups of customers. Four requirements frameworks have been designed to meet the needs of consumers of educational services, which ultimately ensures the identification of priorities and assessment of the overall quality of higher education. The results demonstrate the implementation of the principle of "student-centered learning" and the protection of key interests of students in order to obtain and receive qualitative higher education in Ukraine. The spread of the practice of TQM integration in the private sector has been revealed, which determines the adaptation of this methodology in the management processes of educational establishments. The presence of a significant level of dissatisfaction with the quality of higher education in Ukraine has been proven. An empirical assessment of the significant gap between expectations and actual experience of higher

education has been made, and the inconsistency of education in Ukraine with the requirements of interested parties has been proven.

Key-words: TQM, Integration, Knowledge, Educational Institutions, Students.

1. Introduction

The integration of the principles and practices of quality control of higher education determines the growing importance of quality management methodology (Coates, 2005). The quality of higher education depends on the challenges of the external environment that arise in the face of changing labor market needs, including the need for skilled professionals of new professions. Many young professionals are looking for a decent job, while employers are in search of a specialist with the necessary skills (Lauder and Mayhew, 2020). This imbalance can be traced in particular through the management of higher education: higher education institutions with a time lag meet the needs of the labor market, which dictates the required range of competencies, skills and knowledge. This necessitates the development of a new methodology for quality management in higher education, where quality should be considered through the prism of meeting the needs of the labor market. Compliance with the requirements of employers will be reflected in the growth of employment, especially in terms of young professionals and specialists. This problem is especially acute in low- and middle-income countries: for instance, in 2017, in Ukraine and Romania, the share of young people who do not receive education, are not employed or do not study is 16.47% and 15.15%, respectively (World Bank, 2020a). For comparison, in Poland the indicator was 8.13% in 2019, in the Czech Republic – 5.66% in 2019 (World Bank, 2020a). Herewith, the indicator of state expenditures per 1 student of a higher educational institution was 34.46% and 26.09% of GDP per capita in 2016 (World Bank, 2020b). In Poland and the Czech Republic, the indicator was 25.41% and 20.34% in 2016, respectively (World Bank, 2020b).

The quality management of higher education, in particular the formation of a strategic plan, requires an understanding of the needs of end users (customers, interested parties). On the other hand, management involves the application of new methodologies for the formation and implementation of strategic plans in order to meet the needs of consumers, both external (employers) and internal (students and teachers) (Budiharso et al., 2020).

In this scientific article, the methodology is used to study the requirements of the administration staff and departments of universities, students and employers. In fact, such aspects as: process, product and market are taken into account. The methodology makes it possible to study

various components of quality in higher education, namely: 1) technical, regulatory requirements and methods of quality management and processes; 2) social and behavioral components (philosophy, strategic quality planning, customers' focus, culture and human resources). For quality assessment, a system approach and a customer-oriented approach have been used; they provide for quality assessment at the stages of formation of input variables, process and output variables.

The purpose of the research is to examine the current state of quality management of higher education by studying the requirements of different interested parties' groups by surveying consumers of educational services in Ukraine. The practical significance of the results lies in the possibility of using the identified requirements of interested parties in the development of a methodology for quality management of higher education by public authorities. The practice of assessing the quality of education in Ukrainian higher educational institutions provides for limited quality management, forasmuch as it partially assesses the quality of education by students and provides for a sample survey of graduates, teachers, employers, employees.

2. Literature Review

Various methodologies for quality management of higher education have been proposed in the scientific literature. It is worth highlighting the basic ones, namely: the method of analyzing hierarchies to determine the priority needs of consumers, develop strategies, plans and qualitative characteristics of the quality of education (Budiharso et al., 2020); comprehensive methodology for monitoring the quality of educational programs (curricula) in higher educational institutions based on a survey of interested parties (Belash et al., 2015); methodology based on comparative longitudinal studies, surveys and mixed methods of studying the quality of higher educational institutions (Leiber et al., 2015); agent-oriented methodology, which provides for the development of a system for monitoring the quality of higher education and web mining as a method of collecting data on quality (Qin et al., 2020); data analysis methodology for assessing the quality of university departments' performance in order to identify the level of efficiency and transparency of operation (Martín, 2006); contextualized methodology for assessing the quality of higher education based on 10 key interested parties' questions (Nygaard and Belluigi, 2011); methodology for assessing the sustainability of a higher educational institution to characterize the functioning of the establishment in the context of the economic, environmental and social component (Madeira et al., 2011); methodology for recording data on students' involvement in quality management (Coates, 2005); methodology based on Total quality management (TQM), evaluating principles and basic concepts in order to display the state of

functioning of a higher educational institution in comparison with others over a certain period of time (Kanji et al., 1999; Flores-Molina, 2011); methodology based on multicriteria analysis and modeling of disaggregation of benefits, which takes into account the acceptance of the student in the labor market (Politis and Siskos, 2004).

The issues and practice of integrating the concept of TQM in the quality management of higher education have been discussed in the scientific literature since the early 1999s (Kanji, Malek and Tambi, 1999; Flores-Molina, 2011). Since 2013, there has been an increased level of interest in quality management based on the TQM philosophy, especially in developing countries (Papanthymou and Darra, 2017). This is due to the compliance of the methodology with the goals of educational institutions, expectations and the new role of educational establishments (Papanthymou and Darra, 2017). TQM is actively integrated in developing countries as a relatively new and effective methodology for quality management of higher education (Ratna Sari Dewi et al., 2020; DiZinno et al., 2020; Eryılmaz et al., 2016; Sahney, 2016). Universities and institutes are considered as systemic organizations that compete with each other for long-term success. Therefore, the principles of quality management of education are actively integrated into higher educational institutions, like the practice of corporate governance of corporations, which take into account the interests of all interested parties (Sahney, 2016). As a result, researchers propose to use integrated customer-oriented models of education quality management based on TQM methodology. Service and quality of educational services taking into account the needs of consumers is a central priority in this methodology. Consequently, the TQM methodology takes into account the theory of interested parties in the context of transforming the culture of the organization and focusing on the values of different groups of end users of educational services that affect the quality of educational services and quality management (Hickman and Akdere, 2017). "Total Quality Management (TQM) is a philosophy that focuses the firm on satisfying the customer by improving organizational processes to improve quality of products and services while meeting predetermined standards" (Hickman and Akdere, 2017). End-user focus is recognized as an important factor in ensuring the quality management of higher education; it is an innovative strategic direction in the context of studying interested parties' interaction (Shams, 2017).

TQM involves the use of the following methods, namely: 1) Gap Analysis techniques (SERVQUAL) to identify the characteristics (components) of quality and problems in ensuring quality management (Sahney, 2016); 2) quality functions to determine a set of characteristics or quality components according to the needs of interested parties (quality function deployment (QFD) (DiZinno et al., 2020); 3) interpretive structural modeling (ISM); 4) and path analysis to determine the priority of quality components (Sahney, 2016). The outlined methods and techniques of analysis

form a model of TQM (Sahney, 2016). The basic approaches to the study of TQM methodology are as follows: customer-oriented (Sahney, 2016) and inductive constructivist ones (Shams, 2017).

3. Materials and Methods

This academic paper is based on the theory of interested parties (Hickman, L., and Akdere, M., 2017) and the TQM methodology (Sahney, 2016; Shams, 2017) in quality management of higher education. The quality of services in the TQM methodology is the basis for ensuring the competitiveness of higher educational institutions and a strategy for quality development of universities. Value formation for interested external (employers, developers of state quality management policy) and internal parties (administration staff, teachers, students) is becoming an increasing priority. This is due to such trends, as: 1) globalization of educational services and students' mobility, migratory flows of students; 2) increasing demands of employers to the qualifications, skills, competencies of employees; 3) the emergence of new professions with new competencies, the formation of which is not provided by higher educational institutions during the educational process.

Table 1 - Customer Requirements Constructs and Items for various Customer Groups

Customer Group	Number of Constructs and Items	Items and Constructs
Administrative/ Supporting Staff	14 items grouped under 4 factors	1. Tangibles: proper physical facilities / infrastructure, salary, benefits. 2. Attitude: effective problem solving / complaint handling, cordial interpersonal relations, information sharing / exchange, supportive superiors, evaluation procedures and proper monitoring systems. 3. Delivery: autonomy of work and freedom, in-service development and training, individualized / personalized attention. 4. Reliability: practice consistency, clearly specified policies and guidelines, firmly and fairly enforced rules and regulations
Faculty	19 items grouped under 5 factors	1. Tangibles: appropriate physical facilities / infrastructure, adequate equipment and facilities, salary, benefits and allowances, efficient and adequate teaching assistants / project help and secretarial help. 2. Competence: effective classroom management, proper classroom procedures, opportunity, control for curriculum development or preparation. 3. Attitude: effective problem solving / complaint handling, proper monitoring systems, cordial interpersonal relations, 4. Delivery: in-service training and development, continuous personal growth, politeness and courtesy, orderly environment conducive to teaching, individualized / personalized attention. 5. Reliability: fairly and firmly enforced rules and regulations, security of job, recognition for work carried out.
Students	26 items grouped under 5 factors	1. Competence: appropriate physical facilities and infrastructure, faculty's expertise, faculty's teaching ability and skills, sufficient faculty and support staff. 2. Attitude: effective problem solving, orientation towards achievement, healthy competitive environment, willingness to help, politeness and courtesy, collegial and cooperative environment. 3. Content: learn to apply, clarity of course objectives, relevance of curriculum to future needs, flexibility of knowledge being cross disciplinary. 4. Delivery: ease of contact / access to teachers and administrative staff, effective classroom management, adequate and appropriate classroom procedures, responsiveness, reward structure / recognition for work done, Record keeping on performance, orderly environment. 5. Reliability: clearly specified values and aims, consistency of practice, clearly specified policies / guidelines, fairly and firmly enforced rules and regulations, adherence to course objectives.
Industry	15 items grouped under 4 factors	1. Tangibles: appropriate infrastructure for conducting placements, visually appealing environment, sufficient staff / support staff. 2. Competence: teaching expertise, core / basic knowledge, specialized / advanced knowledge, decision making ability, communication skills, interpersonal skills. 3. Delivery: flexibility of knowledge being cross-disciplinary, courtesy, ease of access to the institution. 4. Attitude: risk taking ability, desire to continue learning, ethics and morality.

Source: (Sahney, 2016).

The methodology is based on a survey by forming constructions of customers' requirements (interested parties) and sets of questions for different groups of customers (Table 1). The requirements are designed to meet the needs of all interested parties; this ultimately ensures the identification of priorities and assessment of the overall quality of higher education.

An electronic questionnaire with developed sets of questions was sent to respondents of Ukrainian universities; they were randomly interviewed about the requirements for quality management in higher education. All interested parties took part in the survey, namely: National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Taras Shevchenko National University of Kyiv, Sumy State University, National Technical University "Kharkiv Polytechnic Institute", Lviv Polytechnic National University. In total, 20 representatives of administrative staff, 50 employees of various faculties, 520 students and 60 representatives of employers of Ukraine took part in the survey. The students include representatives of such professions, as: engineers, logisticians, economists, civil engineers, labor protection engineers, specialists in logistics. Respondents representing employers were identified by evaluating internship programs between employers and universities. A letter with a link to an electronic questionnaire to assess the quality management requirements of higher education was sent to the e-mail addresses of HR-managers of companies (posted on the websites of companies-employers).

The questionnaire provides an opportunity to assess the expectations and actual learning experience for each statement. Respondents rated each statement on a five-point scale, where 1 is "bad" and 5 is "excellent". Respondents-employers also assessed the expectations from graduates and the actual work experience for each statement. Statistica 22.0 software was used to process the results of the survey of different interested parties' groups. The main methods for the analysis of the identified requirements were used as follows: Cronbach's α was chosen for checking the reliability of the constructed sets of questions, Pearson correlation for assessing the reliability of perception and analysis of the requirements of interested parties. The coefficient of determination and Fisher's statistics with the accepted level of significance of 5% error was used to assess the adequacy of the constructed regression model.

4. Results

4.1. Quality Management of Higher Education in Ukraine

The higher education system in Ukraine neither ensures the value of educational services nor takes into account the needs of internal and external interested parties. Applicants and students do not

understand the value of education. The formality of higher education in Ukraine is a common practice among applicants. Along with this, the labor market needs specialists in agriculture, industry, construction, forasmuch as there is a stable shortage and high demand in the specialities outlined. At the same time, higher educational institutions offer obtaining higher education for such specialties, as: economist, lawyer, manager, marketer, banking sector worker. On the one hand, there is a stable acute shortage of highly qualified personnel in the labor market, in particular, technical specialties; on the other hand, highly qualified personnel do not meet their own needs in a decent level of wages.

The quality of educational services in Ukraine is regulated at the state level through surveys of students according to the following criteria: the level of students' satisfaction with the quality of the educational process; components that need improvement; shortcomings in the structure of educational processes; lack of activities. In addition, the quality of higher education is assessed at the local level through surveys of universities on the quality of the educational process, the quality of teaching and learning, advantages and disadvantages, distance learning (students and staff), surveys of graduates on the quality of education, employers and company representatives. The quality of education is assessed by Ukrainian higher educational institutions on the basis of developed and approved regulations on the organization of assessment by applicants for higher education of the quality of educational activities in the study of academic disciplines, taking into account the Standards and Recommendations for Quality Assurance in European Higher Education Area. On the one hand, the assessment of the quality of education ensures that *the interests of students and teachers are taken into account*. However, it does not take into account the interests of external interested parties, in particular, employers. Standards and recommendations for quality assurance in European Higher Education Area stipulate that students are the main stakeholders in the internal quality assurance system of higher education. Consequently, Ukrainian higher educational institutions implement the principle of "student-centered learning" and protect the key interests of students in order to obtain and receive qualitative higher education. Thus, the practice of assessing the quality of education in Ukrainian higher educational institutions involves limited quality management, forasmuch as it partially assesses the quality of education by students and provides a sample survey of graduates, teachers, employers, employees.

The modern system of quality management of education does not take into account the needs and requirements of scientific and pedagogical staff (in terms of wages and working conditions) as well as employers. This primarily leads to the reduction in the level of popularity of the teaching profession, decreasing the number of human resources in the context of the appropriate material and technical support of higher educational institution's employees. For instance, the number of graduate

students in Ukraine has begun to decrease from 2010 to 2019 by an average of 5% annually; the number of doctoral students decreases annually by 7% from 2014 to 2019 (State Statistics Service of Ukraine, 2020). Accordingly, the number of HEI graduates per 1 postgraduate student and 1 doctoral student is reduced (Figure 1).

Figure 1 - Dynamics of the Number of HEI Graduates per 1 Postgraduate Student and 1 Doctoral Student in Higher Educational Institutions of Ukraine in 1991-2019, Persons
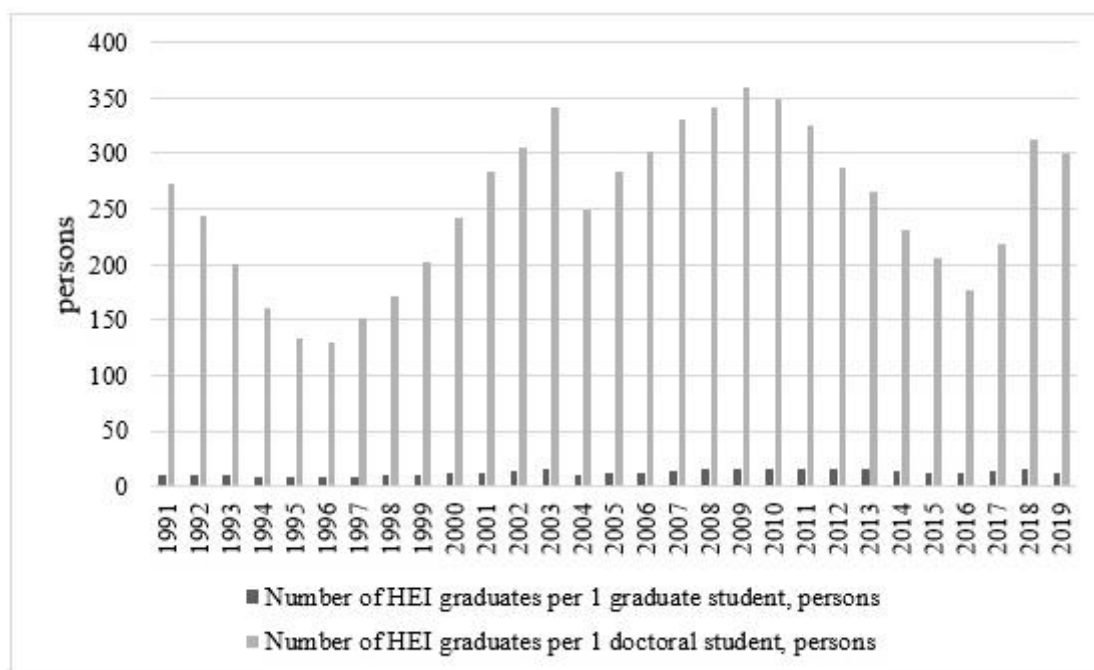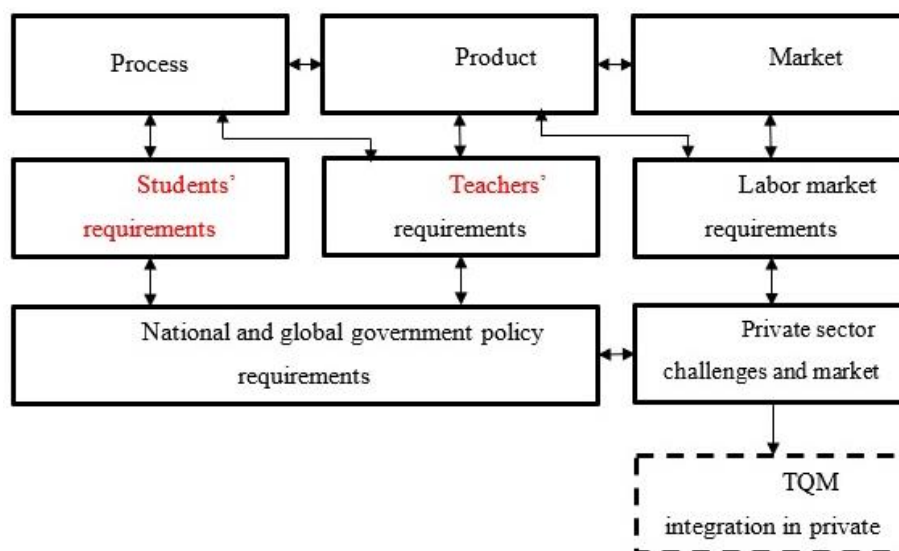

Source: It has been calculated by the author on the basis of the State Statistics Service of Ukraine, 2020).

Let's consider the practice of assessing the quality of education in Ukrainian higher educational institutions in order to identify the requirements and needs of all groups of customers of educational services. For instance, National University of Water Management and Environmental Management assesses students on ensuring the quality of education, educational programs (curricula) and processes, optimization of the class schedule, quality of teaching and learning, a new knowledge assessment system, advantages and disadvantages of dual education, distance learning, quality of foreign language training, questionnaires of coordinators of quality assurance of education, research and teaching staff (National University of Water Management and Environmental Sciences, 2020). Survey on the quality of education of Sumy State University provides an assessment of the quality of the organization of educational activities in the study of academic disciplines (Sumy State University, 2020). Mykolayiv National Agrarian University evaluates the quality of education through surveys of

students and stakeholders, including applicants, degree-seeking students of the first and third levels, graduates, teachers, employers, employees (Mykolayiv National Agrarian University, 2020). The survey includes an assessment of the following components of the quality system, namely: assessment of image and brand perception; study of motives for entry; quality of educational process and organization of practical training; assessment of the quality of education; assessment of the quality of training staff; assessment of the quality of teaching and learning according to the educational program; corruption in HEI.

Analysis of the current quality management system of higher education in Ukraine shows the impact of international standards and requirements for quality assessment based on the principle of "student-oriented approach", which transforms the state policy of quality management. At the same time, the spread of the practice of TQM integration in the private sector leads to the adaptation of this methodology in the management processes of educational establishments (Figure 2).

Figure 2 - Methodology for Quality Management in Higher Education: The Process of Integrating TQM into Management

Source: It has been compiled by the author.

As a result of changes in private sector management, employers' requirements for graduates are changing, and, consequently, the labor market is being transformed. Changes in the labor market lead to changes in educational products. With the simultaneous influence of international and national demands for the assessment of the quality of management, both the requirements of the scientific and pedagogical staff of the university and the requirements of students for educational products and services are changing. If in Ukraine, students' requirements for the product and process are taken into

account through the provisions developed and approved at the local level of HEI education assessment, then the requirements of employers and the labor market are leveled down.

4.2. Total Quality Management in higher education of Ukraine: Customer Requirements Constructs analysis

In order to assess the requirements of different interested parties' groups for the quality of education in Ukraine, the assessment of perception and the assessment of actual experience for different consumers' requirements were compared. As a result, a gap was revealed between the level of expectations (requirements) to actual experience in the course of receiving educational services by students, the provision of educational services by scientific and pedagogical personnel and employment of graduates by employers. The level of perception and expectations characterized the projected quality of educational services by different groups of users. To evaluate the results, a simple linear regression model was used, where expectations were an independent variable and actual experience was a dependent variable (See Table 2).

Table 2 - Simulation Results

The group of interested parties		Cronbach alfa	Pearson's Correlation	Significance	R	F	Significance
Administrative staff	Perception	0.702	0.805	0.000	0.711	85.120	0.000
	Perception minus experience (Gap)						
Faculties (scientific and pedagogical staff)	Perception	0.745	0.801	0.000	0.624	204.744	0.000
	Perception minus experience (Gap)						
Students	Perception	0.699	0.825	0.000	0.689	245.082	0.000
	Perception minus experience (Gap)						
Employers	Perception	0.578	0.218	0114	0.047	1.358	0.203
	Perception minus experience (Gap)						

Source: It has been calculated by the author.

For three of the four interested parties' groups, namely administrative / supporting staff, faculty and students, regression analysis showed a very significant correlation with a p-value less than 0.05, indicating that the hypothesis of no linear relationship between the two variables were rejected. The value of R^2 was greater than 0.50, and this indicated the conformity of the linear model (coefficient of determination). The value of F was large, and when the value of p for F is less than

0.05, the linear dependence was quite significant. For the fourth group of customers of educational services, that is, employers, the linear relationship was statistically insignificant. However, this is due to the small sample size. From the first three cases it can be concluded that the study of the gap between perceptions, expectations and actual experience as a predictor of the quality of education and service is relevant. However, in the case of employers, expectations do not explain the actual experience, which means a complete mismatch between the requirements of employers towards professionals. However, to ensure parity, it has been concluded that actual experience can be a predictor (forecast assessment) of the quality of service and education, as well as expectations regarding the quality of services. The assessment of perception was compared with the assessment of expectations of the actual experience of each interested parties' group, and, thus, the quality of service and educational services / gap was assessed. The reliability of the scale was evaluated by calculating Cronbach's α; the dimensionality of the sample was checked using factor analysis, which was conducted on the basis of each correlation matrix to assess the perception of the quality of education by different groups. Prognostic reliability was analyzed by correlation analysis. Thus, the prognostic reliability, dependability and dimensionality of scales have been analyzed, as well as the one-dimensional and two-dimensional analysis for definition of gaps in educational services of higher educational institutions has been carried out. It should be noted that negative evaluations have been obtained for all categories of customers with a higher level of expectations than their evaluations of actual experience. This indicates the need to improve the quality of higher education and develop design features to ensure quality management in higher education based on the TQM methodology.

5. Discussion

The analysis of scientific investigations makes it possible to understand the TQM methodology as a philosophy, a concept of quality management in higher education. TQM is based on the theory of interested parties in order to ensure the competitiveness of educational institutions, improve the quality of services, processes and educational products. The growth of the quality level is due to the measurement of quality components, the formation of priority values for all groups of end users in accordance with their needs and requirements.

The analysis of the scientific literature proves the lack of full-fledged investigations of modern practice and the state of quality management in higher education based on the TQM methodology in countries with economies in transition. Some investigations study this issue in developing or advanced countries, which eliminates the features of quality management of

educational services in transition economies. Therefore, it is important to study the requirements of different interested parties' groups by surveying consumers of educational services in Ukraine in order to assess the state of quality management.

The study conducted proves the existence of a significant level of dissatisfaction with the quality of higher education in Ukraine, in particular, by employers. This proves that developing countries primarily need to ensure the quality management of higher education in order to meet the needs and requirements of students, teachers and employers (Sahney, 2016). The significant gap between the expectations and the actual experience of all interested groups assessed in this academic paper proves the inconsistency of education in Ukraine with the requirements of employers. Actual experience is a predictor of the quality of education in Ukraine. Among the main attributes that need improvement in the context of quality management methodology the following ones should be highlighted, namely:

1. For scientific and pedagogical staff: appropriate physical facilities / infrastructure, adequate facilities and equipment, salary, effective classroom management, proper classroom procedures, opportunity, in-service training and development, continuous personal growth, Individualized / personalized attention, fairly and firmly enforced rules and regulations, security of job, recognition for work carried out;

2. For students: improvement of living conditions, clarity of curriculum Design; curricula should meet students' needs in the future, suitability and applicability of curricula to labor market conditions, flexibility in the application of knowledge, periodic review and planning of curricula;

3. For employers: specialized / advanced knowledge, decision making ability, communication skills, interpersonal skills, flexibility of knowledge being cross-disciplinary, ease of access to the institution, risk taking ability, desire to continue learning, ethics and morality.

This study explains the potential impact of different interested parties' groups on quality management in higher education. Similar to the findings in the study of Shams (2017), requirements have been established that determine the components of potential impact in accordance with the modern needs and requirements of users of educational services (Shams, 2017).

In Ukraine, as in other countries, all interested parties are interested in new principles and practices of quality management in higher education due to the need for continuous improvement of organizations and processes of higher educational institutions (Sohel-Uz-Zaman, 2016). Such need exists in Ukraine and the practice of assessing the quality of various components of the educational process, curricula and disciplines proves the importance of using the TQM methodology. Developed

countries are gradually integrating the use of TQM methodology in order to ensure quality management in higher education (Ratna Sari Dewi et al., 2016).

This research proves that the barriers to ensuring the implementation of the TQM methodology are as follows: infrastructure constraints, the limited involvement of interested parties (employers and teachers) in the assessment and measurement processes of a complex set of indicators of the quality of education and the process (Papanthymou and Darra, 2017). Along with this, the advantage of modern quality management practice in Ukraine lies in compliance with international standards and national regulations of quality assessment, integration of "student-oriented approach" to quality management. This ensures the implementation of interest parties' theory in the practice of quality management and the integration of a new customer-oriented approach that shapes the value of educational services (Hickman and Akdere, 2017). Despite the limited implementation of monitoring and assessing the quality of higher education, one can expect the integration of the TQM methodology in order to ensure quality management.

6. Conclusions

Despite the controversial conceptualization of quality management in education, its relevance is perceived positively due to the requirements of various interested groups. The concept of quality is based on "satisfaction of consumers of educational services". In the context of education, it involves meeting and exceeding the expectations of customers of educational services, as well as developing a system that meets and exceeds the requirements and needs. By the way, determining the needs of clients is the basic objective for various customers of the educational system. The design of the system is even more complex; it meets the different requirements of the customer and exceeds the defined requirements with satisfaction of all needs. The problem is complicated by the development of an integrated model of total quality management in higher education. The scientific article presents the results of an empirical study conducted to form the main components of quality management in higher education, taking into account the specific requirements of interested parties with a focus on both internal and external customers of the higher education system of Ukraine. Reliability and validity tests have identified factors important to different consumers' groups, namely: administrative / supporting staff and teachers as internal customers, students and employers as external customers of the education system. After that, a regression analysis has been carried out to assess the perception of the quality of services and determine the future components of the methodology for ensuring quality

management in higher education, which would meet the requirements of various internal and external customers of the higher education system.

Further investigations should focus on developing a methodology for quality management in higher education in order to integrate TQM, taking into account the interests of all interested parties' groups in transition economies.

References

DiZinno, N., & Jean-Pierre, Y. (2020). A total quality management tool for experiential engineering education. *ASEE Annual Conference and Exposition, Conference Proceedings*, 2020-June, article number 121.

Belash, O., Popov, M., Ryzhov, N., Ryaskov, Y., Shaposhnikov, S., Shestopalov, M. 2015. Research on university education quality assurance: Methodology and results of stakeholders' satisfaction monitoring. *Procedia-Social and Behavioral Sciences*, *214,* 344-358. https://doi.org/10.1016/j.sbspro.2015.11.658

Qin, F., Zeng, W., Li, L., Zhao, R. 2020. Construction of Big Data Monitoring Platform for Teaching Quality under Intelligent Education. *International Wireless Communications and Mobile Computing*, 9148224, 1594-1597.

Coates, H. 2005. The value of student engagement for higher education quality assurance. *Quality in Higher Education*, 11(1), 25-36. https://doi.org/10.1080/13538320500074915

Eryılmaz, M.E., Kara, E., Aydoğan, E., Bektaş, O., Erdur, D.A. 2016. Quality management in the Turkish higher education institutions: preliminary findings. *Procedia-Social and Behavioral Sciences*, 229, 60-69.

Flores-Molina, J.C. 2011. A total quality management methodology for universities. *FIU Electronic Theses and Dissertations*, 375. https://digitalcommons.fiu.edu/etd/375/

Hickman, L., Akdere, M. 2017. Stakeholder theory: Implications for total quality management in higher education. *4th International Conference on Lean Six Sigma for Higher Education,* 13, 105-109.

Kanji, G.K., Malek, A., Tambi, B.A. 1999. Total quality management in UK higher education institutions. *Total Quality Management*, 10(1), 129-153. https://doi.org/10.1080/0954412998126

Lauder, H., Mayhew, K. 2020. Higher education and the labour market: an introduction, *Oxford Review of Education,* 46(1), 1-9, DOI: 10.1080/03054985.2019.1699714

Leiber, T., Stensaker, B., Harvey, L. 2015. Impact evaluation of quality assurance in higher education: methodology and causal designs. *Quality in Higher Education*, 21(3), 288-311. https://doi.org/10.1080/13538322.2015.1111007

Madeira, A.C., Carravilla, M.A., Oliveira, J.F., Costa, C.A. 2011. A methodology for sustainability evaluation and reporting in higher education institutions. *Higher Education Policy*, 24(4), 459-479. https://doi.org/10.1057/hep.2011.18

Martín, E. 2006. Efficiency and quality in the current higher education context in Europe: An application of the data envelopment analysis methodology to performance assessment of departments within the University of Zaragoza. *Quality in Higher Education*, *12*(1), 57-79. https://doi.org/10.1080/13538320600685172

Ratna Sari Dewi, A. 2018. Relationship between total quality management in education performance. *International Journal of Scientific and Technology Research,* 7(2), 14-17.

Mykolayiv National Agrarian University. 2020. https://www.mnau.edu.ua/files/dostup/quality-management-system/283.pdf

National University of Water Management and Environmental Sciences 2020. https://nuwm.edu.ua/sp/rezuljtati-opituvannja

Nygaard, C., Belluigi, D. Z. 2011. A proposed methodology for contextualised evaluation in higher education. *Assessment and Evaluation in Higher Education*, *36*(6), 657-671. https://doi.org/10.1080/02602931003650037

Papanthymou, A., Darra, M. 2017. Quality management in higher education: Review and perspectives. *Higher Education Studies*, 7(3), 132-147.

Politis, Y., Siskos, Y. 2004. Multicriteria methodology for the evaluation of a Greek engineering department. *European Journal of Operational Research*, *156*(1), 223-240. https://doi.org/10.1016/S0377-2217(02)00902-5

Budiharso, T., Tarman, B. 2020. Improving quality education through better working conditions of academic institutes, *Journal of Ethnic and Cultural Studie*s, 7(1), 99-115.

Sahney, S. 2016. Use of multiple methodologies for developing a customer-oriented model of total quality management in higher education. *International Journal of Educational Management,* *30*(3), 326-353. https://doi.org/10.1108/IJEM-09-2014-0126

Shams, S.M.R. 2017. Transnational education and total quality management: a stakeholder-centred model. *Journal of Management Development*, *36*(3), 376-389. https://doi.org/10.1108/JMD-10-2015-0147

Sohel-Uz-Zaman, A.S.M. 2016. Implementing total quality management in education: Compatibility and challenges. *Open Journal of Social Sciences*, 4(11), 207.

State Statistics Service of Ukraine. 2020. http://www.ukrstat.gov.ua/operativ/operativ2005/osv_rik/osv_u/vuz_u.xlsx

Sumy State University. 2020. https://sumdu.edu.ua/uk/about-sumdu/quality-education/polls-competitors.html

World Bank. 2020a. https://data.worldbank.org/indicator/SL.UEM.NEET.ZS

World Bank. 2020b. https://data.worldbank.org/indicator/SE.XPD.TERT.PC.ZS?view=chart