

## **OPPORTUNITIES AND WEAKNESSES IN PROFESSIONAL DEVELOPMENT OF TEACHERS AT SECONDARY SCHOOLS OF AGRICULTURE IN SERBIA**

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### **Abstract**

Recent developments in market economies have showed that education and human resource creation are among the top priorities of national strategies and social, economic, and technological progress policies. The common denominator of educational reforms in many European countries is an attempt to set up a flexible system for professional education and development to respond to changes in labour market demands. In 2012, the Serbian Government adopted *Serbia's Education Strategy until 2020*. This document provides for professional development of teachers and expert assistants at secondary specialist schools. Some of the projected actions involve working out various models of professional development, primarily teacher practice in their respective professions, carried out in companies or institutions. This document focuses on continuing professional development through various forms of formal and informal education.

Success in finding acceptable solutions in food production technology largely depends on educated staff in agriculture and their engagement in transferring their knowledge and technologies to agricultural practice. Secondary school education is most important as it is the education level producing a qualified student who will do a specific job.

The aim of this paper is to address the need and weaknesses in continuing professional development of teachers at secondary schools of agriculture in Serbia. The weaknesses experienced in practice regarding their development are numerous and often hard to overcome. How to recognise these weaknesses and resolve them is the subject matter of this paper. The paper presents the organizational weaknesses of accredited seminars and their evaluation.

**Key words:** *professional development, secondary school education, transfer of knowledge in agriculture*

### **Introduction**

In the territory of the Republic of Serbia there are some 70 schools training students in the fields of work in agriculture, and food production and processing. Most often these schools are ‘pure’ schools of agriculture (about 30 of them), and sometimes these are institutions training students in various fields of work. They are normally combined with the field of work in chemistry, non-metals, and graphic art or personal services, but it usually depends on the labour market demands in a local community.

Within this field of work, students get educated in 20 various occupations, degrees three and four. In the course of their schooling they study general subjects and *specialist subjects* acquiring so necessary theoretical and practical knowledge. These specialist subjects are normally taught by graduated agronomists, graduated veterinarians, and food technologists.

The initial education of teachers, in particular those who teach the so-called *specialist subjects* in secondary specialist schools, does not include (apart from some exceptions) studying didactics, teaching methodology and pedagogy although such knowledge is highly important for planning and conducting the process of teaching adequately. However, although it is necessary that the initial education of teachers should be improved, it must not be interpreted to exclude the need for *continuing* (primarily *voluntary* and *independent*) development of teachers' performance following their employment.

Presently, it is generally held that more and more teachers should be included under continuing development. Professional development in this field arises, among other, as a society's need, namely a need of educational institutions, and as a personal need of teachers themselves. Self-development of teachers should be based on constructivist approach to learning. According to constructivism, a teacher who wishes to develop professionally should construct their knowledge on their own, as well as structure and improve their pattern of thought and change some pattern elements in line with new knowledge.

*Rules for professional development and acquiring the vocation of teachers, educators and expert associates* list the forms of continuing professional development:

- 1) continuing professional development programmes conducted through trainings;
- 2) accredited programmes conducted by university institutions (faculties) as a form of lifelong learning;
- 3) specialist conventions (congress; seminar, meetings and special days; conference; counselling; symposium; round table; forum; )
- 4) summer and winter schools;
- 5) specialist and study tours.

Continuing professional development programmes are approved by the Education Improvement Institute (hereinafter referred to as the Institute). Approved programmes are published in the *Catalogue of continuing professional development programmes for teachers, educators and expert associates* (hereinafter referred to as the Catalogue) for a period of two school years. The Institute calls for a contest for approving continuing professional development programmes every two years.

A continuing professional development programme is materialised through a training that may last at least 8, but no longer than 24 hours. Such training may last no more than eight hours a day. A group can include up to 30 people. A training organizer undertakes to report the holding of a training no later than 10 days before the training starts and after the training they undertake to send via email and in writing all necessary information on the seminar participants, as well as questionnaires filled in. Based on this information, the Institute delivers a final evaluation of the seminar and publishes it on their website. The training organizer then issues a certificate of attendance to all participants who subsequently submit it to their respective institutions.

An hour of attendance at a professional training is valued as one point. A teacher, educator or expert associate undertakes to achieve at least 120 points for five years in various forms of professional development.

## **Materials and methods**

The survey was devised as descriptive science research, using the seminar attendees questionnaire<sup>1</sup> which we obtained from the Institute and which consisted of a dozen questions and a dozen items (a five-level scale evaluation of agreement with specific claims).

The sample was accidental (all participants who attended the entire two-day programme) consisting of 151 teachers at schools of agriculture.

Statistical analysis of the obtained information was done in IBM SPSS Statistics 20. The processing included the calculation and presentation of frequency in number and percentage (frequency analysis), standard deviation (as measures of dispersion i.e. spread of respondent evaluation) and mean. Apart from that, there was a test for existing correlations (Pearson correlation coefficient) between the respondents' answers to a set of questions. Finally, Chi-squared test checked for the existence (and statistical significance) of potential differences in the evaluation of some questions. All results are also presented graphically (histograms) with most graphs given as an appendix to the research (so as not to burden the basic content).

## **Results and discussion**

Starting from the fact that there are few approved programmes in the field of work in agriculture, and food production and processing (merely 7 in the 2010-2011 Catalogue) and from the topicality of organic food production, NASO applied for the contest published by the Institute for approving a professional development programme entitled *Organic Agriculture*. The programme was approved and published in the 2011-2012 Catalogue under no. 309.

That school year, 5 trainings were held and 130 teachers of specialist subjects at 33 schools of agriculture were educated. Most of the participants were teachers of specialist subjects such as graduated agronomists (various courses) and graduated veterinarians. The trainings were organized in different parts of Serbia and co-financed by NASO.<sup>2</sup> They lasted 2 days and were 12 points worth.

The following year we applied with the same programme upgraded with an organic food processing module. This way the training was also intended for food technologists. The programme was published in the 2012-2013 Catalogue under no. 753. Only one training was held with 21 participants attending who were teachers of specialist subjects in food processing. Table 1 attached an average evaluation of all 6 trainings held.

Starting from the principle of willingness, and based on evaluation lists we were interested in whether the trainings were attended by younger or older colleagues. The lists did not require that they should state their age, but the number of years in service at the institution. We felt that younger colleagues also had fewer years of service (which is not necessarily

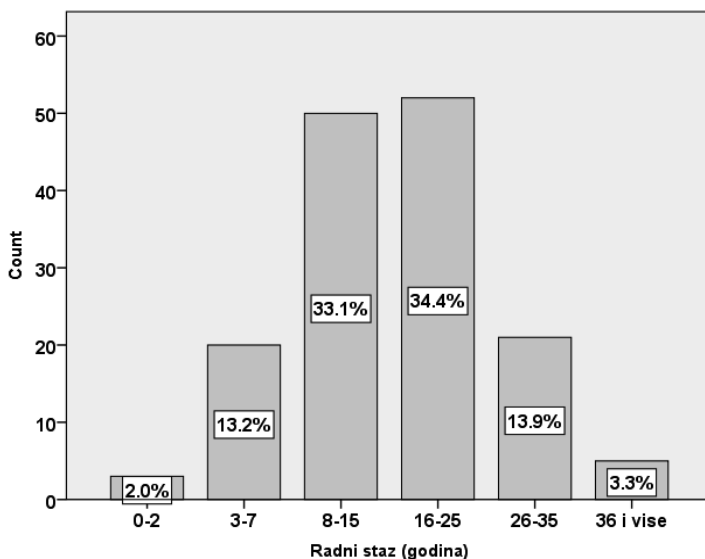
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<sup>1</sup> Questionnaire filled in by the training participants has been attached as an appendix.

<sup>2</sup> NASO-National Association for Organic Production Development Serbia Organica

true because some colleagues might have had some years of service in other companies). Graph 1 shows average percentage of years of service for the seminar participants.

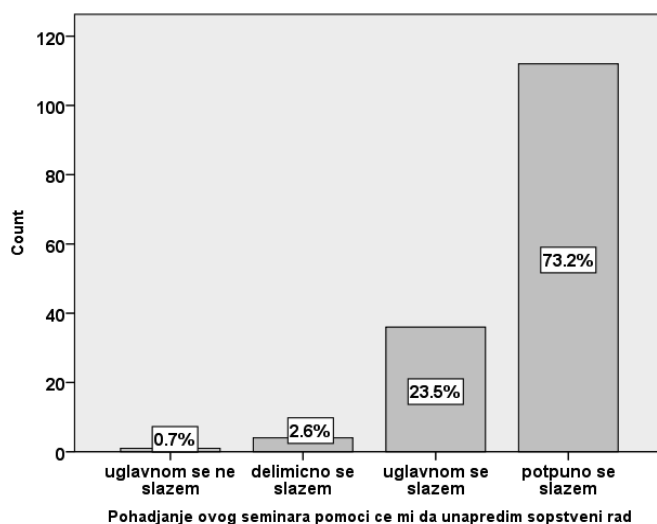
Based on the results obtained we did not confirm our initial belief that the trainings were attended mostly by younger colleagues, but the highest percentage went to the colleagues with longer years of service. It is proof of the desire and willingness of teachers in secondary schools to have continuing trainings and development.



**Graph 1.** Average percentage of years of service for the seminar participants

What we also found interesting was the participants' opinion on applying the knowledge acquired at the training, that is, whether this training would help them improve their own performance.

Most respondents (73.2 %) fully agreed that the seminar would help them improve their performance. Statistical validation that the seminar attendance will improve the respondents' performance may be obtained by Chi-squared test. By applying Chi-squared test we got a  $p$ -value less than 0.05, confirming the assumption that the respondents felt that the seminar attendance would improve their performance. Graph 2 shows the respondent distribution given their attitude towards the effect of the seminar attendance on improving their performance.



**Graph 2.** Respondent distributions given their attitude towards the effect of the seminar attendance on improving their performance

We were further interested whether there was a correlation between the respondent age and the performance improvement after the seminar attendance, that is, whether younger respondents after the seminar attendance improved their performance after attending the training. In this analysis, years of service were redistributed (the table shows new intervals). Analysing the graph (below), it can be observed that growing years of service result in a dropping number of respondents who fully agreed that the seminar attendance would help them improve their performance. Unfortunately, Chi-squared test of independence did not confirm statistical significance of the correlation between the years of service and the respondent attitude towards performance improvement after the training ( $p=0.311 > 0.05$ ). Graph 3 shows the distribution of respondents according to the years of service and the attitude towards the effect of the training on improving own performance.

**Table 2.** Distribution of respondents according to the years of service and the attitude towards the effect of the training on improving own performance

Years of service	Attendance at this seminar will help me improve my performance				Total
	I mostly disagree	I partly agree	I mostly agree	I fully agree	
0-7 years	0	0	4	19	23
8-15 years	1	2	8	39	50
16-25 years	0	0	16	36	52
26 years and more	0	2	7	17	26
total	1	4	35	111	151

We had most difficulties in organizing these trainings due to financial problems. Namely, continuing professional development programmes are supposed to be funded from local self-governments' budgets, which is often an obstacle. Due to such problems, it is not only

this training that was never held, but others too. For the trainings in 2012, NASO managed to provide funding, so the participants bore the costs of transport to the place of training. This way we had a solid response from participants and the maximum number of attendees (30) at almost every training. In the 2013-2014 school year, only one training was held and it was funded by the local self-government of the host school, and some teachers bore the costs too.

A particular problem was in communication with some schools. We could not even come in contact with some of them, so their teachers did not attend (one school from the territory of Kosovo and Metohija). Training invitations were sent via email and often were not read, so we did not have an adequate or prompt reply.

Based on the evaluation lists designed at the Institute and their being filled in by participants we have observed the following:

By analysing Table 3 and relevant Graph 4, it can be observed that the respondents in Vojvodina got their seminar information from the catalogue, from the school administration and otherwise, more often from their colleagues in central Serbia. The situation was quite the opposite in other two sources of information. Chi-squared test of independence confirmed that these differences were not accidental ( $p=0.000<0.05$ ). So, there was a statistically significant difference between the frequencies of specific sources of seminar information for these two regions.

## **Conclusion**

Most participants felt that the education was interesting and that it achieved most of set goals. They felt that the participant needs were honoured at an adequate degree for the most part of the education and most participants were active and focused.

Additional comments on holding the seminar mostly referred to the need for organising more training in the field of agriculture. This attitude was confirmed during the trainings and during various meetings held by the community of schools of agriculture. Although these trainings were mandatory as required by the Rules, most teachers of specialist subjects participated willingly. This indicates that there should be more of such trainings in future and that it is something to work on. As for the content of potential trainings, they should be based on the needs of teachers as much as possible; it would be good if educators were willing to be better informed and qualified for the content they present. If at the same time training funding is successfully resolved, including good workshops, the success is inevitable. Indeed, colleagues should be timely informed about seminar itineraries and from our experience trainings should be also promoted because, as we have already witnessed, participants use various sources to get information on trainings.

## **References**

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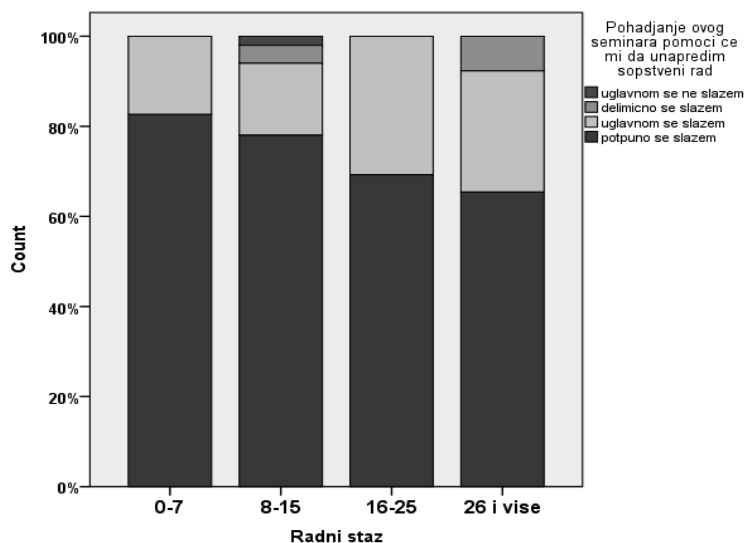
## **APPENDIX**

**Table 1.** *Average evaluation of all 6 trainings (max. evaluation is 4)*

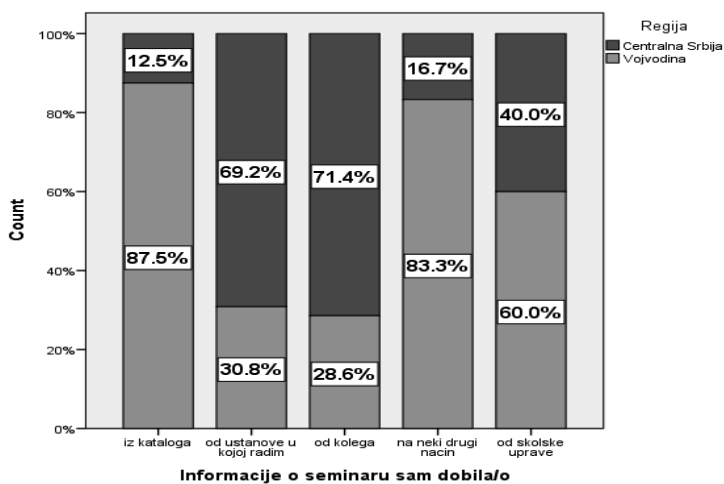
<b>Place of trainings</b>	<b>Average evaluation</b>
Požarevac	3.83
Kraljevo	3.94
BanjaVrujci	3.79
Leskovac	3.67
VelikoGradište	3.56
Novi Sad	3.72

**Table 3.** *Distribution of respondents according to regional affiliation and getting information about trainings*

<b>I have got information about trainings</b>	<b>Region</b>		<b>Total</b>
	<b>Central Serbia</b>	<b>Vojvodina</b>	
From Catalogue	1	7	8
From school in which I work	74	33	107
From colleague	10	4	14
In some other way	2	10	12
From school administration	4	6	10
Total	91	60	151



**Graph 3.** Distribution of respondents according to the years of service and the attitude towards the effect of the training on improving own performance



**Graph 4.** Distribution of respondents according to regional affiliation and getting information about trainings





**ЗАВОД ЗА УНАПРЕЂИВАЊЕ ОБРАЗОВАЊА И ВАСПИТАЊА  
ЦЕНТАР ЗА ПРОФЕСИОНАЛНИ РАЗВОЈ ЗАПОСЛЕНИХ**  
Фабрисова 10, Београд; [www.zuov.gov.rs](http://www.zuov.gov.rs)  
**УПИТНИК ЗА УЧЕСНИКЕ СЕМИНАРА**

<b>1. Пол</b>	Мушки <input type="checkbox"/>	Женски <input type="checkbox"/>				
<b>2. Године радног стажа у ОВ установама</b>	0-2 <input type="checkbox"/>	3-7 <input type="checkbox"/>	8-15 <input type="checkbox"/>	16-25 <input type="checkbox"/>	26-35 <input type="checkbox"/>	36 и више <input type="checkbox"/>
<b>3. Последњи завршени ниво образовања</b>	средњи мастер докторат	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	виши специјализација	<input type="checkbox"/> <input type="checkbox"/>	високи магистратура	<input type="checkbox"/> <input type="checkbox"/>
<b>4. Шифра радног места</b> (шифре се налазе на полеђини упитника)						
<b>5. Број програма у каталогу</b>						
<b>6. Поштански број места реализације семинара</b>						
<b>7. Датум почетка семинара</b>						
	дан	месец	година			
<b>8. Семинар је реализован</b>	а) у установи в) у центру за стручно усавршавање д) електронским путем		б) у ЗУОВ-у г) на неком другом месту			

**Молимо Вас да уношењем знака X у празно поље изразите свој степен слагања са наведеном тврдњом**

	Потпуно се слажем	Углавном се слажем	Делимично се слажем	Углавном се не слажем	Уопште се не слажем
1. Дефинисани циљеви семинара су остварени					
2. Теме/садржаји предвиђени програмом су реализовани					
3. Методе, технике и облици рада примењени на семинару обезбеђују учење учесника					
4. У реализацији семинара узимају се у обзир претходна знања и искуства учесника					
5. Семинар је одржан према предвиђеној сатници					
6. Похађање овог семинара помоћи ће ми да унапредим сопствени рад					
7. Начин излагања водитеља је јасан и разумљив					
8. Водитељи семинара дају повратне информације на питања учесника					
9. Услови за рад (простор, техничка подршка) су омогућили успешну реализацију семинара					
10. Целокупна организација је допринела успешној реализацији семинара					
11. Информације о семинару сам добила/о: <b>а)</b> из Каталога <b>б)</b> од колега <b>ц)</b> од установе у којој радим <b>д)</b> од центра за стручно усавршавање <b>е)</b> од школске управе <b>ф)</b> на неки други начин					
Додатна запажања и предлози:					

<b>Ред. бр.</b>	<b>Назив радног места</b>	<b>Шифра</b>
1.	Наставник разредне наставе	1001
2.	Наставник предметне наставе – основна школа	1002
3.	Наставник предметне наставе – гимназија	1003
4.	Наставник општеобразовних предмета – средња стручна школа и уметничка школа	1004
5.	Наставник стручних предмета – средња стручна школа и уметничка школа	1005
6.	Наставник у школи за образовање ученика са сметњама у развоју	1006
7.	Наставник у школи за образовање одраслих	1007
8.	Васпитач у предшколској установи	1008
9.	Медицинска сестра – васпитач	1009
10.	Васпитач у дому ученика	1010
11.	Стручни сарадник у предшколској установи/школи	1011
12.	Сарадник (педагошки асистент и помоћни наставник)	1012
13.	Директор/помоћник директора	1013