Marketing assessment of the quality of higher education for sustainable development

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Abstract. Education for sustainable development aims to develop skills and expertise which are required to overcome modern challenges faced by society, the challenges arising from negative consequences of scientific progress and technological development. Universities deal with the task of providing education of high quality that meets the requirements of various stakeholders, or the parties involved, and correspond to the interest of society in sustainable development. The article proposes a methodological approach to assessing the quality of education. The methodology is based on studying of the stakeholders' satisfaction including the state authorities, employers and students. In order to conduct the study, the authors propose using the methods of gap analysis, which allow identifying discrepancies between the actual and the required conditions and the results of the education process implementation, research and development, innovations and other types of activities. This approach allows university management to identify the stakeholders, outline their requirements and expectations regarding the quality of education, as well as to explore particular mismatches, find out the reasons and develop solutions to eliminate them.

1 Introduction

The modern society at the current stage of its development increasingly feels threats to its existence which are caused by the negative consequences of scientific progress and technological development, irrational use of natural resources for the production of material wealth and the consumption, as well as the production focus on economic results at the cost of externalities affecting the environment. In the face of these threats, in order to avoid an environmental disaster, a growing number of countries aim to implement the goals of sustainable development, which ensure that social and economic transformations in the society create conditions for improving its sustainability and vitality and pose no risks to the existence of future generations [1]. The leading role in these transformations is assigned to universities. Modern universities are not only educational institutions, but also scientific and innovative platforms where new knowledge is created and developed. On the one hand, universities train highly qualified personnel and take part in forming the human capital. On

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the other hand, as a result of scientific research conducted in universities, new innovative technologies emerge to contribute to the social and economic development of the country. Thus, universities provide links between the state, the business and the society. In this regard, the main task of a modern university in the current social and economic context is to ensure high-quality results of the education process in the public interest of sustainable development. The quality of education is understood as a balanced match between the complex set of characteristics and attributes of the educational process, its results, and the entire education system as a whole, on the one side, – and the set of needs, goals, requirements, as well as standards and regulations determined by individuals, enterprises and companies, society and the state as a whole. In accordance with this definition, high-quality education for sustainable development at the university level can be achieved by focusing on meeting the requirements and expectations of the stakeholders:

- students as consumers of educational services;
- employers representing demand for graduates as well as collaborating with universities on creating and implementing the innovative technologies in production activities;
- the state that represents the interests of the society as a whole.

It should be noted that high-quality education for sustainable development directly depends on the ability of universities to ensure the balance mentioned above: that the processes and the results of education-related, research, innovation and other types of activities match with the requirements of stakeholders. In order to achieve this balance, universities create the conditions required for the implementation of all the types of the activities involved. The purpose of the research in the article is to choose a methodological approach to assessing the quality of higher education for sustainable development, taking into account the fact that the ability of a university to achieve and maintain the high quality of education is closely related to assessing the stakeholders' satisfaction.

2 Materials and methods

Implementing the marketing approach to assessing the quality of educational services is a timely and relevant task for the management of universities. The most important strategic goal is increasing the satisfaction of stakeholders. Satisfaction is the degree of correspondence between the requirements and expectations of stakeholders – and the actual results of the activities performed by a university [2]. Scientific literature can suggest various methodological approaches and models for assessing customer satisfaction – including the field of higher education.

Firstly, it should be noted, that the assessment of the quality of higher education most often deals with internal processes within an educational institution and the demand for the graduates in the skilled labor market. At the same time, the link between the quality of higher education and the goals of sustainable development – as an external factor – is sometimes mentioned by not studied in detail. In particular, Zhen Yue and Kai Zhao mention the lack of a theoretical framework that could allow understanding and assessing the effectiveness of higher education systems with due regard to sustainability skills and the requirements of the current external context [3].

Secondly, the timeliness of the interest in sustainable development is reflected in the growing number of papers and articles and expanding set of tools for empirical studies. Grigore Ioan Piroșcă et al. point out that there is a gap between existing theoretical outline of the concept of sustainable development and the empirical assessment of the effectiveness of the academic policies and teaching strategies. As one of the indicators of the consequences of the methodological gap the research conducted at the Bucharest University of Economic Studies showed that students are often not fully aware of the link between their studies and the goals of sustainable development [4]. At the same time, recent research

findings suggest that students in many countries – as one of the groups of stakeholders – are really interested in cutting-edge components of their training associated with the goals of sustainable development including in-depth understanding environmental, economic, and social systems and the interconnection of these systems in a sustainable world [5]. The results of the studies suggest that there could be a gap between the needs of the students and their perception of the results of their training.

Thirdly, the methodology used by most of the researchers focus on the implementation of the goals of sustainable development in academic management of a particular university. The case-study approach and exploratory investigations can help in dissemination of management models and promotion of the sustainable development goals [6]. Indeed, studies come to conclusion that universities need deep organizational changes in order to get the sustainability competencies implemented and involved in formulation of learning objectives and reflected in skills and knowledge of the graduates [7].

Alongside with that, the impact of universities on the trends of sustainable development can be assessed, as pointed out by Findler et al. [8]. The study identified eight areas in which the universities can influence the sustainability of the national and global economy: institutional, education, research, institutional cooperation, campus activities, experiences on campus, evaluation and reporting. Another study conducted in Spain focused on public perceptions on the role of universities regarding sustainable development [9]. The results confirmed the importance of universities as a driving force of sustainable development in various directions, including teaching and research activities, as well as campus operations, outreach and the potential influence on the community. Thus, the link between the higher education and sustainable development is multilateral and requires a comprehensive methodology that can help in assessing the efficiency of processes.

Finally, considering the complexity of the processes, we should note the researchers who apply marketing tools to study and assess the quality of higher education from the consumers' point of view and the interests of various stakeholders. In particular, Brche, Omelchenko and Shaab focus on the role of a consumer [10]. According to the researchers, consumers contribute greatly to the implementation of the sustainable development concept by choosing the goods and services – including higher education – that correspond to the goals of sustainable development and are economically, socially and environmentally efficient. This understanding brings us closely to the marketing concepts of consumer expectations and satisfaction.

In our opinion, the most suitable comprehensive approach for the specific problems of the study, is the GAP Model of Service Quality developed by American researchers Valarie A. Zeithaml, A. Parasuraman and Leonard L. Berry [11,12]. This model has proven its applicability in a wide range of scientific studies [2,13,14]. It allows identifying the existing gaps between consumer expectations and the quality of services provided by companies. The authors have adapted the GAP Model for assessing the quality of education for sustainable development.

This model describes 5 types of gaps, or discrepancies, that cause dissatisfaction of stakeholders with the quality of education.

1. Gap between the actual requirements and expectations of the quality of education among stakeholders and the perception of these requirements and expectations by the university management (GAP 1). The gap appears due to the lack of reliable information on the requirements and expectations of stakeholders obtained by the university management. The main reason for the discrepancy is low quality or lack of market research. In addition, a university management may conduct high-quality marketing research on a regular basis and obtain market data, but fail to use the results to the full extent in making managerial decisions.

2. Gap between the perception of the requirements and expectations of stakeholders by the university management and the standards of the quality of higher education (GAP 2). Such standards include the internal regulatory documentation of the university that form the basis for its activities: educational standards independently established by educational institutions, the university's quality management system documentation, educational programs, etc. This gap occurs in cases when the documentation is created only to meet and establish formal requirement, and it does not take into account the actual requirements of consumers of educational services and the goals of sustainable development.

3. Gap between standards and the quality of education (GAP 3). This gap is one of the most common ones faced by universities in the process of educational and other types of activities. This discrepancy appears mainly when university management fails to ensure compliance with the requirements of the state educational standards and regulatory documents which control the university activities, including in the goals of sustainable development.

4. Gap between the activities carried out by the university and external communications (GAP 4). The gap occurs if an educational institution uses its website, mass media, advertisements, etc. to provide information aiming to create false impression of its activities among stakeholders, including the ideas and goals of sustainable development.

5. Gap between the requirements, expectations and perceptions of stakeholders regarding the quality of education (GAP 5). This gap appears whenever there is at least one of the discrepancies mentioned above since all of them lead to a gap between the requirements, the expectations and the consumers' perception of educational services. Therefore, this is the gap that ultimately determines the quality of higher education.

Requirements and expectations of stakeholders are formed on the basis of their past experience, personal needs, communication with friends, colleagues (word-of-mouth communications), and also are influenced by advertising (external communications).

High quality of educational services for sustainable development can be identified if the perceptions of consumers of higher education services match or exceed the requirements and expectations. Therefore, in order to provide high-quality education, universities should conduct regular studies and monitoring to identify the requirements and expectations of all the consumer groups, as well as to identify all types of gaps and eliminate them.

As a result of the research, we have developed a model for assessing the quality of education for sustainable development using GAP analysis (Figure 1).

Fig. 1. GAP Model for assessment of the quality of education. Authors’ own elaboration

Each group of stakeholders have their own interests in relation to a specific university. These interests form the basis for requirements and expectations regarding the quality of education, including the consideration of the goals of sustainable development (Table 1).

Table 1. Requirements and expectations of consumers of higher education services

Participation in the activities and affairs of the higher education institution	Stakeholders’ specific interest in the results	Stakeholders’ requirements and expectations regarding the quality of education
The state and the society as a whole		
The Ministry of Science and Higher Education of the Russian Federation; sectoral ministries – establishing founders of universities providing funding for the training of specialists for various sectors of the country's economy and fields of research and development	Competent workers, socialized and politically active citizens, leaders and managers. Public awareness of sustainable development. Research and development carried out to ensure the sustainable development of the country. Innovative technologies. Sustainable economic and social development of the country.	Results of activities that meet the needs of the society, including the issues of sustainable development. Educational services and other activities of universities which meet the requirements of the Law on Education, Federal State Educational Standards, and other regulations of the university activities
Employers		
Customers of university educational programs. Employers of students and graduates of the university, the companies providing jobs and internship programs. Partners collaborating with universities on joint projects for sustainable development	Competent, skillful and socialized workers with the needed skills and expertise, able to use innovative technologies for sustainable development. Innovative technologies	The level of knowledge and skills of university graduates that corresponds to the requirements of the modern economy, goals of sustainable development and requirements of a particular employer. Scientific research station corresponding to the areas of employers’ activities. The set of educational programs corresponding to the areas of employers’ activities
University applicants, students and their families		
Students of university educational programs	Knowledge, skills, including those in the field of sustainable development, opportunities to achieve personal and professional goals, comfort while studying and pleasure of the process, additional services (catering, accommodation, etc.), operational and full answers to arising questions, university management that meets the criteria of a "green" economy	Set of educational programs meeting the needs of applicants, enrollment conditions. Conditions of the implementation of the educational process, extracurricular activities in compliance with sustainable development goals. Graduates’ knowledge and skills, sufficient to perform professional tasks in a particular organization

We believe that the most important aspect is monitoring of the actual conditions of implementation and the results of university activities. In order to perform this task, it can be recommended to formalize the requirements and expectations of the groups of stakeholders. A set of indicators can be determined to assess the quality of education: quantitative and qualitative characteristics of educational programs, degree of innovation

built into the programs, availability of modern research facilities, presence of scientific schools, qualitative and quantitative characteristics of the academic staff, developed infrastructure, sustainable development plan, etc.

Based on the results of the marketing research, a list of actual and required (expected) values indicators is compiled with indicators relevant for assessing the quality of education for sustainable development. If there is a difference between these actual and required (expected) values, it indicates the discrepancies. The gaps require actions to improve the quality of higher education services for sustainable development. The set of measures is developed aiming to achieve the matching of the conditions of implementing the educational, research, innovative and other activities to the requirements and expectations of the stakeholders.

As a result of implementing all the stages, a comprehensive assessment is measured to draw conclusions about the level of satisfaction of different groups of consumers of higher education services and other stakeholders. The assessment allows the university management to take well-grounded managerial decisions in order to achieve the quality of education required by stakeholders.

3 Results and discussion

For the sake of practical implementation, the model of the higher education quality assessment proposed in the article was tested on the educational activities of the Novouralsk Technological Institute, a branch of the National Research Nuclear University – Moscow Engineering Physics Institute (NTI NRNU MEPhI). The results of the study showed the discrepancies between the conditions and results of the educational process and the requirements of consumers according to all types of gaps GAP 1 – GAP 5 (Table 2).

Table 2. The results of assessing the quality of education at NTI NRNU MEPhI

Indicators of discrepancy between the educational process and consumers' requirements	Causes of discrepancies	Measures proposed to eliminate the discrepancies
GAP 1. Discrepancies between the requirements and expectations of the quality of education among the stakeholders – and the perception of these requirements and expectations by the university management		
Narrow range of educational programs implemented at the university does not meet the requirements of the modern economy, the requests of the major employers and the needs of applicants	Lack of marketing departments at the university responsible for studying the expectations of stakeholders. Lack of a mechanism for developing a prospect list of educational programs that can enjoy the demand	Creating a marketing department. Conducting marketing research of consumer demand with studies on a regular basis. Developing a mechanism of forming a list of educational programs that can enjoy demand, with due regard to the requirements and expectations of stakeholders, as well as the potential in scientific, methodological, staff, etc. aspects for the sake of sustainable development
GAP 2. Discrepancy between the perception of the requirements and expectations of stakeholders by the management of the university and the standards that determine the quality of education		

Table 2. Continued

Academic curricula and educational programs do not fully provide for the transition to individual educational trajectories for students; do not fully take into account the requirements of major employers for the list of subjects studied by students	Lack of a mechanism for developing the elements of educational training programs, with due regard to the requirements of major employers for the sake of sustainable development. Limited resources for the implementation of educational programs providing for transition to individual educational trajectories	Monitoring the requirements of major employers in the scope of developing of the educational programs taking into account the goals of sustainable development. Developing measures to eliminate shortage of resources.
GAP 3. Discrepancy between the standards and the quality of education		
The percentage share of the academic staff holding managerial and other positions in organizations involved in professional activities does not correspond to the level required by the NRNU MEPhI Educational Standard	Limited resources for the implementation of training programs in compliance with the requirements of regulatory documents (insufficient funding for the staffing project) and the priorities of sustainable development	Developing a mechanism for redistribution of contact work between the full-time academic staff and external part-time faculty
GAP 4. Discrepancy between the activities carried out by the university and external communications		
The university lacks planned PR campaigns, as well as the marketing strategy of the branch brand promotion	Lack of employees contributing to communication with the external environment with advanced skills in IT, marketing and regarding the concept of sustainable development	Creating the marketing department. Developing a plan to inform the stakeholders about the results of the branch operation, its plans and innovations, implementation of sustainable development goals
GAP 5. Discrepancy between the requirements and expectations – and perceptions of stakeholders regarding the quality of education		
Discrepancies in the conditions of implementation and results of the educational process in GAP 1 – GAP 4	Consequence of causes of discrepancies of GAP 1 – GAP 4	Developing an action plan to eliminate the identified discrepancies

As shown in the table, it is noted that implementation of educational programs at the Novouralsk Technological Institute is associated with discrepancies in the characteristics of the educational process compared to the requirements and expectations of stakeholders. The existence of the gaps leads to dissatisfaction of stakeholders with the quality of education. The analysis of the causes allows the university management to take managerial decisions required to improve the quality of education so that it meets the required level for the sake of sustainable development.

4 Conclusions

Based on the results of the study conducted by the authors, the following conclusions can be drawn.

In the modern context, when a growing number of countries aim to implement the goals of sustainable development and social and economic transformations are inevitable, the

universities get the leading role in these transformations. Their task is to provide high-quality education for sustainable development. The significance of the results obtained in the study is attributed to the opportunities of their use in carrying out administrative activities by the state authorities in higher education in order to manage and improve the quality of educational services. The results can be used as well by the university management bodies in the constant process aimed to ensure that the conditions and the results of the education process, research and development, innovation and other types of activities meet the requirements and expectations of stakeholders for the sake of sustainable development.

It must be admitted that the goals of sustainable development haven't been deeply integrated into the higher education so far [14]. However, there are clear trends towards dissemination and the increasing degree of inclusion of the priorities of sustainable development and the associated skills and expertise into the educational programs of universities.

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