

# Identification of Existing and Desired Teaching Competencies - and what Next?

Cirila Peklaj, University of Ljubljana, Slovenia  
 Barica Marentic Požarnik, University of Ljubljana, Slovenia  
 Melita Puklek Levpušček, University of Ljubljana, Slovenia

## Introduction

The study was performed within the framework of the project 'Partnership between teacher education institutions and schools', starting in July 2004 and planned to finish in October 2005. The project resulted from recommendations of European Community's Expert group A – Improving education of teachers and trainers as part of its follow-up of the Process of the Common Objectives of the Education and Training Systems, initiated by the Lisbon strategy. The Centre for Educational Development at the Faculty of Arts is the coordinator of the project (there are 4 other similar projects going on in Slovenia).

The Faculty of Arts provides studies in 23 disciplines for about 7,000 students; nearly half of them are student teachers who are going to teach pupils aged 11-18. Within the 4-year program (students usually need much longer to complete it), the professional components of the program, especially the school practice, have been largely underdeveloped until now, comprising about 12% of the program. The »academic« part of the study of one or two subjects is claiming absolute priority over the professional part, which is not unusual in the context of traditional university studies (Marentic Požarnik & Valencic Zuljan 2002).

The main aim of the project is to professionalize our teacher education programs, especially by strengthening the scope and quality of the professional part of the program, developing a stronger link between theory and practice, setting up partnerships and various forms of cooperation between the Faculty and its staff – teacher educators on the one hand and schools and mentoring teachers on the other. Our goal is thus to promote practice- and research-based teacher education, in the sense of educating »the reflective practitioner«.

One of the important goals of the project was to put the process of renewal of study programs on a firmer basis. This pertains especially to the »pedagogical module« (professional part of the program) which consists of general and subject

specific pedagogical subjects and school practice. We intended to challenge the traditional, discipline or content oriented approach in program construction by a more competency-oriented approach, which tries to incorporate the competencies needed by future teachers.

In formulating and selecting the competencies we reviewed the literature on competencies and key competencies for the 21st century that were defined in DeSeCo project (Rychen & Salganik, 2001, 2003). As well, we reviewed teacher education programs in different countries and considered teaching practice and developmental needs of Slovene educational system. The joint discussion and co-construction of professionals from education led to 39 teaching competencies that can be classified into five domains: effective instruction, life-long learning, classroom management and communication, assessment and evaluation and professional competencies in a more general sense.

## Purpose of the study

The purpose of the study was to find out how practising teachers evaluate the competencies they obtained at university and what they feel they should have obtained. The results represent important information in curriculum renewal according to the Bologna Declaration. We also tried to find out if there are any differences in obtained competencies according to the differences in the organization of different study tracks. Namely, individual teachers got fairly different experiences in terms of how much they learned during their studies vs. in-service, how much pre-service school practice they had, and also the undergraduate study programs themselves have considerably changed in the last 20 years. Because of that we also tried to establish the differences in obtained competencies according to acquisition of their pedagogical education before or after

their B.A. diploma, the duration of practical work during their studies, and the number of years working as a teacher.

## Sample

There were 263 teachers from upper primary and secondary schools ('partner schools' in the project Partnership) included in the sample. Fifty-nine teachers were males and 204 teachers were females. One third of the teachers in the sample have a degree from the Faculty of Arts in Ljubljana, one tenth of them from the Faculty of Education (in Ljubljana or Maribor) and the rest of the sample represents teachers who got their degree at other faculties in Ljubljana (e.g., Faculty of Science and Technology, Faculty of Sport, Faculty of Mathematics and Physics). The mean value of respondents' teaching experience was 13, 8 years. In the sample, 251 teachers obtained their pedagogical education before the B. A. degree (concurrent model) while 36 of them obtained it after the B. A. degree (consecutive model). On average, teachers had a two-week practicum in the classrooms during the graduate study.

## Instruments

Teachers first filled in the questionnaire with some descriptive questions: teacher's gender, the name of faculty where a teacher got their B. A. degree, the discipline studied, the year of graduation, the time of obtaining pedagogical education (before or after graduation), the duration of pre-service practical work in the classroom, the year of receiving a teaching licence, the number of years working as a teacher and the name(s) of course(s) a teacher teaches. Teachers then answered the Teaching Competencies Scale (TCS, Peklaj, 2004). The TCS includes 39 items that represent five general domains of teaching competencies: (1) effective instruction, (2) long-life learning, (3) classroom management and communication, (4) assessment and evaluation of individual's learning progress, and (5) professional competencies in a more general sense. Teachers first rated their teaching competencies as they were obtained during undergraduate study (the so called "obtained teaching competencies"). Teachers assessed each of them on a 5-point Likert scale (1 – not at all obtained to 5 – fully obtained). At the next step, teachers estimated the importance of obtaining the described teaching competencies during undergraduate studies and after a one-year probation period (the so called "desired teaching competencies"). Teachers assessed each of them on a 5-point Likert scale (1 – not at all important to 5 – very important). The ratings of the competencies in specific domains were summed up; the sums represent five global domains of teaching competencies. They showed high internal reliabilities (the obtained as well as the desired state of competencies). Cronbach's alphas for the five domains of obtained teaching competencies were as follows: effective instruction  $\alpha = .90$ , long-life learning  $\alpha = .88$ , classroom management and communication:  $\alpha = .81$ , assessment and evaluation:  $\alpha = .92$ , and professional competencies in a more general sense:  $\alpha = .90$ . Cronbach's alphas for the five domains of desired teaching competencies were: effective instruction  $\alpha = .92$ , long-life learning  $\alpha = .86$ , classroom management and communication:  $\alpha = .93$ , assessment and evaluation:  $\alpha = .91$ , and professional competencies in a more general sense:  $\alpha = .76$ .

Table 1: The differences between obtained and desired teaching competencies (means, standard deviations, t-tests and d-values).

Competencies	Obtained M(SD)	Desired M(SD)	t-test (df)	d
<b>Effective instruction</b>				
1. subject knowledge and understanding	4.10(.86)	4.58(.68)	8.35(252)	0.61
2. effective transmission of subject knowledge	3.39(.98)	4.04(.87)	9.82(251)	0.70
3. knowledge of learners and learning process	3.05(1.00)	3.74(.87)	9.79(249)	0.74
4. knowledge of theory of education	3.59(.94)	3.86(.91)	3.87(249)	0.29
5. planning, execution, evaluation of teaching	3.31(1.03)	3.80(.87)	6.82(250)	0.52
6. familiarity with main educational documents	2.54(1.25)	3.16(1.03)	6.86(249)	0.54
7. linking aims, content and learner needs	2.78(1.01)	3.40(.88)	9.38(247)	0.66
8. efficiently organizing learning activities	3.18(1.04)	3.63(.89)	5.94(247)	0.46
9. encouraging different levels of knowledge	3.20(.97)	3.81(.88)	8.76(251)	0.68
10. use of interactive learning methods	2.88(1.07)	3.53(.91)	8.63(251)	0.65
11. encouragement of active learning	2.70(1.04)	3.49(.92)	11.25(248)	0.81
12. encouragement of project work	2.62(1.16)	3.34(.96)	9.02(249)	0.67
13. encouragement of cross-curricular work	2.52(1.12)	3.33(.91)	10.40(250)	0.78
Sum total	39.99(9.18)	47.79(8.12)	12.13(236)	0.85
<b>Life-long learning</b>				
1. increasing learner motivation	3.03(1.04)	3.69(.90)	9.23(251)	0.68
2. fostering learning strategies	2.75(1.07)	3.58(.97)	11.00(251)	0.77
3. encouragement of flexibility	2.73(1.05)	3.46(.90)	10.02(248)	0.75
4. encouragement of ICT literacy	2.45(1.24)	3.52(1.01)	12.70(249)	0.94
5. development of social skills	3.09(1.12)	4.33(.86)	14.89(247)	1.11
Sum total	14.03(4.49)	17.94(3.83)	12.78(245)	0.93
<b>Classroom management and communication</b>				
1. effective communication with learners	3.35(1.17)	4.01(.91)	8.21(251)	0.63
2. management of learning community	2.66(1.22)	3.16(1.01)	6.23(250)	0.44
3. creating an encouraging learning environment	3.13(1.17)	3.77(1.00)	7.82(251)	0.58
4. establishing classroom discipline	3.10(1.22)	4.64(.69)	16.71(248)	1.36
5. effective management of aggression	2.53(1.20)	4.52(.77)	21.52(248)	1.79
6. establishing equal opportunities	3.02(1.18)	4.44(.78)	16.91(248)	1.26
7. successful work with children with special needs	2.61(1.24)	3.46(1.05)	9.90(251)	0.74
Sum total	20.46(7.18)	25.89(5.79)	10.81(247)	0.83
<b>Assessment and evaluation</b>				
1. development of assessment criteria	3.16(1.18)	3.90(.98)	8.87(249)	0.68
2. evaluating individual progress	2.95(1.13)	3.61(.92)	8.19(250)	0.62
3. appropriate use of different assessment methods	2.98(1.11)	3.62(.94)	8.06(250)	0.62
4. assessment of social skills, learning strategies	2.70(1.11)	3.44(.97)	9.13(246)	0.70
5. communication of learners' progress	2.80(1.27)	3.44(.97)	7.60(249)	0.55
Sum total	14.70(4.99)	18.00(4.18)	9.47(242)	0.71
<b>Professional competencies in a more general sense</b>				
1. positive attitude toward learners	3.49(1.15)	4.24(.91)	9.58(248)	0.72
2. believing in learners' abilities	3.58(1.10)	4.19(.85)	8.61(248)	0.69
3. adherence to ethic principles	3.61(1.15)	4.23(.89)	7.85(246)	0.59
4. management of one's own professional development	3.36(1.19)	4.01(.96)	8.42(247)	0.60
5. encouragement of positive values	3.42(1.12)	4.18(.85)	9.78(249)	0.76
6. effective communication with parents	2.96(1.23)	3.70(.95)	8.71(247)	0.67
7. cooperation with other teachers	3.14(1.18)	3.74(.94)	7.56(248)	0.55
8. participation within a community	2.94(1.18)	3.42(.94)	6.52(248)	0.44
9. openness toward other cultures	3.44(1.19)	4.49(.74)	13.58(245)	0.94
Sum total	29.99(8.90)	35.79(6.39)	10.08(241)	0.71

Note. All t-tests significant at  $p < .001$

## Procedure

The questionnaires with demographic data and Teacher Competencies Scales were distributed at the schools participating in the project Partnership between faculties and schools in January 2005. Teachers who decided to participate filled in the questionnaires and returned them to the faculty.

The collection of questionnaires was completed in the first half of February 2005. In order to find out the differences between obtained and desired competencies, paired-samples t-test was calculated for individual competence and also for five domains of competencies. To evaluate effect sizes of the differences between obtained and desired competencies, Cohen d-values (Cohen, 1994, Cankar and Bajec 2003) with the correction for correlated samples were also calculated. D-value 0.20 is small, 0.50 medium and 0.80 high. In education, values higher than 0.44 are considered to have practical value.

Further the obtained competencies were analysed. ANOVA was calculated to find out the differences in obtained competencies according to the time of finishing pedagogical education, the duration of practical work in the classrooms during the undergraduate studies and the number of years working as a teacher.

## Results

### What knowledge and skills did teachers obtain during their undergraduate studies and what they think they should have?

In general, teachers expected to get more teaching competencies than they indeed obtained at the undergraduate level. The differences between the actual and the desired state were significant in all specific teaching competencies as well as in the sums of five general domains of competencies (see Table 1). The absolute differences between actual and desired state of teaching competencies were the highest (d-values over 0.80) in the following domains: use of IT, development of communication and social skills in students, creation of rules for behaviour and discipline in the classroom, use of strategies for coping with aggressive behaviour and conflicts in the classroom, adaptation of school activities to students with different individual needs, and promotion of openness to other cultures, values, people and novelties. The competence that teachers reported to have obtained to the highest degree was knowledge and understanding of the subject matter to be taught. On the other hand, the competence that teachers perceived to have obtained to the lowest degree was the competence of life-long learning: the use of ICT.

### Obtained teaching competencies: Are there any differences according to how far away in time their teacher training was, the duration of practical work in the classroom during their study and the number of years working as a teacher?

There were a few significant differences in the ratings of obtained teaching competencies according to the acquisition of pedagogical education before or after the B. A. degree, the duration of practical work in the classrooms during the pre-teacher's study and the number of years working as a teacher (see Table 2).

Teachers who developed their professional skills in a concurrent model, did not differ significantly in self-reports on five general domains of obtained teaching competencies from their colleagues who obtained pedagogical education after the B. A. degree – in a consecutive mode. But the former group of teachers reported some higher ratings in the domain of effective instruction: they obtained better knowledge of pedagogical theory,  $F(1,249) = 13.11, p < .001$ , and they better knew how to plan, implement and evaluate the learning process,  $F(1,250) = 4.47, p < .05$ , at the end of their undergraduate studies than the latter group of teachers.

If we look at the duration of pre-service practical work, there were significant differences in two general domains of teaching competencies. The estimations of the competencies obtained in the areas of lifelong learning and classroom management

**Table 2. Ratings of the domains of obtained teaching competencies according to the acquisition of pedagogical education before or after the B.A. degree (concurrent – consecutive model), the duration of practical work in the classroom during their study and the number of years working as a teacher (means, standard deviations, significance of F-ratios).**

Competencies	Pedagogical education		Practical work		Teaching practice	
	M(SD)	F	M(SD)	F	M(SD)	F
<b>Effective instruction</b>	Before B.A. 39.87(9.29) After B.A. 39.14(10.68)		(1) 37.98(8.60) (2) 40.00(9.17) (3) 43.82(9.53) (4) 40.21(9.76)		(1) 40.47(8.64) (2) 38.79(10.09) (3) 41.31(9.53)	n.s.
<b>Life-long learning</b>	Before B.A. 13.78(4.45) After B.A. 14.47(5.04)		(1) 12.61(3.84) (2) 14.16(4.56) (3) 16.35(3.43) (4) 14.15(4.75)	sig.	(1) 14.20(4.14) (2) 13.23(4.62) (3) 14.64(4.68)	n.s.
<b>Classroom management and communication</b>	Before B.A. 19.80(7.11) After B.A. 21.58(7.44)		(1) 18.00(6.19) (2) 20.53(7.93) (3) 23.76(5.87) (4) 20.65(7.34)		(1) 19.15(6.99) (2) 19.62(7.34) (3) 22.16(6.87)	sig.
<b>Assessment and evaluation</b>	Before B.A. 14.58(5.10) After B.A. 13.86(5.05)		(1) 13.38(4.24) (2) 14.65(5.62) (3) 17.00(4.15) (4) 14.68(5.23)	n.s.	(1) 13.69(4.74) (2) 13.97(5.28) (3) 16.14(4.77)	sig.
<b>Professional competencies in a more general sense</b>	Before B.A. 29.94(9.08) After B.A. 28.88(8.06)		(1) 28.56(8.24) (2) 29.49(9.80) (3) 33.65(7.28) (4) 30.16(9.03)	n.s.	(1) 28.49(8.75) (2) 29.43(9.30) (3) 31.99(8.33)	sig.

Note. Teachers were categorised into four categories according to the reported duration of practical work in the classrooms during their pre-service education: (1) 1 – 25 hours, (2) 26 – 50 hours, (3) 51 to 75 hours and (4) more than 76 hours. Similarly, teachers were categorized into three categories according to the number of years working as a teacher: (1) 1-7 years, (2) 8-18 years, (3) 19-35 years.

and communication were higher in teachers who reported to have more hours of practical work in classrooms during their studies,  $F(3,256) = 3.19, p < .05$  and  $F(3,257) = 3.16, p < .05$ , respectively. More specifically, these teachers reported to have learned more methods for motivating learners  $F(3,262) = 3.68, p < .05$ , and different strategies for developing students' meta-learning skills,  $F(3,261) = 4.00, p < .01$  than teachers with less pre-service classroom experience. Also, teachers who had more pre-service classroom experience reported to have learned more disciplining and behaviour management strategies for the classroom,  $F(3,260) = 2.71, p < .05$ , adapting school activities to students with different individual needs  $F(3,260) = 2.75, p < .05$ , and working with students with special needs,  $F(3,260) = 4.61, p < .01$ .

Teachers with a longer teaching experience reported to have obtained higher levels of teaching competencies than their younger colleagues. The significant differences between the groups of teachers according to the number of years working as a teacher appeared in the domain of classroom management and communication competencies,  $F(2,248) = 3.96, p < .05$ , assessment and evaluation competencies,  $F(2,245) = 5.49, p < .01$ , and professional competencies in a more general sense,  $F(2,244) = 3.11, p < .05$ . Specifically, teachers who work longer in the classroom reported to have learned more during their undergraduate studies about how to create and lead a community of students,  $F(2,251) = 3.81, p < .05$ , strategies for disciplining and behavior management in the classroom,  $F(2,251) = 6.54, p < .01$ , coping with aggressive behaviour and conflicts in the classroom,  $F(2,251) = 3.18, p < .05$ , and working with students with special needs,  $F(2,251) = 3.51, p < .05$ , than their colleagues with less teaching experience. Accordingly, in the field of assessment and evaluation competencies, teachers with more teaching experience reported to have obtained more skills in the application of different assessment techniques,  $F(2,251) = 5.85, p < .01$ , and more skills in the communication with parents about the progress of their child,  $F(2,251) = 10.07, p < .001$ . Specific professional competencies

in a more general sense that were obtained to a higher degree by teachers with a longer teaching experience were: consideration of ethical principles and legislation at work,  $F(2,249) = 3.32, p < .05$ , effective communication with parents and other staff responsible for the students,  $F(2,249) = 5.93, p < .01$ , and cooperation with other teachers and professional staff in the school,  $F(2,250) = 5.05, p < .01$ .

## Discussion

The purpose of our study was to develop a list of teacher competencies that students are expected to develop during their pre-service study in different programs of teacher education at the University of Ljubljana. The analysis of teachers' responses could help us re-think our present teacher education programs in graduate studies, see their deficits and design the necessary changes for its improvement in content and methods.

The analyses of results showed the largest differences between obtained and desired competencies in the domain of *life-long learning* and *classroom management and communication*. Within life-long learning, we found the biggest differences in the competence development of social and communication skills in learners and in the use of ICT and encouragement of ICT literacy in learners. These are the two competencies which are the necessary element for two key competencies for the 21<sup>st</sup> century emphasised in the DeSeCo project (Rychen and Salganik 2001, 2003), namely successful work in heterogeneous social groups and interactive use of tools.

For reflexive and responsible work with others, the competencies of establishing relations with others, cooperation and conflict management are the necessary condition. Openness toward other cultures, values and persons is a framework for an individual to develop them. The main issue of our teacher education reform should be empowering future teachers with techniques and strategies for the development of social and communications skills in students. Different interactive learning methods (peer tutoring, cooperative, collaborative learning) that have potential to influence cognitive, affective, motivational and social processes in students (Pekljaj 2001, Pekljaj and Vodopivec 1999) are the best way to acquire those strategies. The second key competence is interactive use of tools, which, beside the interactive use of language, symbols, knowledge and information also includes the use of technology. The use of technology should also become an integral part of teacher education and teacher trainers should use it in their work for and with students. Other research done in our Faculty has shown an improvement in this field (Pekljaj and Puklek Levpušček 2005).

*Classroom management and communication* is the second domain where the gap between obtained and desired competencies is very large. The ability to formulate clear rules for behaviour and discipline and deal effectively with aggression and conflicts is also connected with successful work in heterogeneous groups. More time should be devoted to these domains in different subjects in teacher education, especially for teaching concrete strategies for behaviour management of students. Effective classroom management is also related to giving all learners equal opportunities and adapting work to their individual needs.

The analysis of conditions under which students obtained their teacher training showed almost no difference in students acquiring their pedagogical knowledge during or after their graduate studies, but differences were found according to the duration of pre-service practical work and according to the years of their teaching practice. The duration of practical

work in pre-service education proved to be a critical factor in competencies for motivating students for learning, for developing their learning skill, for developing discipline in classrooms and for work with students' individual and special needs. All these competencies include sound basic knowledge and also strategies and methods to employ them. Because of this combination of declarative and procedural knowledge they cannot be acquired simply by attending lectures. They require a combination of theory and guided reflective practice. Most students in our universities get only two weeks of such practice, which is evidently not enough to develop the necessary competencies. Irrespective of all evidence and arguments, the teachers of "academic" subjects refuse to allow an increase in the duration of pre-service teaching practice. Even the proposal to have three instead of two weeks of such practice has not yet been accepted.

The years of teaching were the second factor that influenced teachers' estimations of obtained competencies. Teachers who worked longer reported to have obtained higher levels of teaching competencies than their younger colleagues. We can have two possible explanations for these (unexpected) findings. The first is in the way in which teacher education was carried out 20 years ago; many teachers were trained at Teacher Training Colleges and even received some teacher training in special "pedagogical" high schools (Marentic Požarnik and Valencic Zuljan 2002). The second possible explanation could be the time distance. Teachers' estimates could be more favorable and at the same time less accurate because of this distance. They can be based on their actual estimates and competencies they already have acquired through their long teaching practice.

The question remains what the possible and most productive and sensible uses of the results obtained are. To what extent can they be used as a basis for curriculum renewal, as a "pedagogical frame of reference" or "by focusing on learning outcomes in the interest of securing quality?" (Mikl 2004). Are they going to be helpful for setting new accents in the content and especially methods in the professional part of teacher education curricula? Can they serve as a justification for a more substantial "professional module," including school practice? We are aware of the danger inherent in regarding standards only as a basis for a rigid measurement of outcomes of teacher education at the individual level. But maybe they could be useful at the institutional level, as a basis for accreditation.

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