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**Editors: Dragan D. Milanović
Vesna Spasojević-Brkić
Mirjana Misita**

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OUTPUT QUALITY INDICATORS IN THE VOCATIONAL EDUCATION - FORMER STUDENTS PERSPECTIVE

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Abstract Vocational Education provides the acquisition of knowledge, skills and competencies for further education as well as for the possible entry into the labor market. Vocational education quality assurance involves specifying the criteria and standards that are subject to periodic review and assessment. The objective of this research was to determine the reached levels of output indicators by examining the perception of students in regard to the pilot curricula they completed in the seven educational profiles in the field of food processing. The output indicators of the educational process that were evaluated in this study were: the number of students who have completed the educational process, the number of students who upon completion started to work or continued their studies, students' perspective of their vocational competence at work and their competence to continue education.

Keywords: vocational education, quality assurance, labor market, vertical mobility

1. INTRODUCTION

Vocational education provides the students with the opportunity for personal choice of education, employment and further continuous professional development. It provides the knowledge, skills and

competencies for further education and the possibility of entering the labor market.

Quality assurance in education involves specifying the criteria and standards that are subject to periodic review and assessment which refer to all forms of vocational education. The effects of vocational education are evaluated using, among other, the relevant statistical data aimed at monitoring progress and maintaining the set standards, i.e., "The evaluation provides the basis for plan corrections, new activities and further cycle repetition" [1]. Periodic evaluation of the quality of education relates to the determination of:

- Input indicators of quality for every level of education;
- Process quality indicators for each level of education;
- Output quality indicators for every level of education;
- Feedback information for educational process improvement;
- The successfulness of the adjustment to labor market needs.

The establishment of a system for monitoring and evaluating the quality of education would provide valid and relevant information about the effectiveness and impact of education, quality of educational activities and their outcomes and the quality of conditions in which the educational process takes place. Stakeholders that are beneficiaries of such information include teachers,

pupils and parents, schools and local communities [2]. The results obtained by periodic measurement of education indicators are necessary in the context of economic development planning and the definition of mobility by levels of education. Evaluation and development of output education indicators is needed by the economy and the labor market as an important basis for creating their own policies, because the evaluation contributes to decision-making and leads to action, i.e. to changing practices [3]. The requirements of these stakeholders are not only quantitative (graduates' capacity), but also qualitative and relate to the usability of the acquired professional competencies in the work environment [4]. Vocational education provides access to other forms of education at all levels, including access to institutions of higher education. Periodic evaluation of the output indicators of vocational education defines the quality at the input of the process of studying including programs in an integrated system of education quality assurance [5].

Modernization of Vocational Education in the Republic of Serbia started with the introduction of the Pilot curricula in the 2002/03 academic year in the field of food processing. Pilot curriculum improves the quality of education and teaching and introduces new organizational aspects. The curriculum is organized modularly. Modules represent specific learning segments, and they lead to the achievement of clearly defined learning outcomes regarding professional competencies, i.e., to knowledge, skills and attitudes acquisition. Pilot program also includes establishing a system of education quality assurance at the national and school level.

2. METHODOLOGY

The objective of this research was to determine the reached levels of output indicators by examining the perception of students in regard to the pilot curricula they completed in the seven educational profiles in the field of food processing. The study involved the three-year (*agricultural machine mechanic (AMM), baker, butcher and milk processor (MP)*) and the four-year education profiles (*veterinary technician (VT), food processing technician (FPT), agricultural technician (AT)*). Specific objectives that were selected for this study were to: determine the reasons for unemployment, determine professional qualification, and determine qualifications to continue education.

Instruments designed for this study were a questionnaire and telephone interviews. The questionnaire was designed in accordance with the relevant literature and reflecting the model of the questionnaire used in the study of monitoring students of the business administrator education profile, conducted by GTZ project and the Institute for Improvement of Education.

The survey included three generations of students of the three-year educational profiles, and two generations of the four-year educational profiles. Total number of students in all the generations was 1881, out of which 538 participated in the research (28.6%).

The survey was conducted from March to June of 2008. Statistical analysis included basic descriptive statistical measures.

3. RESULTS

Based on the sample of 538 students it has been found that approximately equal number of respondents belonged to each of the three categories: 187 unemployed (34.7%), 177 employed (32.9%) and 174 students who continued their education (32.3%).

Students that completed three-year educational profiles are dominant among unemployed respondents. The greatest number of the unemployed respondents is milk processors (19.8%) and the lowest number veterinary technicians (4.3%). According to the respondents the main reasons for the unemployment are the lack of vacancies in their local communities and lack of financing for continuing further education.

In the category of employed respondents the respondents who completed a three-year educational profile are dominant (73.45%).

Most frequently employed in their profession are butchers (34.78%) and bakers (22.83%) and least numerous are food processing technicians (3.26%). Veterinary technicians stand out by the number of those who continued their education in the professional field (27.88%).

Among respondents who continued their education the most numerous were food processing technicians (31.03%).

The most important positive effects expected of the pilot curriculum are rapid adaptation of students to work conditions in practice, the application of the acquired functional knowledge and skills and a willingness for further continued training at the workplace by life-long learning. The fulfillment of these results was determined by measuring the application of expert knowledge in the workplace, the need for additional training after starting to perform at the workplace as well as willingness of respondents for advanced training. On a four level scale (1-not at all, 2-a bit, 3- mostly and 4-fully) respondents estimated the level of application of expert knowledge at work place and these results are shown in Table 1 as values of arithmetic means. Most successful application of acquired expert knowledge has educational profile Butcher ($M = 3.50$).

Table1 – Application of expert knowledge at the workplace and willingness for further continued training

		N	M	SD	Statistically significant difference
Application of expert knowledge at the workplace (numerical assesment scale from 1 to 4)	Four-year education profile	18	3,00	0,907	No statistically significant difference p<0,05
	Three-year education profile	74	3,34	0,727	
Willingness for further continued training at the workplace (scale from 1 to 5)	Four-year education profile	18	3,94	0,725	No statistically significant difference p<0,05
	Three-year education profile	74	3,96	0,824	

N=number of respondents, M=arithmetic means, SD=standard deviation

Willingness for professional development in parallel with work was expressed by respondents on the scale of values from 1 to 5, with 1 being the lowest and 5 highest. In most educational profiles great willingness to develop professionally was expressed. For reliable statistical conclusions educational profiles were grouped according to the length of school education. Differences of means, as an indicator of applying knowledge acquired at school in the workplace as well as readiness for training at work, were analyzed by t-test (Table 1).

For more than three-quarters of the employees (77.2%) no additional training was needed, so respondents were involved in the work immediately upon hiring. Additional training for other respondents (22.8%) depended on the type of job and company organization. In a small number of companies there is an organized training for all new employees, while in other companies the introduction to the new job is done with the help of the instructor, or more experienced workers.

The pilot curriculum is designed so that, in addition to introducing students to the labor world, it

provides the possibility for continuing further education. Out of 174 respondents who continued their education 104 (59.77%) continued the education in their professional field (Table 2). Respondents who completed a three-year education profile mostly opted to continue their education at higher vocational schools and less to acquire additional training. Respondents who have completed four-year education largely continue to study at colleges and less at higher vocational schools.

Most respondents who completed the four-year educational profile stated that the knowledge acquired in vocational school was useful to them *much* and *very much* in their further studies.

Educational profiles were grouped according to the length of schooling (Table 2).

With regard to the application of vocational school knowledge in further education it was found that there are no statistically significant differences at $p < 0.05$ (t-test) between these groups.

Table 2 – Application of vocational education knowledge in further education by levels of education

Education profile	Schooling duration (years)	%				N	M	SD	Statistically significant difference
		Not at all (1)	A little (2)	Much (3)	Very much (4)				
VT	4	0	31,00	37,90	27,60	79	2,94	0,817	No statistically significant difference p<0,05
FPT		8,30	33,30	45,80	12,50				
AT		3,80	11,50	50,00	34,60				
AMM	3	0	25,00	75,00	0	25	2,64	0,743	
Baker		0	60,00	20,00	20,00				
MP		14,30	42,90	28,60	14,30				
Butcher		0	44,40	33,30	22,20				

N=number of respondents, M=arithmetic means, SD=standard deviation

4. CONCLUSION

Although there is no integrated vertical system of quality of education, it can be concluded that students who have completed the education profile in this sector are largely able to continue their education and that they highly appreciate the application of vocational school knowledge. Those who are employed in their professional field believe

that they are well trained to perform the job due to the fact that they did not need additional professional training and that they apply professional knowledge at the workplace to a large extent. They are also willing to pursue continuous professional development.

When it comes to professional competencies it can be stated that the projected outcomes have been

reached: students quickly adapt to working conditions, they apply functional knowledge and skills in the workplace and they are willing to pursue continued professional training. The overall conclusion of the professional competencies of employees, however, can be performed taking into account also the opinion of employers.

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