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PERFORMANCE MEASUREMENT AS A COMPONENT OF PROFESSIONAL EDUCATION PERFORMANCE MANAGEMENT IN RELATION TO THE CONCERNS ABOUT EDUCATION FOR SUSTAINABLE DEVELOPMENT

Veronica PRISACARU, Alina CARADJA

State Agrarian University of Moldova, 44 Mircesti str., Chisinau, Republic of Moldova, Emails: v.prisacaru@uasm.md, alina.caradja@mail.ru

Corresponding author: v.prisacaru@uasm.md

Abstract

The basic objectives of this paper were as follows: reflecting on the performance indicators of higher education institutions around the world; making a systematization of the performance indicators specific for the professional education institutions of the Republic of Moldova in relation to the tasks of education for sustainable development relevant for the vocational education established by the Incheon Declaration „Education 2030". The achievement of these objectives was possible by analyzing a series of bibliographic resources on the performance indicators used in the world's professional education and also making a detailed examination of the performance indicators applied in the quality management system of higher education and vocational-technical institutions of the Republic of Moldova. As a result, the aspects of performance measurement that require interventions to best contribute to the achievement of objectives of education for sustainable development have been identified.

Key words**:** *performance indicators, professional education, Republic of Moldova, sustainable development*

INTRODUCTION

The use of performance management in the field of private professional education system allowed „to borrow" several specific aspects: the system with its components (planning, action, monitoring, analysis), general principles of organization and monitoring, procedural approach etc. However, the specifics of professional education also imply certain characteristics that could be largely found in the mission and objectives pursued by each institution and professional education system as a whole and, implicitly, in the system of performance measurement in relation to the pre-set objectives. In this context, it should be noted that performance measurement is often associated with the performance management process, and there are intentions to reveal the separate essence of performance measurement. Lebas, for example, offers a separate definition for each of these two notions, noting that performance measurement consists of key indicators that provide contextual and case specific information, while performance management includes activities that influence these contextual factors, such as training, management style, attitudes and incentives. The author also indicated that the two concepts could not be separated because performance management created the context for performance measurement, but it was influenced by the outcomes of the measurement process [14].

Even though, due to its essence and contents, performance management is wider than performance measurement, a key element of performance management is the choice of key factors of success and also performance indicators that can be used to estimate the extent to which they have been valorized [1,6,12]. Performance indicators, in turn, are designated as numerical values which provide a measurement for assessing the quantitative performance of a system [11], performance indicator meaning a number which can be calculated by a good statistician and which is seen as a surrogate for a measurement of what one is actually interested in [20].

In order to achieve a good functioning, performance indicators should possess the

following features:
a) to have the monitoring function, which is defined as „a series of information collected at equal intervals to track the performance of a system" [9];
b) to be quantitative [10];
c) to match the pre-set objectives [6].

With the objective of measuring the efficiency of public money invested in professional education, a concern that has driven economic thinking into professional education management, performance measurement and analysis is often expressed using the term „efficiency analysis", meaning an instrument for estimating the efficiency of resource management involved in the professional training process. For this purpose, the results of institutions' activity are examined in relation to the inputs, both components being expressed by a series of indicators that vary more or less from one country to another. Thus, the synthesis of several publications on the measurement of universities performance carried out by Cunha and Rocha in different countries has made it possible to point out that, in general, the institutions include in the group of inputs the number of students, teaching staff, financial resources used and the main expenses incurred. The number of graduates, the employment rate, the results of research activities (number of publications, citations, registered patents etc.) or even some rankings reflecting the institution's position or reputation are used most frequently to assess the outputs (results). There are also mentioned specific types of efficiency: research efficiency, teaching efficiency etc. [7]

In USA for example, the approaches vary by state and it was noted that the most frequently used performance indicators are the following:
-Unit costs (per student);
-Faculty teaching workload rates;
-Student-staff ratios;
-Analysis of cohort progression and attrition;
-Rates of passage on professional licensure exams;
-Analysis of the ethnic, gender and social backgrounds of students;
-The outcomes of programmes in terms of the number of degrees awarded [16].

In the USA higher education sector, government uses the performance indicators in three directions: performance-based funding; performance-based budgeting; performance reporting. the performance-based funding process is based on a direct link between state financial support and institutional performance [2].

Performance-based budgeting implies a weaker relationship between institution performance and funding, when just one of several factors being used to determine the size of financial allocations.

Performance reporting has no direct financial implications, with the goal of determining institutions to identify weaknesses and directions for improving performance [17].

In Canada, the approaches in using performance measurement in professional education also vary between provinces, with some not using performance indicators at all and others (Alberta, in particular), where the funding of institutions is very strictly related to their performance. Approximately two percent of the operational grants offered by the Alberta government to universities and colleges are allocated in terms of performance. If an institution deviates from government priorities and/or demonstrates low performance in a government-targeted area, this may have a substantial negative impact on the activity of that institution.

Performance indicators set for universities and colleges in the Canadian state of Alberta have been classified into the following two groups:

I. Component „Teaching":
-Graduate employment rate (within a specified period after study programme completion);
-Satisfaction level of the graduates with the quality of the offered studies;
-Business revenues (income without all government grants, sponsorships, capital contributions, etc.);
-Administrative expenses;
-Percentage change in enrollment from one period to another.

II. Component „Research":
-Council monetary prizes - national ranking in terms of prize money on average per full-time faculty member (3-year average);

-Number of citations (national ranking) in relation to the number of scientific publications (5-year average);
-Support from the community and economic branches (national ranking) by sponsoring the research of a full-time faculty member (3-year average);
-National ranking of sponsored research income as a percentage of the Advanced Education and Career Development (AECD) subsidy department (3-year average) [16].

The development of performance indicators in higher education was pioneered in Europe by Great Britain: after many debates that were initiated in the 80s of the last century, it was only at the end of the 1990s when the indicators to express inputs, processes and outputs for each university have been designed. The development of performance indicators was based on several principles: the use of a standardized and consistent form (robust, secure and comparable between institutions and over time); objectivity (providing evidence for informing policy makers and statistical records); simplicity, clarity and corresponding to the objectives. The indicators originally developed in 1998 have evolved over time, with the largest revisions being made in 2006-2007 after the consultation with sector's beneficiaries. In the current version, the indicators adopted by the UK for the assessment of university performance are systematized on two levels: institutional and sectorial, and four areas: access/widening the participation of under-represented groups; non-continuity and completion rates of the module; employment; research results [17].

Given the existence of numerous approaches to the problem, the experimentation of numerous indicator systems, there is unquestionably acknowledged the existence of a series of difficulties related to the quantification of results of the professional education institutions. In order to highlight these difficulties as explicitly as possible, we will point out the information considered as necessary to quantify the performance of professional education [13]:

- outputs (results) that are intended to be obtained;
- inputs (resources) needed by institutions to achieve the expected results;
- quantitative measures for inputs and outputs;
- technical relationship between inputs and outputs.

In consequence, the performance of professional education should be expressed using a system of indicators that fully reflects the above-mentioned aspects. Among them, at least three of them are questionable: inputs, outputs and technical relationship between them.

Referring to the outputs, we cannot overlook the fact that the results of a professional education institution are multiple and, as Cave et al. [3] mentioned, many of them are difficult or even impossible to measure in monetary value or even physical form. Further on, we will refer to McMahon [15] who emphasizes the role of higher education in promoting democracy, sustainable growth, reducing crime, welfare costs of the state etc. and draws attention to an insufficient level of perceiving the measurable value of its non-monetary benefits. This idea is also supported by Tam [21] who mentions, as benefits that can not be quantitatively represented, the cultivation of talents and the dissemination of cultural values.

In the process of assessing inputs, we also encountered the following difficulties:

a) They occur in a short time horizon - usually 3-4 years (the average period of professional studies or a scientific project), while the time horizon in which the benefits of professional education are manifested is much longer, being practically impossible to appreciate it exactly (taking into account that the effects of education can be transmitted from one generation to another);

b) The same inputs lead to several results and, as Johnes and Taylor [13] mentioned, there is not always a clear way of assigning certain inputs to certain outputs. In this context, we note that, using the same elements of the technical-material base, the same human resources (scientific-teaching staff, etc.), a number of results are achieved simultaneously: qualified specialists for

various economic sectors, scientific and innovation products, extension services etc.).

In the light of the facts mentioned above, it can be logically inferred the difficulty in establishing the technical relationship between inputs and outputs.

The problems related to the accurate and objective measurement of the professional education performance continue to persist in the professional education management penetrating the interest area of the state bodies empowered to finance the institutions on the one hand and the institutions themselves on the other. Referring to professional education institutions abroad, we found out a particular concern for the equitable evaluation of their performance based on two circumstances:

(a)The achieved performance represents the milestone for obtaining funding;

(b)Depending on the performance recognized and exposed to the public, the ranking of the institutions is made depending to a large extent on their competitiveness and their sustainability on the educational services market respectively.

At the same time, even though there are countless attempts to improve performance measurement systems, in spite of the complexity of the field, multiple effects as well as other circumstances mentioned above, performance measurement of professional education remains an area with deep potential of investigation and interventions. Thus, we observed that Williams's affirmation made nearly three decades ago is still relevant: "Like all quantitative performance indicators, these figures raise more questions than answers" [22].

MATERIALS AND METHODS

In order to achieve the objectives of our research, the following methods were applied: the synthesis of the theoretical approaches and best practices in measuring the performance of professional education on a global scale; the analysis of the system of performance indicators used in the higher education and technical vocational education in the Republic of Moldova at present; the diagnosis of vulnerable aspects in measuring the performance of professional education in relation to the objectives of education for sustainable development; formulating conclusions and arguments for actions to be taken.

RESULTS AND DISCUSSIONS

In order to elucidate the impact of professional education on the sustainable development of the rural environment in the Republic of Moldova, we will approach the system of performance indicators for the respective educational institutions related to the impact of the nominated influence.

The term of performance management has penetrated the academic language in the Republic of Moldova relatively recently, with extension in the marketization of professional education and the intensification of competition on the professional education market. Implicitly, the concept of „performance indicator" as a measure of the results obtained was introduced into the specific vocabulary of the educational institutions management system. At the same time, both a conceptual and a qualitative shift from one measurement system to another occurred.

Previously, for many decades, each professional education institution had the responsibility to present the results of activities carried out by means of some indicator systems that were mainly focused on the number and fluctuation of students/pupils, the number of teaching staff, administrative and auxiliary staff, student/pupils success, graduation rate, costs involved etc. The environment in which professional training took place (lack of competition between educational institutions, sufficient funding of the activities carried out etc.) attached to those indicators rather a reporting character than the criteria of success or failure.

The improvement of performance management system of professional education institutions has been made by transforming it from a source of information necessary for reporting into a system with double meanings and roles:

a) monitoring successes and failures;

b) ensuring the sustainability of institutions.

Although, unlike the USA and many other states, the Republic of Moldova is at an early stage in using performance indicators as criteria in allocating funding to institutions, we can't fail to recognize that currently used indicators differ substantially from the previous ones, both in terms of content and significance, and offer the opportunity to evaluate the results more broadly and multilaterally in relation to the institutional objectives and also the expectations of society.

Making an insight into the chronology of events that preceded the process of reviewing and improving the performance indicators system of professional education, we could mention that, in fact, a decisive role was played by the creation of institutional quality management systems followed by an intense process of elaborating normative acts and instruments for the evaluation and accreditation of educational institutions. Although the quality management system represents, by its very nature, the framework in which the performance management system is created and operated [18], its role in ensuring the performance of educational institutions is indisputable. Among the positive impacts of the quality management system in this respect, we can highlight in particular the establishment of performance indicators within ten performance standards [4,5] that, by their very essence, express milestones of immense value for each institution in directing efforts towards a successful activity. In order to assert that reasoning, we will refer to the new qualitative approach of the internal and external beneficiaries of the educational offer, to their role as active actors in the design and development of the study programmes in order to ensure their maximum relevance for the labour market and the areas of activity concerned [19].

It is possible to evaluate the extent to which the nominated indicators are able to contribute to achieving the sustainable development objective 4 of the Sustainable Development Agenda 2030 ("Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all") only by examining them in correlation with specific tasks set out in the Incheon Declaration „Education 2030" [8] identified as appropriate to professional education (Table 1).

Making a generalization of the facts outlined in Table 1, we conclude the following:

-Being designed especially for the external evaluation of professional training study programmes, the quality standards and, implicitly, related performance indicators represent effective tools for monitoring the quality of the activities carried out by each professional education institution in order to achieve the expected performance. Thus, we can deduce their significance as contextual indicators designed to ensure an adequate level of quality in vocational training, so that the outputs expressed by the number and quality of graduates can best meet the expectations of the business environment;

-Making the synthesis of performance indicators (out of 51 for higher education and 38 for vocational-technical education), at least 28 performance indicators for higher education and 26 for vocational-technical education can be identified, the operationalization of which contributes to the achievement the tasks of education for sustainable development set out in the Incheon Declaration „Education 2030";

- Although some performance indicators can simultaneously express two or three tasks of education for sustainable development, we should mention that task 4.7 (which requires, in line with relevant knowledge and skills, such important attitudes as respecting human rights, gender equality and cultural diversity, fostering the culture of peace and non-violence and its harnessing as a factor of sustainable development) can't be found in certain specific indicators. The indicators assigned to that task in the table reveal rather the opportunity to reflect that task by including certain provisions in the study programme, including those made at the

recommendation of the Ministry of Education, Culture and Research and competent ministries.

Table 1. Systematization of performance indicators specific to the professional education institutions of the Republic of Moldova in relation to the education tasks for sustainable development relevant for the professional education established by the Incheon Declaration „Education 2030"

The content of performance indicators related to/established for the higher education institutions of the Republic of Moldova	**The content of performance indicators related to/established for the vocational technical education institutions of the Republic of Moldova**
Task 4.3 By 2030, ensuring equal access for women and men to qualitative and accessible technical, vocational, tertiary, including university education.	
Recruiting and admitting students; Information management and access for students and employees to information regarding the study programme; Transparency of information on the study programme.	Recruiting and admitting pupils/students to the vocational training programme; The existence and operation of the information management system; Transparency of information on the vocational training programme.
Task 4.4 By 2030, substantially increasing the number of young people and adults with relevant skills, including technical and professional skills, in terms of hiring, getting decent jobs and developing entrepreneurship.	
Mission, objectives and curriculum of the study programme; The syllabus for each subject; Relevance of the study programme; Student-centered teaching-learning methods; Valorization of results of the scientific research and innovation activity of the academic staff in the context of the study programme; Using ICT tools in the teaching-learning-evaluation process; Organizing internships; Collaboration arrangements for internships; Academic mobility; Professional qualification of academic staff; Strategies/policies/measures for the academic staff development; Evaluation of the academic staff; Existence and use of educational and research spaces; Equipment and accessibility of educational and research areas; Material means, development and accessibility of the library fund for the study programme; Student assurance and access to curricular support; Financial means allocated to the educational process and to the research on the study programme; Information management and access for students and employees to information on the study programme; Transparency of information about the study programme; Monitoring and reviewing the educational offer and study programme; Monitoring of the teaching-learning-evaluation processes; Evaluation of the study programme by students, graduates, employers and other beneficiaries; Mechanisms to record the employment and evolution of graduates on the labour market; Professional orientation of graduates of the vocational training programme and their competitiveness on the labour market.	Mission, objectives and curriculum of the vocational training programme; The syllabus for each subject; Relevance of the vocational training programme; Student-centered teaching-learning methods; Using ICT tools in the teaching-learning-evaluation process; Organizing internships; Existence of cooperation agreements with institutions offering internships; Academic mobility; Professional qualification of the teaching staff; Strategies/policies/measures for the teaching staff development; Existence and use of educational spaces; Equipment and accessibility of educational spaces; Material means, development and accessibility of the library's fund; Ensuring pupil/student access to curricular support; Funding the educational process within the vocational training programme; The existence and operation of the information management system; Transparency of information on the vocational training programme; Monitoring and reviewing the educational offer and the vocational training programme; Monitoring of the teaching-learning-evaluation processes and internships; Evaluation of the vocational training programme by pupils/students, graduates, employers and other beneficiaries; Institutional mechanisms for recording the employment of graduates of the vocational training programme; Professional orientation and competitiveness of graduates of the vocational training programme on the labour market.
Task 4.5 By 2030, eliminating gender disparities in education and ensuring equal access for vulnerable people (including disabled and indigenous people as well as children in vulnerable situations) to all levels of education and vocational training.	
Recruiting and admitting students; Student-centered teaching-learning methods; Access of disadvantaged groups to studies; Providing hostel facility to students.	Recruiting and admitting pupils/students to the vocational training programme; Student-centered teaching-learning methods; Access of disadvantaged groups and people with special educational needs; Providing hostel facility to pupils/students.
Task 4.7 By 2030, ensuring that all trained people acquire the adequate knowledge and skills for sustainable development, including through education for sustainable development as well as sustainable lifestyles, and promoting such attitudes as respecting human rights, gender equality, cultural diversity, maintaining the culture of peace and non-violence and its harnessing as a factor of sustainable development	
Syllabus for each subject; Monitoring and reviewing the educational offer and study programme; Implementing the provisions and recommendations of the Ministry of Education and the competent ministries.	Syllabus for each subject; Monitoring and reviewing the educational offer and the vocational training programme; Implementing the provisions and recommendations of the Ministry of Education and other competent ministries.

Source: Own elaboration based on: [4,5,8]

CONCLUSIONS

Although it is difficult to accurately quantify the impact of professional education institutions on sustainable development, if not impossible, each institution can best target its efforts in this respect by maintaining performance standards established at national level.

Being designed especially for the external evaluation of professional training study programmes, the quality standards and, implicitly, related performance indicators represent effective tools for monitoring the quality of the activities carried out by each professional education institution in order to achieve the expected performance. At the same time, we note the necessity of interventions in the content of performance indicators by introducing additional indicators to reveal the orientation of the study programmes towards the achievement of specific skills (professional and transversal) for sustainable development.

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