Implementation of student assessment system in vocational education and training institutions

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The author’s position is based on the need to take into account definition of components for implementation of a system for assessment of results of vocational education, which, first and foremost, includes changes in the philosophy of assessment, rethinking assessment systems and forming new pedagogical thinking.

The research offers a new system of assessing the results of vocational education and training different from the traditionally existing one.

Keywords: assessment for learning; authentic assessment; continuous assessment; self-assessment.

Introduction

Humanity has entered a new stage of innovative progress when knowledge, technologies, information, living conditions and other factors change dynamically, much faster than generational changes. Therefore, within the learning process, besides creative and critical absorption of basic knowledge, we need to achieve two more objectives: foster the child’s skills and understanding of the need for lifelong learning and also teach the skills of using the acquired knowledge in real life. For this, we need to rebuild both content and methods of teaching (for instance – teach not the knowledge of a foreign language, but how to speak it using language skills; the same refers to mastering other subjects) – meaning that we need to us competence-based approaches in teaching. In this case we will receive a knowledge-based person, for who knowledge is the foundation of life. A society consisting of such people will also be knowledge-based. Development of public-private partnerships oriented towards improving the image of vocational education and training, popularization of its abilities and achievements through implementation of institutional modernization projects, conducting national, sectoral and international skills competitions, initiating a series of television and radio programs as well as other content in the social media, innovative approaches to popularizing opportunities and benefits that the TVET system brings (Kremin, 2016).

Ukraine is forming new social and economic relations, rebuilding its production from the industrial to science and information-based. Transfer to a post-industrial society, entry into the international system of education, science and labour as an equal partner and producer of information technologies actualizes the issues of modernization of labour force development. Complex process of reforms is impossible without taking into account both external (globalization and integration, accelerated development of market economy, information communication technologies), and internal factors (need for coordinating content, forms and methods of skills training with the new labour market challenges to produce competitive labour force).

Goals of article

The goal of this article is to look at conceptual foundation for the change in the philosophy of assessing learning outcomes in vocational education and training, which includes rethinking assessment systems and forming new pedagogical thinking.

Materials and Methods

At this stage of the scientific research we used methods of theoretical search (theoretical analysis of scientific sources and legal documents regarding assessment of learning outcomes of vocational students, comparison,
classification, generalization and analysis of the methods of management of education, methodological experience of teachers, comparison of pedagogical positions and facts regarding assessment of student achievements);

Results

The research resulted in the proposal of a system for assessing learning outcomes of vocational education and training system students.

Discussions

Modern innovative educational technologies create new occupation, which pose completely new requirements to the educational levels of workers. A qualitatively new economy is appearing, where knowledge and information become a key production resource. These systemic changes force leading Ukrainian experts to look at education as the key priority within the national system of development objectives and as the main ingredient in making the national economy competitive.

Forming new content of education based on competence, which also corresponds to the National qualifications framework and National qualifications system, envisages the creation of educational programs and standards for vocational education that are based on a student-centered approach to education, take into account individual student’s characteristics, include attaining both ‘soft’ and professional skills competences needed for successful professional and personal growth, as well as entrepreneurial activity. These programs and standards can be developed considering the Recommendations of the European Parliament and Council of Europe «On Key Competences for Lifelong Learning».

Modern labour market introduces new conceptual foundations for key components of a prestigious vocational education system, these being:

— Decentralization of management and autonomy of vocational education institutions, which gives real powers to introduce change;

— Key content of education is competence-based, which ensures that educational qualifications are correspondent to the National qualifications framework and National qualifications system;

— Ensuring the quality of vocational education, creation of qualification/assessment centres, introduction of an independent system for assessing learning outcomes;

— Establishment of an effective network of new multifunctional and multisectoral vocational training institutions, which have the capacity to implement lifelong learning principles;

— Providing the opportunity to select and combine various forms and types of education, including introduction of the dual education system, all of which facilitates the right to design individual learning trajectories;

— Implementation of new directions of public-private partnerships for establishing an innovative environment in the vocational education system; effective reaction to labour market change and individual training needs;

— Improvement of funding and state allocations for training of skilled labour force, initiation of investment projects that harmonize the individual and industry training demand with vocational education system’s supply;

— Establishment of a multilevel system of pedagogical personnel for the vocational education system, which is capable of ensuring the needed quality of educational services;

— Forming a modern educational environment which supports research, innovation, transparency, accessibility, openness of the educational process;

— Implementation of new forms and methods of career orientation for children and youth; popularization of vocational education system, its opportunities and achievements for career and personal growth.

Implementation of new forms, methods and pathways for attaining professional qualifications and ensuring a flexible structure of the educational process, including using a dual training system, provides the opportunity to obtain full vocational education as well as obtain full or partial competences, build individual learning trajectories, ensure timely reaction to labour market needs and support labour force mobility.

Establishment of a modern learning environment, which is based on innovative pedagogical, production, and digital technologies, setting up business incubation and startup support programs envisages using the achievements of Ukrainian and international science and technology, equipment, information and production technologies as well as introducing educational programs that include fundamentals of entrepreneurship, guarantee self-employment and flexible employment trajectories.

Ensuring new approaches to supplying qualified staff for ensuring the educational process in vocational education and training, which enables to engage highly qualified people from various enterprises and institutions into the educational process; forming pedagogical staff on the basis of sectoral higher educational institutions, ensuring attainment of pedagogical education by industry professionals using specialized training programs, starting specialized training in the area of 'Vocational training pedagogy' using an industry-based approach.

Implementation of objective mechanisms of learning results recognition and ensuring quality of qualified labour force training is carried out through the establishment of independent centres for recognition of professional qualifications, introduction of institutional audit mechanisms and accreditation of educational programs.

System approach is identified through the availability of various elements and interaction between them and indicates structural and functional direction of these elements. Connections between these elements may be different: they can express attitude, interaction, or functionality. Level of integrity is an important characteristic of a system and can depend on the clarity of identification of functional objectives, set of components, quality of each component and the strength of connection both between individual elements and as a whole. Ensuring quality of education is a process, the integrity of which is framed by the integral character of interaction among various elements of the assessment system.

Quality of education is the correspondence of results to training requirements stipulated by the legislation, corresponding educational standards and/or training
contract which is ensure by the quality of the educational process, including the level of organization and implementation of the educational process. Identification of the assessment process as the integral part of the educational process, which considerably influences its quality since it is not the level of absorption of information that is being assesses but rather the competence – the ability of the student to solve problems.

Learning outcomes — knowledge, skills, methods of thoughts, values, opinions, other personal traits acquired through the process of education and development that can be identified, planned, assessed and measured and that the person can demonstrate upon completion of the educational program or its individual components (2017).

Competence is the sum of general and occupation training, which allows to adequately react to the needs of individual workplace or performed function, which have the tendency to change.

Identification of learning outcomes is a key component of the education system and it should be assessed through learning outcomes of individual students of vocational training institutions and formulate their professional competence, which ensures improved competitiveness of graduates within the labour market.

Learning outcomes are formulated in such a way that facilitates identification of the specific level of competence and the conditions, under which knowledge and skills should be mastered as well as the assessment of the student’s level that allows them to complete the educational program. Effectiveness of the educational system is ensured when it is capable of identifying and producing the competence profile that ensures the success of each individual student, and the pedagogical system ensures effective professional training of labour force for a specific industry or service, which envisages the solution of real-life situations throughout the course of education. Clearly formulated learning outcomes outline the achievements of students, ensure the attainment of competences – knowledge and skills that characterize the ability to perform, understand, reflect and study what is included in the relevant occupational profile.

Effective professional training of a qualified worker for the modern labour market can be ensured by an innovative pedagogical system that envisages solution of real-life situations within the educational process.

Assessment process is an integral part of the educational process which considerably influences its quality since what we assess is not the level of information absorption but the student’s competence, which means his/her ability to solve problems.

It is worth mentioning that implementation of objective mechanisms of recognizing learning outcomes and ensuring quality of labour force training is ensured through creation of independent centres for recognition of professional qualifications, introduction of institutional audits and accreditation of educational programs.

If system approach is identified through the availability of various elements and interaction between them and indicates structural and functional direction of these elements, then connections between these elements may be absolutely different: they can express attitude, interaction, or functionality. Level of integrity is an important characteristic of a system and can depend on the clarity of identification of functional objectives, set of components, quality of each component and the strength of connection both between individual elements and as a whole.

Ensuring quality of education is a process, the integrity of which is framed by the integral character of interaction among various elements of the assessment system. Learning outcomes — knowledge, skills, methods of thoughts, values, opinions, other personal traits acquired through the process of education and development that can be identified, planned, assessed and measured and that the person can demonstrate upon completion of the educational program or its individual components (2017).

The necessary components for the implementation of a system of assessment of learning outcomes are:

— Change in the philosophy of assessment which includes rethinking the assessment system and formulating new pedagogical thinking;
— Assessment of teaching methods and review of educational content, which also includes looking at the assessment as an integral part of teaching;
— Development of assessment instruments;
— Active engagement of students into the assessment process, self-assessment, mutual assessment.

Continuous assessment is a part of teaching the subject of education and the method for identifying learning needs of students. It facilitates ongoing correction of the teaching process to ensure better results. Assessment system must be open, and every assessment – justified and friendly as identification of the learning outcomes is an integral part of the assessment system. The learning outcomes should be assessed as the results of the learning of vocational school’s students in terms of formulating their professional competences that ensure their overall competitiveness at the labour market.

Our research proves that the system of assessing learning outcomes of students of vocational education and training institutions includes the following components:

1. Analysis of academic integrity of the pedagogical staff of vocational education and training institutions in terms of providing credible information about their pedagogical performance in supporting the learning and methodological process in accordance with the objectives for quality assurance in professional education as set forth by the Law of Ukraine «On Education» (2017).
2. Monitoring and rethinking of the current system of teaching and assessment within general education and occupational disciplines.
3. Formulating learning outcomes and steps within general education and occupational disciplines.
4. Formulating learning outcomes and steps that ensures their comprehensiveness and comparability.
5. Inclusion of the training module «System of assessing learning outcomes of vocational education» into the plans for professional retraining and skills upgrading for pedagogical and management staff of vocational training institutions.

It is worth noting that assessment for learning requires a certain level of teacher training. Assessment is not carried out on its own – it must be carefully planned and correspond to learning outcomes and objectives. Assessment not only measures knowledge but also helps form it as the main goals of education are professional and personal development of students that is based on their active engagement.

Assessment is not carried out on its own – it must be carefully planned and correspond to learning outcomes and objectives. Assessment not only measures knowledge but also helps form it. Authentic assessment can be used by teachers to evaluate students’ understanding of the material and skills that need to be improved and help them prepare for the next round of assessment. However, the main objective of assessment is ensuring a better understanding by students and activation of their learning activity. Assessment is not a one-time event that is carried out after completion of a task by students but is rather a continuous process that happens throughout various stages of a project implementation. Continuous assessment that is built into the learning process is the foundation of project-based learning and provides students with the opportunity to demonstrate skills and knowledge in a variety of ways.

Attention should be paid to the development of assessment criteria, selection of methods and approaches by authentic assessment, such as: objective assessment (written test, True/False tests; multiple choice questions; brief response questions; practical tasks: skills demonstration, products made by students etc.); subjective assessment (essay, case study; practical tasks, analytical notes, informal observation, peer assessment etc.).

Effect of assessment is characterized by a number of peculiarities, which ensure its authenticity, reliability and opportunity for improvement for both the teacher and student. First of all, effective assessment is clear: content and methods of assessment must be clear for students. In the process of assessment it is important to use terms and vocabulary which the students understand well; above all, assessment should be fair. Fairness means that students have the opportunity to prepare for the assessment of their skills and abilities, which are included into the training program and will not come as a surprise for students.

That is why authentic assessment cannot be limited to the completion of a training program. The more information is provided to the student in the process of timely assessment, the better results of training will be. Regular assessment reduces student anxiety regarding the assessment process and also reduces the possibility of unexpected results as compared to assessment that is done not on a regular basis. Beyond any doubt, during assessment students are vulnerable, which may lead to stress and influence their performance.

When announcing assessment results, instructors have to be accessible to students, as this is an excellent opportunity to obtain knowledge through clarifications and providing answers to questions. Pedagogues provide recommendations regarding future steps for the student needed to improve learning results. Assessment has to help students understand the training course material and the opportunities to use it in the future.

Instructor’s feedback demonstrates that assessment is fair, explains the reason for possible criticism and has to ensure a connection between the student’s performance and expected learning results. As mentioned before, during assessment students may be vulnerable, and instructors have to be attentive and sensitive while providing feedback.

Feedback must be constructive but at the same time it has to help students in achieving learning outcomes. Instructors must remember about their obligation to help students obtain knowledge and develop skills.

Instructors must understand the danger of providing students with too much information used during assessment. Providing feedback in a few areas where improvement is needed is better than providing feedback for all areas.

Formative assessment provides feedback to students regarding their progress and professional development. During formative assessment students have to use the same approach that they do during the summary assessment. Formative assessment has to be oriented towards the future and help students in preparing for successful course completion and achievement of expected learning outcomes that are assessed during the summary assessment upon course completion. Results of formative assessment may be taken into account during estimating the final course grade.

This motivates students to pay more attention to the results of formative assessment. This also helps to distribute the final grade into several intermediary ones, for which various assessment methods are used. It also reduces the stress attached to expectation of the final grading, where only two assessment methods can be used.

Let us provide several types of formative assessment: entry/preliminary, current and summary. The goals of formative assessment will be:

- identifying student’s learning needs;
- motivating students for self-directed learning and cooperation;
- tracking progress in students’ learning;
- testing the students’ understanding of their own though processes and motivating reflection;
- testing the level of knowledge and skills obtained by students.

As expressed by O. Scherbak, assessment must be concentrated on what is important and not on what is easy to assess. Sometimes, a general and complex question is hard to assess and it is easier to break it down into several simpler ones. However, if this question needs to be assessed as a complex one, this needs to be done, regardless of the complexity since the assessment allows us to understand what needs to be learnt and taught.

Assessment not only measures the knowledge, but also forms it. Usually, students during assessment mobilize their resources, and the learning process reaches maximum effectiveness. Thus, instructors can use this opportunity for teaching. It is also known that students better absorb the first and the last parts of the learning experience. Assessment, usually, is a good example of the last (final) part of this experience (Schcherbak, 2014).
It can be stated that one of the factors of personal success is his/her readiness for lifelong learning. People, who are used to self-assessment, have a better understanding of their own thinking processes and are more prepared to learn from their own experience. However, effective assessment is not carried out on its own, since instructors also have to understand its specific aspects and ways to support students in the process.

The task for effective instructors is to create such conditions for study where students have the opportunity to jointly plan their development priorities, ways to achieve goals and methods for evaluating learning progress.

Attention should be paid to the development of assessment criteria, selection of methods and approaches to authentic assessment, such as:

1. objective assessment (written test, True/False tests; multiple choice questions; brief response questions; practical tasks: skills demonstration, products made by students etc.);
2. subjective assessment (essay, case study; practical tasks, analytical notes, informal observation, peer assessment etc.).

This pedagogical experiment is continued under scientific supervision of the author t the Public training institution «Ukrainka Professional Lyceum» in Kyiv region in 2018-2020.

The teaching staff of the lyceum will research the system for forming professional competences of students in occupational disciplines and develop the system of assessing their learning outcomes for the following occupations: «Construction electrician», «Electrical maintenance technician», «Car repair mechanic», «Automatic and semiautomatic electric welder»; develop methodological recommendations regarding improvement of the student assessment system in these occupations; prepare a draft training and methodology manual entitled «System of assessing occupational learning activities of students in vocational education and training institutions».

Conclusions

Modern times require new approaches to forming value systems. Among other aspects, students should be oriented towards being successful in life. This has to be an important stimulus for quality learning and replace the traditional motivation through authoritarian pedagogy.

One of the important goals of the assessment process is continued learning since learning is one of the main needs for individuals throughout their life. Assessment for learning is another form of assessment, which happens in the process of teaching and learning and not at the end of the educational program. It is assessment that focuses not solely on learning outcomes attained by students at the end of the program but on the process of improving learning results throughout the whole program.

Vocational education instructors have to realize that assessment is not carried out on its own — it must be carefully planned and correspond to learning outcomes and objectives. It is important to include it as a part of the training process at all stages — from planning learning results and objectives to planning specific lessons. It has to correspond to these results and objectives and assess the specific competences and skills that the students have to acquire upon program completion.

The objectives of the experiment are: test the effectiveness of the system for forming professional competences of students in occupational disciplines for the following occupations: «Construction electrician», «Electrical maintenance technician», «Car repair mechanic», «Automatic and semiautomatic electric welder»; develop methodological recommendations regarding improvement of the student assessment system in these occupations; prepare a draft training and methodology manual entitled «System of assessing occupational learning activities of students in vocational education and training institutions».

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