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Shaping Key Competences of Elementary Education Teachers – Research Report

KEYWORDS

key competences, kindergarten and early school teacher, elementary education, teacher education programme, early education

ABSTRACT

The objective of the article is to present the results of pilot studies carried out among the second-year students of extramural and full-time studies in pedagogy with the specialisation: kindergarten and early school pedagogy, and among the first-year students participating in the project entitled "Experimental programme of educating kindergarten and early school teachers at AIK." This project is co-financed from the European Union funds within the European Social Fund, and its objective is to increase the competences of people participating in education at the university level in order to meet the needs of economy, labour market and society through the preparation and implementation of the innovative programme of educating teachers of early education. The diagnostic-verification research was carried out in June 2019. The students evaluated their key competences obtained in the process of education. In order to compare them, the U Mann-Withney Test was applied. The analysis of the results makes it possible to evaluate the programmes that are the basis for preparing a new model of shaping the key competences of elementary education teachers. The article presents the assumptions of the programme of educating teachers, the methodological bases for the research, and the analysis of the collected research results.

Introduction

The Operational Programme – Knowledge, Education, Development 2014-2020, co-financed from the European Social Fund, is carried out at the Jesuit University Ignatianum in Krakow (AIK) as the project entitled: "Experimental programme of educating kindergarten and early school teachers at AIK." The project began on 1. 10. 2018 and it shall be continued until 30. 09. 2023. According to the detailed assumptions of the KED Operational Programme, the objective of the project is increasing the competences of people participating in education at the university level in order to meet the needs of economy, labour market and society through the preparation and implementation of the innovative programme of educating teachers of early education. At the same time, the project is to help in creating a new model of shaping the key competences of future elementary education teachers.

The activities of the Ignatianum University are compliant with the planned reform of higher education which assumes that, from 1st October 2019, students shall be prepared for teaching only during uniform, 5-year master's studies with the specialisation Kindergarten and Early School Pedagogy. The project is a practical reference for the reorganisation of the process of educating teachers carried out at AIK.

The objective of the article is to present the results of pilot studies carried out among the experimental group from the first-year full-time studies and second-year students of full-time and extramural studies, who evaluated their key competences. These results shall help to carry out an initial verification of the programme of educating teachers, and they shall make it possible to introduce necessary modifications in the programme. The article consists of three parts: in the first one, initial assumptions of the programme of educating teachers shall be presented; in the second part, the methodological basis shall be outlined, and in the third one, the research results shall be analysed.

The assumptions of the experimental programme of educating kindergarten and early education teachers

In 2016-2017, a team selected in the competition financed by the Ministry of Science and Higher Education and the European Social Fund fulfilled the project entitled "Preparing Model Programmes of Educating Teachers" according to action 3.1 – Competences in Higher Education. The objective of the project was "preparing a deepened comparative analysis related to the system of educating teachers in selected European countries, as well as recommendations concerning the changes in

the system of educating teachers in Poland, and preparing model programmes of educating teachers at universities" (www.archiwum.nauka.gov.pl [access: 31.01.2018]).

The document "Suggestion of a new model of educating kindergarten and early education teachers" (www.archiwum.nauka.gov.pl/g2/oryginal/2018_03/cac95e27a335dcdb00979556332feb00.pdf [access: 31.01.2018]), published on 31 January 2018, became the basis for another competition in which the Jesuit University Ignatianum also took part. Based on the guidelines included in the document, initial assumptions of the "Experimental programme of educating kindergarten and early school teachers at AIK" were prepared.[1] In the suggested model of educating teachers, while describing the profile of a graduate, the authors paid special attention to the need for shaping teacher competences. Such competences were described in two areas: (1) professional knowledge and skills; (2) shaping relations with others. While elaborating details, it was noted that a person who completes five-year studies should be: a reflective practician, an expert in supporting the child's development and an erudite having an interdisciplinary and interiorized knowledge of the world (ibid., p. 1). As for the second area, the graduate shall be:

- an acquiescent carer;
- a team(s) member;
- a person with a positive attitude towards new experiences;
- a person aware of their interests;
- an honest person who tries to follow universal ethical principles.

Also, the document describes the effects of teaching in terms of knowledge, skills, social and interpersonal competences, one's own development, IT and communication technologies, and a foreign language (ibid., pp. 2-8) which should be planned in the newly-created programme of educating teachers. In the suggested modules, the authors indicated the approximate number of hours for the fulfilment of the programme, giving the universities taking part in the competition the opportunity to modify and adjust them to their own innovative approach.

Comparing to the previous programme of educating teachers, more attention was paid to the direct correlation of contents of particular modules with learning in action. One of the solutions for this postulate is combining the classes at the university with apprenticeship in kindergartens and classes I-III of the primary school. Such apprenticeship would start during the first year of studies (until now, at the 1st level studies, apprenticeship was introduced during the second year of studies). Such a postulate was justified by the necessity to reconstruct and construct the contents in an interdisciplinary manner without the artificial division into disciplines, as well as by the requests of students who paid attention to combining theory and practice.

[1] Project co-financed from the EU funds within the European Social Fund.

Such actions are to result in the obtainment of the competence that would make it possible for the graduates to carry out an "effective and professional propaedeutics of subjects such as Polish, History, Science, Maths, Art, Music, Technology and IT" (ibid., p. 1), but also to become a reflective practician and a person with a positive attitude towards new experiences and cooperation with other teachers. In the model prepared by the Team, other actions were also suggested to facilitate the individual support for a student in order to help them achieve maturity and readiness for working as a teacher. Also, general academic subjects taught during the first year of studies were removed from the programme. Instead, a pedagogical-psychological model was suggested, which contained the bases of: pedagogy (knowledge of the world, of the relations me-the world, of oneself), preschool pedagogy and early education pedagogy, as well as psychology for teachers.

In the experimental programme created for the needs of AIK, the most important assumptions of the above mentioned document were taken into account. The assumptions refer to shaping the competences of teachers in kindergartens and classes I-III during five-year studies. Apart from other tasks, the following was planned:

- workshops in personal development and communication training;
- individual meetings with the elements of tutoring, preparing for lifelong learning, dealing with stress, and preventing professional burnout (20 hours in the whole cycle of education);
- combining knowledge with practice through the integration of theoretical university classes with apprenticeship and watching teachers working in kindergartens and early education classes;
- decreasing the number of students in practice groups to 8 people;
- introducing innovative methods of educating teachers (e.g. labs, e-learning, projects, heuristic methods, research in action);
- getting acquainted with foreign solutions in teaching Maths and supporting the child's development according to the Montessori pedagogical system;
- increasing the number of hours preparing the students for conducting classes in Music, Rhythmics and Art.

The main assumptions of the project include increasing cognitive, educational, diagnostic, innovative, organisational, social and interpersonal competences, as well as the ability to use IT and communication technologies in learning and future jobs of kindergarten and early education teachers. The students and teachers who supervise the apprenticeship in schools and kindergartens shall be encouraged to take part in the international project "Kitchen Lab for Kids," co-financed by Erasmus Plus – Action 2, the objective of which is sharing good practices in the STEM education in preschool (more information about the project: http://kitchenlab4kids.eu/ (access:

01.06.2019).[2] The exchange of information between students and teachers, as well as shared initiatives, aim at increasing their activity focused on searching for new solutions in working with children/students.

Methodological basis of the research

The diagnostic-verification research was carried out at the beginning of June 2019 among the students from the experimental group of the first-year full-time students and, for comparison, among the group of second-year students of full-time and extramural studies. Since the students have not yet completed the process of education, we have not analysed their professional competences, but we checked how they evaluate their own key competences.

Due to the changes introduced into the experimental programme of educating teachers of kindergartens and classes I-III, we could carry out the research among the students of two different years, as the content taught during the first year (experimental group) and during the second year are, to a certain degree, comparable. However, we have to remember that the second-year students are better prepared for working in a kindergarten or school (they studied it for two semesters and the experimental group only for one semester as in the first semester they followed the general academic curriculum). Also, the second-year students had 30 hours of apprenticeship more than the first-year students (such apprenticeship took place in different educational institutions, not only kindergartens and classes I-III), while the latter only attended 30-hour apprenticeship in kindergartens. Such apprenticeship was strictly correlated with the preschool pedagogy classes and watching the child in the kindergarten, as well as with planning educational activities according to the assumptions of the new model of education. Also, it is worth to emphasize that in the experimental group, unlike in the other two groups, the classes were carried out in small groups, which facilitated the individual approach and support for the students in their preparation for the teacher's job.

Thus, the research problems were related to the three issues included in the questions:

1. How do the analysed students evaluate their key competences developed in the primary and secondary school?
2. How do they evaluate their current teacher competences?
3. Are there any statistically important differences among the results obtained in the three analysed groups?

[2] Another issue of EETP shall focus on the issues connected with STEM education, i. e. developing scientific thinking in the kindergarten.

In order to gather the research results, the method of survey with scaling was applied and the U Mann-Whitney Test was used to compare the results in two independent groups. The survey structure was based on the analysis of the available books (such as Strykowski 2005; Ordon 2009; Adamek 2014; Śliwa 2017).

The questionnaire of the survey consisted of two parts. In the first one, the analysed teachers evaluated five competences which were shaped as key ones in the primary and secondary school. In the second part, they evaluated their current competences as the competences of a future teacher. In this case, they were 20 selected competences that resulted from the fulfilled programmes of education. A four-grade evaluation scale was suggested.

Assuming that the students from the experimental group did not fulfill the same amount of contents as the second-year students, we believe that there may be differences between the obtained results.

The evaluated group consisted of 120 people, including 70 second-year extramural students (group 1), 30 second-year full-time students (group 2) and 20 first-year experimental group students (group 3).

Analysis of the research results

In order to obtain the answer to the first problem question related to the level of key competences shaped in the primary and secondary school, we asked the students to evaluate the following statements in the 1 to 4 scale:

1. I can plan, organise and evaluate my own learning.
2. I can effectively communicate in different situations.
3. I can effectively work in a team.
4. I solve problems in a creative manner.
5. I can use a computer skilfully.

The results were to show possible differences in the evaluation of competences among the groups of the analysed students. We assume that the occurrence of statistically significant differences in the evaluation of competences may influence the further process of shaping them. The results in particular categories were subject to the analysis with the use of the U Mann-Whitney Test.

As for the evaluation of the competences before the beginning of studies, in the first five categories the only statistically significant difference ($p = 0.03$) was noted in the evaluation of the fifth competence related to the skilful use of a computer. Extramural second-year students (Group 1) evaluated their competences as higher than group 2 (Table 1). There were no differences between the evaluations in group one and three, and group two and three.

Table 1. I can use a computer skilfully

Evaluation scale	Group 1 (2 year ES)	Group 2 (2 year F-T S)	Group 3 (1 year E G)	Total
4	41	10	8	59
3	21	15	5	41
2	4	3	6	13
1	4	2	1	7
Total	70	30	20	120

Source: author's own work.

The analysed students evaluated the level of their key competences in a similar manner. As we have already mentioned, the only difference in the evaluation included IT competences. Since the programme of educating teachers assumes teaching IT-communication technologies in order to prepare teachers to use such technologies in their work with children (the explanation of what IT competences in a teacher's job include – see Ordon, Serwatko 2016), in the second part of the survey we asked to evaluate this competence again, but with certain details concerning the ability to use IT technologies while working with children. The results are presented in table 2.

Table 2. It is easy for me to use IT technologies while working with children

Grade scale	Group 1	Group 2	Group 3	Total
4	35	16	11	62
3	22	9	5	36
2	11	4	4	19
1	2	1	0	3
Total	70	30	20	120

Source: author's own work

Comparing to the first evaluation, the students of extramural studies evaluated this competence much lower than students from group 2 and 3. In this case, there were no statistically significant differences among the results. Thus, the difference was not indicated. A lower evaluation of the first group of students may result from a lower number of hours assigned for ITC classes and detailed methodologies, and from too large practice groups. A high evaluation of the ability to use the computer was not reflected in the skilful use of the technologies while working with children.

In the second part of the survey, the students evaluated selected teacher competences that resulted from their programme of education: substantial, didactic, organisational, cognitive, psychological, as well as communicative and social competences. The following statements were graded:

1. I can plan the classes for children according to methodological requirements.
2. I can plan the objectives and check if they have been achieved.
3. I can effectively include the students in the process of learning.
4. I can manage the children's activity to keep them focused and interested.
5. I know different methods of working with preschool children.
6. I know what the process of integrated learning is.
7. I can cooperate with teachers.
8. I can evaluate a teacher's work (I can evaluate his/her good and bad approach to children).
9. I know Maths enough to teach it.
10. I know Science enough to teach it.
11. I know Polish enough to teach it.
12. It is easy for me to use IT technologies while working with children.
13. My knowledge and skills make it possible for me to diagnose the development and process of children's learning.
14. I have a positive attitude towards gaining new knowledge.
15. I know I have to improve myself constantly.
16. I use empathy while working with children.
17. I am prepared to work with parents.
18. It is easy for me to make contacts with other people.
19. I have no problems with interpersonal communication.
20. I know my strong and weak points.

Just like before, the results were submitted to statistical analysis. The U Mann-Whitney Test indicated statistically significant differences between the first and second group in five analysed categories. I all the cases, the students of second-year extramural studies (group 1) evaluated their competences higher than the students of the same year full-time studies. The differences occurred in the following scopes:

1. I know what the process of integrated learning is $p = 0.02$;
2. I can evaluate a teacher's work (I can evaluate his/her good and bad approach to children) $p = 0.01$;
3. I know Maths enough to teach it $p = 0.03$;
4. I know I have to improve myself constantly $p = 0.04$;
5. I use empathy while working with children $p = 0.01$.

The differences in the evaluation of competences among the students in the same programme of education may result from a greater working experience of extramural students, but also from their different level of consciousness or social expectations. Such evaluation should be additionally verified through competence tests.

Statistically significant differences between the results in group 1 (2nd year of extramural studies) and in the experimental group (1st year of full-time studies) were noted in the evaluation of the following competences:

1. I know what the process of integrated learning is p = 0.01.
2. I can cooperate with teachers p = 0.001.
3. I know Science enough to teach it p = 0.05.
4. My knowledge and skills make it possible for me to diagnose the development and process of children's learning p = 0.003.
5. I use empathy while working with children p = 0.01.
6. I am prepared to work with parents p = 0.001.

The differences between those groups result from the programme which, in the case of the experimental group, at this stage did not include the classes shaping the above mentioned competences.

Another stage included the comparison of the results of the 2nd year full-time students (group 2) and the 1st year full-time studies – experimental group (group 3). Statistically significant differences were noted in the evaluations of the following six competences:

1. I can plan the objectives and check if they have been achieved p = 0.002.
2. I know different methods of working with preschool children p = 0.03.
3. I know what the process of integrated learning is p = 0.0002.
4. I can cooperate with teachers p = 0.006.
5. I can evaluate a teacher's work (I can evaluate his/her good and bad approach to children) p = 0.009.
6. My knowledge and skills make it possible for me to diagnose the development and process of children's learning p = 0.01.

Again, the competences related to the process of integrated learning, cooperation with teachers and diagnosing the process of children's learning were evaluated higher by the second-year full-time students, which confirms the differences in the fulfilment of the programme. Also, the students of the 2nd year of full-time studies better evaluated their competences related to planning and verifying the objectives, the methods of working in preschool, or evaluating the teacher's job. In this case, we can assume (while analysing the results of the exams in particular subjects) that the first year students have the basic knowledge and skills, but – in their opinion – they

are not at the sufficient level. They require enforcement, which shall be done in the next years of studies.

Research results

The comparative analysis indicated that statistically significant differences only occur in few evaluations of teacher competences. Such differences occurred both between the students being in the same programme, and between the students from the experimental group and the 2nd year students. Because of the fact that there were no statistically significant differences in the evaluation of the remaining competences, we can conclude that the new programme has already met its assumptions. Also, we should pay attention to the further enforcement of methodical, diagnostic, communicative-social and organisational competences of all the students.

Practical and interpersonal competences must be supported by practical actions, which is reflected in the results showing significant differences between the 2nd year full-time and extramural students. The research confirms that it is necessary to take up apprenticeship during the first year of studies. Increasing the number of hours assigned for apprenticeship without the integration with other subjects taught at the university shall not bring the desired results. The students of the 1st and second year of full-time studies assessed their ability to evaluate the teacher's approach to children lower, which may confirm their need to discuss the apprenticeship and share their experience with academic teachers.

In order to create the model of shaping the competences of elementary education teachers, we should still continue monitoring the assumed effects and, along with the students and teachers cooperating with the Ignatianum University, modify and intensify the actions aimed at improving the quality of work.

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