



ИНСТИТУТ
ЗА ПЕДАГОГИЈА



INTERNATIONAL SCIENTIFIC CONFERENCE

75th Anniversary of the Institute of Pedagogy -
Educational Challenges and Future Prospects

Ohrid | May 16th—18th | 2022



CONFERENCE PROCEEDINGS

November, 2022

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EDUCATIONAL CHALLENGES AND FUTURE PROSPECTS: CONFERENCE PROCEEDINGS

International Scientific Conference “75th Anniversary of the Institute of Pedagogy – Educational Challenges and Future Prospects”, Ohrid, 16-18 May 2022

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Published by

Ars Lamina – Publications
Institute of Pedagogy / Faculty of Philosophy, Ss. Cyril and Methodius University in Skopje
Skopje 2022

Design and pre-press

Ars Lamina

Printed by

Evropa 92, Kochani

Print run

250 copies

Web: www.pedagogy.fzf.ukim.edu.mk

CIP - Каталогизација во публикација Национална и универзитетска библиотека “Св. Климент Охридски”, Скопје

37(062)

INTERNATIONAL scientific conference “75th anniversary of the Institute of pedagogy - Educational challenges and future prospects (2022 ; Ohrid)

Educational challenges and future prospects : conference proceedings / International scientific conference “75th anniversary of the Institute of pedagogy - Educational challenges and future prospects” Ohrid, 16-18 May 2022 ; [editors Angeloska-Galevska Natasha ... и др.]. - Скопје : Ars Lamina–publications : Faculty of philosophy, 2022. - 608 стр. ; 24 см

Други уредници: Ilievska-Tomevska Elizabeta, Maja Janevska , Bugariska Branka

ISBN 978-608-267-675-3 (Ars Lamina–publications) ISBN 978-608-238-221-0 (Faculty of philosophy)

a) Образование -- Предизвици и перспективи -- Собири

COBISS.MK-ID 58566661

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THE COMPETENCE-BASED DEVELOPMENT OF TEACHERS IN VOCATIONAL EDUCATION

Abstract: Didactic education and/or in-service training of teachers in higher education institutions based on the (self)assessment of their own competencies and educational needs are or should be the basis for their professional development. According to such assumption, founded on the current didactic approaches, and rooted in the constructive alignment and andragogical participatory planning, we researched the opinion of teachers and associates of higher vocational studies to find out how they assess their pedagogical-didactic ability, to address on that basis induced dilemmas, and if possible, to offer certain solutions for teachers' professional development in the domains of pedagogy and didactic. The research was conducted on a proper sample of teachers and associates employed in vocational high schools in Novi Sad and Belgrade (N=124). Data were collected by an instrument that combined survey-type questions and three-level descriptive assessment scales. Significant differences in the assessment of individual competencies of teachers and associates according to the length of teacher's service, working position and according to the owned pedagogical and didactic education were found, while most of the teachers and associates (88.7%) stated that they do not have special pedagogical and didactic education. Based on these results, we concluded that professional development of teachers and associates in vocational education should be participatory and competency-based planned, implemented, and evaluated, while plans and programs for their professional development should be based on specific educational needs and competencies assessment, gained differences, and grounded on constructive alignment with implementation and evaluation.

Keywords: Vocational education, Professional development, Pedagogical-didactical competences, Constructive alignment, Andragogical participatory planning

Introduction

The research of didactical competencies and educational needs of teachers and associates employed in vocational high schools was the part of project Professional Development of Vocational Education Teachers with European Practices (Pro-VET). It was Erasmus+ Project Capacity Building in Higher Education. The main aim of this project was to provide a systematic approach to continuous professional development on European VET policy and practice for VET teachers (in-service trainers, instructors, mentors etc.) and HE teachers engaged in VET teacher training and work-based settings for Serbia and Russia by e-learning tools. Pro-VET provided opportunities for HE/VET teachers for pedagogical skill development and increased work-life relevance and collaboration with proven European approaches and methodologies in VET. Pro-VET therefore addressed the challenges of the educational quality, relevance, delivery, and management of the VET systems following VET pointers for policy development. The project lasted from 2018 to 2022 (the final conference will take place in October 2022, at University of Belgrade, Teacher Education Faculty). More about project and its results one can find on official project web page: <http://www.provet.online/>.

The starting point in the research was the understanding that didactic education and/or in-service training of teachers in higher education institutions based on (self)assessment of their own competencies and educational needs is or should be the basis for their professional development. Anticipation in one's own professional development implies the alignment of planned goals and outcomes with the didactic approach (choice of teaching content and activities), as well as with evaluation, which should include an assessment of the achievement of goals, an assessment of the quality of teaching and learning resources, and an assessment of the related choices. In the base of the contemporary didactic approach (so-called constructive or curricular alignment) as well as the in the base of andragogical model of participatory planning (Knowles, 1980) is described anticipation.

The essence of constructive alignment lies in solving the “old new” didactic issue about the interdependence of teaching and learning goals, content, and activities (Radović, 2021). Hodolidu (2013) points out that this didactic trend has been present since the second half of the previous century, when the first international tests appeared on the educational scene and when “educational experts” around the world understood that the “curriculum on paper” (i.e. the goals as formulated) was not the same as the “implemented curriculum” (i.e. the curriculum developed with students). Such recognition implies even greater concern about necessity for aligning assessment with teaching and learning resources. The expression “educational opportunity” directly pointed to this aspect of curricular alignment. In order to obtain data on “educational opportunities”, teachers were asked to review each task in the test and to state whether they taught the students the content that the task examines, i.e. whether students had the opportunity to learn the examined content. Predictably, students with the broader educational opportunities (according to teachers' assessments) achieved better results on the international tests, especially in the field of mathematics and science (Hodolidu, 2013). Regardless of the used terminology (constructive alignment or curricular alignment), we cannot ask students for what we have not provided to them.

In the context of research the didactic competences and educational needs of teachers and associates of higher vocational studies, constructive alignment opens up the broader question of the alignment of goals with the educational needs of students, and thus with the offered contents and activities, so that the planning and programming of professional development would not lead to a disparity between “curriculum on paper”, “realized curriculum” and “realized outcomes”.

The andragogical model of participatory planning implies that the professional development programs should be based on previously determined needs for learning and education, through collaborative inquiry and decision-making (Auerbach, 1992, Bond & Blevins, 2020). In this model, that emphasizes participation in deciding on the choice of content and pace of learning, synchronized/asynchronized access to learning content, and especially the teacher's self-directedness as an adult student (Ovesni & Radović, 2021; Radović et al., 2020), analysis of needs for learning and education for planned activities is based on essential human experience and its constant change and requires a long-term abstraction of complex reality for analytical and research purposes (Knowles et al., 2015).

Method

As we already pointed out, didactic education and/or in-service training of teachers in higher education institutions based on (self)assessment of their own competencies and educational needs is or should be the basis for their professional development. According to such assumption, founded on the current didactic approaches, and rooted in the constructive alignment and andragogical participatory planning, we opted to research the opinion of teachers and associates of higher vocational studies to find out how they assess their pedagogical-didactic ability, to address on that basis induced dilemmas, and if possible, to offer certain solutions for teachers' professional development in the domains of pedagogy and didactic. Hence, the main purpose of our

research was to explore the competence-based development of teachers in vocational education. Data were collected using instrument consisted of survey-type questions and three-level descriptive assessment scales. For data processing, in addition to frequencies and percentages, the χ^2 test and Kramer's V correlation coefficient were used. The research was conducted on a proper sample of teachers and associates employed in vocational high schools in Novi Sad and Belgrade (N=124). Most of the teachers and associates in sample have over 20 years of service (42.7%), 37.1% of them work from 10 to 20 years and 20.2% of them have less than 10 years of job tenure. They have a different working position: professors of vocational studies (50.8%), lecturers (21.8%), assistants (14.5%), trainers (4.0%), senior lecturers (3.2%), foreign language teachers (2.4%), teaching associates (2.4%) and demonstrator (0.8%).

Results and Discussion

Considering the structure of the sample according to the length of job tenure and working positions, especially the fact that the majority of professors and associates have work experience of over 10 years and that they are mostly professors of vocational studies and lecturers, the first important result that we got was the respondent's statement about the lack of didactic competences. In particular, 88.7% of respondents declared that they do not have special pedagogical and didactical education. A few respondents received didactical competencies within various professional development programs (3.2%) or online courses (8.1%). Therefore, the most respondents are teaching without systematically obtained pedagogical and didactic education within the initial professional education or programs for professional development.

The assessment of didactic competencies (45 items, Table 1) varies from "possess knowledge about ways how to support students from vulnerable social groups" (M=2.33; SD=0.729), "possess knowledge about the characteristics of cognitive development of young people" (M=2.42; SD=0.651), "possess knowledge and abilities to diagnose individual abilities, potentials and talents." (M=2.57; SD=0.614) to "possess pedagogical skills of group management" (M=2.94; SD=0.278), "possess knowledge how to act in accordance with the principles of multiculturalism and non-discrimination" (M=2.95; SD=0.215), and "possess skills and knowledge for planning own professional development based on the results of self-evaluation and external work evaluation" (M=2.96; SD=0.198). A more detailed overview of the assessment of personal didactic competences is in the Table 1. These are very moderate assessments aligned with the statement of the most of respondents about the lack of their pedagogical and didactic competences.

Table 1

The assessment of VET teacher's didactic competencies

Items	M	SD
Planning professional development based on the results of self-evaluation and external evaluation of your work.	2.96	0.198
Acting in line with the principles of multiculturalism and non-discrimination.	2.95	0.215
Developing pedagogical skills for managing groups (students).	2.94	0.278
Active and constructive participation in the work of a teacher's institution.	2.93	0.290
Taking into consideration the other colleagues' initiatives for improving the institution's work.	2.93	0.290
Possessing the knowledge of the relevant content areas (academic courses) and the curriculum for the course you are teaching, as well as their correlation with other academic courses (content integration).	2.92	0.273

Active participation in teamwork and your institution's activities.	2.92	0.302
Using an adequate and available educational technology.	2.91	0.313
Improving teachers' own teaching by using the knowledge acquired through professional development.	2.91	0.313
Planning teaching and making the course content available to students (intriguing, understandable, interesting).	2.90	0.323
Giving clear instructions to students that indicate a further transfer of knowledge.	2.90	0.323
Cooperation that encourages the development of your own social competencies.	2.89	0.365
Cooperation with other colleagues, encouraging an exchange of opinions, creating an atmosphere of mutual trust in a joint work in the interest of students.	2.88	0.351
Continual professional development in the scientific field(s) that your academic course belongs to.	2.88	0.351
Acting in line with ethical and professional codeces.	2.88	0.374
Planning different forms of monitoring and evaluation of students' work and achievement.	2.86	0.386
Encouraging students' critical, analytical, and divergent thinking.	2.85	0.376
Monitoring and evaluation of student achievement by implementing an objective, public, continual, and stimulating assessment, as well as by providing a clear feedback to students regarding their work.	2.85	0.376
Continual improvement of teachers' own pedagogical practice based on the analysis of student achievement.	2.85	0.376
Active work on improving your relationship with students.	2.85	0.376
Planning various activities for encouraging students' creativity and initiatives.	2.84	0.391
Preparing the academic course syllabus in line with the standards of achievement and the course curriculum, while taking into account students' individual differences, and making sure that the syllabus is well-balanced in terms of the time allotted for covering the specific course content.	2.82	0.424
Continual monitoring and evaluation of student achievement by using different types of evaluation in line with the specificities of the core academic courses.	2.82	0.424
Implementing different forms of classroom interaction and activities in line with students' knowledge and experience, their abilities and needs, set goals, outcomes, content, and characteristics of the teaching and learning context.	2.80	0.423
Realization of functional and educational goals in line with the general principles, goals, and outcomes in higher education, as well as the course curricula, while adapting them to meet the students' needs and abilities.	2.79	0.428
Monitoring, evaluation, and implementation of relevant instruments in monitoring and analyzing students' work relative to their progress.	2.79	0.428

Being informed about the innovations in university-level teaching and knowing how to implement them.	2.78	0.434
Planning and undertaking measures to support students based on the analysis of their achievement.	2.78	0.434
Understanding the importance of cooperation with other partners in educational work, primarily with other educators and partners from the local community.	2.77	0.462
Knowledge of one foreign language.	2.77	0.439
Planning and harmonizing one's own work with students' psychological and physical developmental characteristics, acknowledging students' developing personality.	2.76	0.449
Monitoring and evaluating student achievement in line with their individual abilities by using the prescribed assessment criteria.	2.75	0.471
Continual monitoring and evaluation of student achievement by using evaluation procedures that are in the function of further learning.	2.75	0.471
Monitoring and analyzing different aspects of learning and achievement by using different evaluation techniques.	2.74	0.457
Possessing didactical-methodological knowledge necessary for the implementation of the core academic course (didactical models, teaching methods, forms of classroom interaction).	2.73	0.462
Knowing about different types of motivation and the ways for motivating students.	2.72	0.487
Planning different forms of motivating cooperation with others.	2.72	0.470
Possessing the knowledge of didactical principles, educational goals and outcomes, as well as the general and specific student achievement standards and their correlation.	2.68	0.469
Using different strategies for monitoring the development of different aspects of students' personality (cooperation with other students, conflict resolution, responding to failure, etc.)	2.68	0.519
Planning a systematic cooperation with other partners in education based on the analysis of the potential partner network and available resources.	2.65	0.497
Identifying, mobilizing and encouraging the development of the capacities of all students, along with the acknowledgement of their individuality.	2.64	0.575
Possessing the knowledge of the nature of learning, different learning styles, and learning strategies.	2.63	0.533
Possessing the knowledge of and the skills for identifying individual abilities, potential, and talents.	2.57	0.614
Possessing the knowledge of the characteristics of the cognitive development of the young people (from age 18 to age 24).	2.42	0.651
Possessing the knowledge of the ways of providing support to students from vulnerable social groups.	2.33	0.729

In the assessment of individual didactic competencies, significant statistical differences between respondents with different years of service and working positions, as well as in assessment of personal pedagogical and didactic education were found.

The results (Table 2) indicate that there is a stochastic connection between the length of service and the need of VET teachers to obtain more detailed knowledge:

- for the course preparation, considering the standards of achievement, study plan and program and individual differences of students, considering time and content harmonization,
- for the teaching in accordance with the principles of multiculturalism and non-discrimination,
- for the monitoring and assessment of different aspects of learning and progress, using different evaluation techniques,
- for the participatory educational planning and programming, aimed to make the content accessible (receptive, understandable, interesting) to students,
- for the relevant areas (study subjects) and knowledge of the study plan and program of the courses they realize, as well as correlation of these courses with other areas or subjects (content integration), and
- for the realization of functional, educational and upbringing goals in accordance with the general principles, goals, and outcomes of higher education, with the study subject curriculum, and for their adaptation to the possibilities and needs of students.

Table 2

Statistically significant chi-square test results for the length of VET teacher’s service and their needs to obtain more detailed knowledge

Length of VET teacher's service and their needs to obtain more detailed knowledge	χ^2	df	Sig.	Cramer's V
course preparation, considering the standards of achievement, study plan and program and individual differences of students, considering time and content harmonization	14.188	4	p < 0.01	.007
teaching in accordance with the principles of multiculturalism and non-discrimination	13.739	4	p < 0.01	.008
monitoring and assessment of different aspects of learning and progress, using different evaluation techniques	13.033	4	p < 0.05	.011
participatory educational planning and programming, aimed to make the content accessible (receptive, understandable, interesting) to students	12.373	4	p < 0.05	.015
relevant areas (study subjects) and knowledge of the study plan and program of the courses they realize, as well as correlation of these courses with other areas or subjects (content integration)	12.107	4	p < 0.05	.017
realization of functional, educational and upbringing goals in accordance with the general principles, goals, and outcomes of higher education, with the study subject curriculum, and for their adaptation to the possibilities and needs of students	11.630	4	p < 0.05	.020

Also, as presented in Table 3, the results indicate that there is a stochastic connection between the working position and the need of teachers to obtain more detailed knowledge:

- for the course preparation, considering the standards of achievement, study plan and program and individual differences of students, considering time and content alignment,
- for the continuous monitoring and evaluation of student achievement using different methods of evaluation in accordance with the specificity of the study subject,
- for the continuous professional development in their teaching subjects or in the scientific field of their interest,
- for the active and constructive participation in the organizational performance,
- for the relevant areas (study subjects) and knowledge of the study plan and program of the courses they realize, as well as correlation of these courses with other areas or subjects (content integration), and
- for the active performance directed to improve their relationship with students.

Table 3

Statistically significant chi-square test results for VET teacher's working position and their needs to obtain more detailed knowledge

VET teacher's working position and their needs to obtain more detailed knowledge	χ^2	df	Sig.	Cramer's V
course preparation, considering the standards of achievement, study plan and program and individual differences of students, considering time and content alignment	77.597	14	p < 0.01	.000
continuous monitoring and evaluation of student achievement using different methods of evaluation in accordance with the specificity of the study subject	65.048	14	p < 0.01	.000
continuous professional development in their teaching subjects or in the scientific field of their interest,	28.877	7	p < 0.01	.000
active and constructive participation in the organizational performance	26.101	14	p < 0.05	.025
relevant areas (study subjects) and knowledge of the study plan and program of the courses they realize, as well as correlation of these courses with other areas or subjects (content integration)	14.728	7	p < 0.05	.040
active performance directed to improve their relationship with students	24.097	14	p < 0.05	.045

The results, as presented in Table 4, indicate that there is a stochastic connection between the possessed didactical-methodical competences of VET teachers and their needs to obtain more detailed knowledge, especially

- the need of teachers to obtain more detailed knowledge to recognize individual students' abilities, potentials, and talents, and
- the form of the preferred professional development activities (traditional, online, combined).