

Motivation for the teaching profession: Assessing psychometric properties and factorial validity of the Orientation for Teaching Survey on in-service teachers*

Nataša Simić¹, Danka Purić¹, and Milan Stančić²

¹*Department of Psychology, Faculty of Philosophy, University of Belgrade, Serbia*

²*Department of Pedagogy and Adult Education,
Faculty of Philosophy, University of Belgrade, Serbia*

Previous studies that used the Orientation for Teaching Survey (OTS), assessing motivation for the teaching profession, yielded inconsistent results regarding the OTS's factorial structure. Since these studies focused on pre-service teachers with limited teaching experience, our main goal was to assess the psychometric properties and factorial validity of the OTS on in-service teachers. An additional goal was to compare the motivation of male and female teachers, and teachers working in primary and secondary schools. The OTS was administered to 384 teachers in Serbia. After confirmatory factor analysis demonstrated that the six-factor model proposed by the authors of the OTS did not fit the data well, an exploratory factor analysis was conducted, and a two-factor solution was accepted (Extrinsic-Intrinsic model). Women and primary school teachers scored higher on Intrinsic motivation. Results point to the need for further exploration of differences in the motivation of pre- and in-service teachers and changes in teacher motivation over time.

Keywords: motivation for the teaching profession, in-service teachers, Orientation for Teaching Survey (OTS), factorial validity, psychometric properties

Highlights:

- An EFA yielded a two-factor (Extrinsic-Intrinsic) solution for teacher motivation
- A short 19-item two-factor scale of teacher motivation has good metric properties
- Female teachers are more intrinsically motivated than their male counterparts
- Intrinsic motivation is higher in primary than in secondary school teachers

Corresponding author: nsimic@f.bg.ac.rs

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In the last few decades, the field of educational science has paid significant attention to teachers and their motivation to teach. Teacher motivation for the teaching profession has been underlined as an important determinant of the teachers' success, and therefore the success of their students and the school in general (Hattie, 2009; Pelletier, Séguin-Lévesque, & Legault, 2002; Wright & McMahan, 1992). Many researchers and employers are interested in factors influencing teacher job satisfaction and teacher decisions to enter or leave the profession (Mansfield, Wosnitza, & Beltman, 2012; Sinclair, Dowson, & McInerney, 2006). Teacher turnover, particularly at the beginning of their career, is mostly associated with low salary, lack of administrative support, low decision-making power and autonomy, unsatisfactory societal status, discordance between personal and school values, and disruptive student behavior (Bentea & Anghelache, 2012; Borman & Dowling, 2008; Ingersoll, 2001; Kelly & Northrop, 2015; Kersaint, Lewis, Potter, & Meisels, 2007; Skaalvik & Skaalvik, 2011; You & Conley, 2015). These findings emphasize the importance of researching factors associated with teacher motivation to enter and remain in the teaching profession. Therefore, we set out to explore motivation for the teaching profession, an issue only sporadically addressed in Serbia (see Simić, 2015; Jovanović, Bogdanović, & Simić, 2013; Marušić, 2014). Our aim was to assess one of the instruments measuring teacher motivation, as well as to compare the motivation of male and female teachers, and teachers working in different types of schools.

Regarding motivation for the teaching profession, the most common division found in the literature is on intrinsic (passion for teaching and interest for the subjects taught), extrinsic (job security, salary, holidays and flexibility) and altruistic motivation (serving children and society) (Brookhart & Freeman, 1992; Kyriacou & Coulthard, 2000). This is often simplified to just intrinsic and extrinsic motivation, with intrinsic motivation including what other authors define as altruistic orientation (Marsh, 1990; Morgan, Kilpatrick, Abbott, Dallat, & McClune, 2001; OECD, 2005; Sinclair et al., 2006). The desire to work with children and adolescents has been proven to be the key reason for choosing a career in teaching (Fokkens-Bruinsma & Canrinus, 2014; Watt & Richardson, 2008) and the key source of satisfaction among teachers (Skaalvik & Skaalvik, 2011). In addition, a comprehensive international study (OECD, 2005) revealed that people opt for the teaching profession because it enables intellectual fulfillment and represents a tool for making contributions to changes in society.

Approaches to conceptualizing and assessing teacher motivation

When developing instruments for assessing motivation for the teaching profession, researchers either relied on general theories of motivation or theoretical models developed specifically for the field of teacher motivation.

Watt and Richardson developed the FIT-Choice (Factors Influencing Teaching Choice) scale relying on the Expectancy-value motivational theory (Wigfield & Eccles, 2000). This scale assesses 12 motivational factors, including intrinsic value, altruistic and extrinsic orientation, and also factors referring to compatibility with personal ability and influences of significant others (see Watt & Richardson, 2007, 2008; Watt et al., 2012). FIT-Choice scale generally displays good construct validity and reliability across several countries, although certain factors are not equally relevant in all settings (Watt & Richardson, 2012; Watt et al., 2012).

Ferrell and Daniel relied on a different theoretical model (Joseph & Green, 1986; Lortie, 1975) when constructing their instrument, the Orientation for Teaching Survey (OTS). They defined 58 items categorized into eight themes found in the works of Lortie (1975) and Joseph and Green (1986). In a series of studies conducted on predominantly pre-service teachers from the United States, Ferrell and Daniel found that a six-factor solution fits the data better than an eight-factor solution, so they proposed the following motivational orientations or themes: 1) The *security theme* refers to the motivation for the teaching profession due to stability of employment and income and due to their significant others' beliefs that one can be good at this profession; 2) *Service-based orientation* points to a desire to contribute positively to society through engagement in teaching; 3) The *interpersonal theme* relates to eagerness to work with young people; 4) The *(intellectual) stimulation theme* points to wishing to work as a teacher because it is a creative and challenging job; 5) The *benefit- and convenience-based orientation* reflects the desire to pursue a teaching career due to short working hours, long holidays and the different benefits teachers have, 6) *Continuation-based orientation* represents the motivation to remain associated with the schooling processes, where one believes one can attain a more successful career than at other workplaces (Daniel & Ferrell, 1991; Ferrell & Daniel, 1993).

When applied across different countries, this scale displays inconsistent factorial structure. Thus, while a study applying a modified version of the OTS on pre-service teachers in Australia resulted in six themes very similar to Ferrell's and Daniel's (Sinclair et al., 2006), a study on prospective teachers in Romania found an eight-factor solution to be more appropriate (Anghel, 2013). Another study, on Serbian pre-service teachers, yielded a five-factor solution (Jovanović et al., 2013). In the following table, we present factors obtained in Ferrell's and Daniel's original study and the three studies that applied the OTS, and align them with motivational orientations proposed by the general theories of motivation for teaching.

Table 1
*Motivational orientations and themes for the teaching profession*¹

General theories of motivation for teaching		Motivational orientations / themes			
		Research studies using OTS			
Marsh, 1990; OECD, 2005; Sinclair et al., 2006; Morgan et al., 2001	Brookhart & Freeman, 1992; Kyriacou & Coulthard, 2000	Ferrell & Daniel (1991, 1993) Sample: pre- and in-service teachers in USA	Sinclair et al. (2006) ¹ Sample: pre-service teachers in Australia	Anghel (2013) Sample: pre-service teachers in Romania	Jovanović et al. (2013) Sample: pre-service teachers in Serbia
Intrinsic motivation	Intrinsic motivation	(Intellectual) stimulation	Intellectual stimulation	Intellectual provocation	Personal and professional growth
		/	/	Vocational sense for a didactic profession	/
Altruistic motivation	Altruistic motivation	Worthwhile service to society	Helping others	Desire to serve the society	Society reform
		Interpersonal relationships	Working with children	Love for children	Enjoyment in work with children
Extrinsic motivation	Extrinsic motivation	Continuation of work in familiar setting	/	/	/
		(Material) benefits	Conditions of employment	Favorable working conditions	Free time and benefits
		Job security		/	/
		/	Dissatisfaction with previous employment	/	/
		/	Ease of entry/work	Formation for this profession correlated aspects	/
		/	/	Teacher's status and desire of being an authority	Attaining authority with little effort
/	/	Other's influence	/		

Group differences in motivation for the teaching profession

The most prominent factors shaping teachers' motivation for teaching include sociodemographic characteristics, personal traits and the context within which they work. It was demonstrated that females and (prospective) teachers who prefer working in primary schools have more altruistic motives, whereas males and those who wish to work in secondary education have higher scores

¹ This study used a modified version of OTS.

on intrinsic and extrinsic motivation (Daniel & Ferrell, 1991; Müller, Alliaa, & Benninghoff, 2009; Sinclair, 2008). Extraversion and agreeableness also emerged as significant predictors of intrinsic career value and satisfaction within the teaching profession (Marušić, Jugović, & Pavin Ivanec, 2011). Moreover, the more economically developed a country is, the more its teachers tend to be intrinsically and altruistically, and less extrinsically motivated (Bastick, 1999; Heinz, 2015; Watt et al., 2012; Yüce, Şahin, Koçer, & Kana, 2013). However, these results have not been consistently replicated (Akar, 2012; Liu & Onwuegbuzie, 2014; Marušić, 2014; Marušić et al., 2011).

Present study

Although motivation for the teaching profession has been widely investigated internationally, only a handful of studies dealing with this issue have been conducted in Serbia (see Jovanović et al., 2013; Marušić, 2014; Simić, 2015). In our research, we decided to use the Orientation for Teaching Survey (OTS) proposed by Ferrell and Daniel (Daniel & Ferrell, 1991; Ferrell & Daniel, 1993), because the six-factor model seemed promising in its potential to capture different aspects of teacher motivation. However, this instrument has rarely been applied on in-service teachers, and when applied, it yielded inconsistent results regarding factorial structure (Anghel, 2013; Daniel & Ferrell, 1991; Ferrell & Daniel, 1993; Sinclair et al., 2006). Therefore, our goal was to assess the factorial validity and psychometric properties of the OTS on a Serbian sample of in-service teachers. An additional reason for choosing this instrument was that previous research in Serbia on pre-service teachers' motivation had used the OTS (see Jovanović et al., 2013), providing us with a reference point in discussing our results. Since different studies produced different numbers of factors, we chose to compare the six-factor model proposed by the authors with the two most often proposed models in studies on teacher work motivation, i.e., the two- and the three- factor models. We hypothesized that the original six-factor model would fit the data well and, moreover, that, being the most differentiated, it will have the best fit out of the three models.

An additional goal was to assess the motivation of in-service teachers in Serbia and compare its levels for male and female teachers, teachers working in primary and secondary schools, as well as the levels of different types of motivation. Relying on the results of previous studies (Müller et al., 2009; Sinclair, 2008), we hypothesized that females and primary school teachers would show a greater inclination to altruistic themes, whereas males and secondary school teachers would be more motivated by extrinsic factors. From a sociocultural perspective, and given that extrinsic motivation is predominant among teachers in developing countries like Serbia, we could expect that extrinsic-type motivation would prevail in the entire sample. However, if we consider the low status of the teaching profession in society and low salaries (Galgóczi & Glassner, 2008; Kovács-Cerović, 2006; OECD, 2013, 2014), it is possible that people who opt to teach in Serbia and decide to remain in the teaching profession are driven by altruistic- or intrinsic-type motives.

Method

Participants and procedure

The sample consisted of 348 teachers from 8 primary and 13 secondary schools (8 vocational, 1 grammar school and 4 combined schools) throughout Serbia. In primary schools, we approached both class teachers (those teaching all the subjects to children aged 7 to 11) and subject teachers (teachers specializing in specific subjects, e.g. Languages or Science, working with students aged 12 to 15). In order to provide a diverse sample with maximum variation, we chose schools from economically differently developed Serbian districts, with different student structure and number.

There were 66.9% female teachers in the sample, which reflects the proportions in the teacher population of Serbia, with an average of 12.51 years of work experience ($SD = 9.59$). Class teachers represented 11.5% of the sample, while in the group of subject teachers, the most numerous were those who taught subjects in Social sciences and Humanities (around 48%). The structure of the sample by type of school and scientific discipline, as classified at Serbian Universities, can be seen in Table 2.

Table 2
Participants classified by the type of the school and scientific discipline

Type of school	Type of teachers				Total	
	Subject teachers			Class teachers		
	Natural science	Engineering and Technology	Medical science	Social science and Humanities		
Primary	28	12	0	71	40	151 (43%)
Secondary	40	50	10	97	0	197 (34%)
Total	68 (20%)	62 (18%)	10 (3%)	168 (48%)	40 (11%)	348 (100%)

The research was conducted at the schools. The teachers were informed about its purpose and they agreed to participate voluntarily. Participants were asked to provide information on their gender, the subjects they teach and their number of years of work experience, and to fill in the Orientation for Teaching Survey.

Instrument

The Orientation for Teaching Survey (OTS) is a 58-item instrument measuring six motivational orientations for choosing the teaching profession, namely: 1) job security (13 items), 2) worthwhile service to society (10 items), 3) interpersonal relationships, (11 items), 4) intellectual stimulation (8 items), 5) material benefits (8 items), and 6) continuation of work in a familiar setting (8 items) (Daniel & Ferrell, 1991; Ferrell & Daniel, 1993). Responses are given on a 5-point Likert type scale

(from 1 – strongly disagree to 5 – strongly agree) and separate scores for each of the subscales are calculated. Some authors also calculate a total score for the whole instrument (Anghel, 2013; Jovanović et al., 2013).

The original papers on the OTS provide no information on the subscales' reliability (Daniel & Ferrell, 1991; Ferrell & Daniel, 1993). In a study conducted by Sinclair et al. (2006) on an Australian sample of pre-service teachers, the alpha coefficients for the subscales ranged from .58 to .78. In studies that calculated the total score, the full-scale reliability was good, with alpha coefficients of .86 and .94 in studies conducted in Romania and Serbia, respectively (Anghel, 2013; Jovanović et al., 2013). Sinclair et al. (2006) stressed that the instrument displayed other desirable psychometric properties (e.g., high factor loadings and relatively low cross-loadings).

The OTS was translated into Serbian, blindly back-translated into English, and then translated into Serbian again by two researchers proficient in both Serbian and English to ensure translation accuracy.

Results

Descriptive statistics

Following Ferrell and Daniel's original model (Daniel & Ferrell, 1991; Ferrell & Daniel, 1993), we calculated mean scores for the six proposed dimensions of teacher motivation (the six subscales of the instrument), as well as the overall mean score for the whole instrument (as done by Anghel, 2013; Jovanović et al., 2013). We examined their means and standard deviations in our sample, as well as their metric properties. As can be seen in Table 3, mean scores of the whole instrument and its subscales were above the theoretical mean, except for the scores of the Continuation-based orientation scale, which were slightly below the mean point. The OTS mean score showed very good metric properties, and its subscales ranged between acceptable and good.

Table 3
Descriptive statistics and metric properties of the OTS scales

Scale	<i>k</i>	<i>M</i>	<i>SD</i>	<i>KMO</i>	α	<i>HI</i>
OTS total score	58	3.32	.60	.99	.95	.26
Interpersonal-based orientation	11	3.75	.61	.91	.81	.28
Benefit- and convenient-based orientation	8	3.04	.75	.92	.79	.32
Service-based orientation	10	3.60	.59	.87	.72	.21
Security-based orientation	13	3.19	.69	.94	.83	.27
Continuation-based orientation	8	2.80	.88	.94	.81	.34
Stimulation-based orientation	8	3.41	.65	.90	.77	.30

Note. *k* – number of items; *M* – mean; *SD* – standard deviation; *KMO* – Kaiser-Meyer-Olkin measure of sampling adequacy; α – Cronbach's alpha reliability coefficient; *HI* – item homogeneity calculated as average item correlation

Model testing

Three separate models of motivation were tested using confirmatory factor analyses. A six-factor model was formulated in accordance with the solution proposed by the authors of the OTS (Daniel & Ferrell, 1991; Ferrell & Daniel, 1993). The presumed latent factor for each of the OTS items was determined based on the most prominent loading of the item on any of the six factors from the initial EFA performed by the authors. Additional models that are highly represented in the literature on motivation, and specifically on motivation for the teaching profession, were also tested – a two-factor (intrinsic and extrinsic) and a three-factor (altruistic, intrinsic and extrinsic) model (Brookhart & Freeman, 1992; Kyriacou & Coulthard, 2000; OECD, 2005). Factor loadings for the two- and three-factor models were decided by the OTS's item content, i.e., the meaning underlying the statements. All three authors read all the items and reached this decision in consensus. Table 1 in the Appendix shows how items were distributed across the factors in different models. Factor correlations were freely estimated in all models. As can be seen from Table 4, the tested models fit the data poorly, producing significant data-model differences and poor fit indices.

Table 4
Fit indices for the two-, three- and six-factor models

	$\chi^2(df)$	χ^2/df	CFI	NFI	RMSEA	AIC
Six-factor model	6693.93* (1580)	4.24	.53	.47	.10	6955.93
Two-factor model	6055.98* (1594)	3.80	.59	.52	.09	6289.98
Three-factor model	6021.87* (1592)	3.78	.60	.52	.09	6259.87

Note. Good models usually show a χ^2/df ratio below 3, Comparative fit index (CFI) above .90, Normed fit index (NFI) above .90, and Root mean square error of approximation (RMSEA) below 0.6. The model with the lowest Akaike information criterion (AIC) is usually considered the most parsimonious

Considering that none of the CFA models exceeded the “good fit” criteria, we switched to an exploratory framework in order to further evaluate the factorial validity of the OTS. A Maximum Likelihood factor analysis with Oblimin rotation was conducted, and a two-factor solution was accepted. The eigenvalues for the factors were 15.76 and 7.8 (the next largest eigenvalue was 1.47). A three-factor solution was also considered, but the third factor was poorly defined with only one unique item loading. The retained two factors could most appropriately be named Extrinsic and Intrinsic motivation, and together they explained 41% of the total variance of the OTS items (the structure and pattern matrices are included in Table 2 in the Appendix). Extrinsic motivation was defined as a desire to work at school due to short working hours and long holidays, perceived autonomy, poor chances to find a job in other occupations and a belief that it is an easy job to train for. Although the second factor entailed items pointing to both altruistic orientation and intrinsic value, we decided to name it Intrinsic motivation, in line with the definition of Intrinsic motivation for the teaching profession proposed in several key papers (Marsh, 1990; Morgan et al., 2001; OECD, 2005; Sinclair et al., 2006). Thus, Intrinsic motivation was defined as

a desire to work with young people in a dynamic and creative setting, making positive contributions to their lives and society in general. The factor correlation for these two factors was positive and moderately low ($r = .28, p < .01$).

However, the goodness of fit index indicated that model-fit was not very good for this model either $\chi^2(1538) = 3754.94, p < .001$. A potential reason for this was that a number of items (8 of them) had loadings lower than .5 on both factors (see Table 2 in the Appendix).

Revision of the Orientation for Teaching Survey

Since the instrument did not show good factorial validity, we decided to make a shorter version of the questionnaire which would only retain metrically sound items. The purpose of this step was to enable us to make meaningful comparisons between groups of teachers in terms of their levels of motivation, and thus reach the secondary goal of our research. We started by selecting 50 items with factor loadings higher than .5, 23 of which referred to intrinsic and 27 to extrinsic motivation. The metric properties of these two scales (IM and EM) were excellent. The sampling adequacy was $KMO = .99$ for extrinsic and $KMO = .98$ for intrinsic motivation, reliability was $\alpha = .95$ and $\alpha = .93$ for EM and IM, respectively, and the average item correlation as a measure of item homogeneity was $HI = .42$ and $HI = .38$ for EM and IM.

However, we believed that shorter scales that retain the good metric properties of their longer versions would be even more appropriate for future use in investigating teacher motivation. We therefore selected the best 19 items (10 items measuring extrinsic and 9 assessing intrinsic motivation) based on both their factor loadings in the initial EFA and their sampling adequacy, reliability and item-total correlation (Tables 3 and 4 in the Appendix). The metric properties of the shortened intrinsic (IM) and extrinsic motivation (EM) scales were very good – $KMO = .99, \alpha = .92$ and $HI = .54$ for extrinsic and $KMO = .98, \alpha = .89$ and $HI = .48$ for intrinsic motivation. Even though both scales have been reduced to less than half of their original length, their sampling adequacies remained the same, the reliabilities were only slightly lowered, and the homogeneities increased.

Differences in levels of intrinsic and extrinsic motivation

Upon obtaining reliable and homogeneous measures of intrinsic and extrinsic motivation, we proceeded to compare their levels for the current sample. The average EM score was 2.29 ($SD = .98$), while the average IM score was 4.32 ($SD = .59$) and this difference was significant ($t(347) = 36.097, p < .001$) indicating generally higher intrinsic compared to extrinsic motivation of in-service teachers in Serbia.

Additionally, we investigated the differences in extrinsic and intrinsic motivation by gender and school type (primary vs. secondary) with a multivariate analysis of variance. Mean IM and EM scores were used as dependent variables in the analysis. The overall model was significant for both gender and type of

school, with Pillai's trace = .06, $F(2,309) = 9.71$, $p < .001$ and Pillai's trace = .05, $F(2,309) = 8.07$, $p < .001$, respectively. The univariate tests showed significant gender differences in IM, $F(1,310) = 15.67$, $p < .001$, but not in EM, $F(1,310) = .93$, $p = .34$. Female teachers were more intrinsically motivated compared to their male colleagues. Teachers working in primary education proved to be less extrinsically and more intrinsically motivated than teachers working in secondary education, with $F(1,310) = 6.22$, $p = .013$ and $F(1,310) = 6.15$, $p = .014$, for EM and IM respectively. No significant interactions of gender and school type were found for either extrinsic or intrinsic motivation ($F(1,310) = .23$, $p = .63$ and $F(1,310) = .02$, $p = .88$).

Discussion and conclusion

This study was aimed at assessing the metric properties and factorial validity of the Orientation for teaching survey (Daniel & Ferrell, 1991; Ferrell & Daniel, 1993) with a sample of in-service subject and class teachers from Serbia. Additionally, we wanted to establish the level of the teachers' work motivation and to test whether there are differences in Serbia between women and men, and teachers working in primary and secondary schools similar to those found in previous studies (Daniel & Ferrell, 1991; Müller et al., 2009). Our results have implications for further research on teacher career motivation, as well as for the policy and practice of professional development of teachers in Serbia.

The factorial validity of the Orientation for Teaching Survey and instrument revision

The primary finding of our study is that the six-factor model proposed by Ferrell and Daniel is not appropriate for describing the motivation of in-service teachers in Serbia. Furthermore, neither of the alternative models, with a fewer number of factors, fit the data well when applied on all items of the instrument. One possible reason for the poor fit of the six-factor solution could be found in the inappropriateness of some of the themes for teachers in Serbia. Since the social status of teachers has been getting lower in recent years, with the trend of a decreasing number of employed teachers and a lowering of their salaries, *Security-based orientation* and *Benefit-based orientation* are unlikely to be an incentive for the teaching profession. Therefore, teachers cannot readily identify themselves with items such as: "I like teaching because I have a chance to make a good salary" or "I am motivated for teaching because teachers have nice benefits associated with their job" because these items do not reflect the current situation in Serbia. Furthermore, even in the two-factor EFA solution, some items had high loadings on both extrinsic and intrinsic motivation factors. Looking at these items, one can notice that they are not precise enough, i.e., could be understood as referring to several possible themes. For example, the item "I am motivated for teaching because good teachers are needed badly" might refer to either the desire to serve to society because it needs good teachers or the

decision to remain in the profession because the competition is low. Finally, we can assume that the factor structure of motivation is culturally specific and that an unambiguous conclusion about the validity of Ferrell's and Daniel's model could only be drawn from research that would involve both pre- and in-service class and subject teachers from different countries.

To accomplish our second goal, we created a revised scale by keeping only those items from the OTS that were conceptually unambiguous and that had factor loadings in the initial EFA above .6, high sampling adequacy, high reliability and high item-total correlation. Finally, a 19-item scale measuring Intrinsic and Extrinsic motivation (with 9 items referring to IM and 10 to EM) emerged as a sound instrument for assessing motivation for the teaching profession in Serbia, with high explanatory power. This two-factor model is also in line with some previous studies (Brookhart & Freeman, 1992; Kyriacou & Coulthard, 2000; OECD, 2005). The finding that IM and EM are slightly positively correlated is in line with previous research (Herbert, Craven, McInerney, & Debus, 2000; Lepper, Henderlong, Corpus, & Iyengar, 2005). The comparison of subgroups of teachers based on their gender and type of school also matched results obtained in previous studies –women and teachers working in primary schools are more intrinsically motivated than men and those working in secondary schools, who are more extrinsically motivated (Anghel, 2013; Daniel & Ferrell, 1991; Müller et al., 2009; Sinclair, 2008). Higher Extrinsic motivation of Serbian teachers working in secondary schools can be explained by the difference in salaries (though very small), and initial career aspirations and educational trajectories. Teachers in primary schools include a subgroup of class teachers, usually considered to be driven by intrinsic motives when opting for education to become a class teacher (Kovács-Cerović, 2006). In contrast, becoming a subject teacher in Serbia is often the result of negative selection (Kovács-Cerović, 2006) and is considered a fallback career (Watt & Richardson, 2008). Moreover, due to their studies focusing on the acquisition of subject knowledge, most subject teachers enter the teaching profession with limited teaching competencies. This, in turn, may negatively impact their self-efficacy and intrinsic motivation (Correll, 2001). Greater Intrinsic motivation in females could be explained by internalized traditional beliefs that women are more caring and competent at work with children, which are highly influential in patriarchal Serbian society (Pešić, 2006). Higher scores for IM than for EM in the overall sample can be understood in the light of the low status of the teaching profession, job insecurity and low salaries (OECD, 2013), which may result in people opting for this profession and remaining in the profession mostly due to intrinsic motives.

Motivation for the teaching profession of in-service teachers

In the Serbian context, the study of career motivation of pre-service teachers yielded a five-factor solution (Jovanović et al., 2013), while this study, which explored motivation of in-service teachers, found that only two factors

are sufficient to describe teacher motivation. To our knowledge, there are no studies which used the OTS with both pre-service and in-service teachers. Thus we can only speculate on the reasons for the discrepancy in the structure of motivation. In the study with pre-service teachers (Jovanović et al., 2013), the sample was homogeneous in terms of age and the prospective field of teaching (social sciences in secondary schools), whereas the current study included in-service teachers of different school subjects, from both primary and secondary schools, and teachers of different age and experience in teaching. Thus, future research should be aimed at examining differences in pre- and in-service teacher motivation regarding their field of teaching, school type they work in, as well as previous teacher education and training.

Another reason for the simpler factorial structure of in-service teachers' motivation, compared to pre-service teachers, could be the changes in teacher motivation over time. However, longitudinal research on changes in teacher motives to become teachers is scarce. A study using a modified version of the OTS to examine pre-service teachers' motivation at the beginning and at the end of a semester (after attending practicum in schools) showed that their entry motivation changes over time (Sinclair et al., 2006). A significant decline has been noted regarding intrinsic motivation factors, while the motivation related to the ease of entry into the profession showed a significant increase over time. Authors of the study speculate that these changes could be attributed to pre-service teachers developing a more realistic view of the teaching profession and themselves as teachers during their practicum. Another explanation is that their motivation could have been impacted by the negative opinions about teaching expressed by supervising teachers or school communities during the practicum (Sinclair et al., 2006). However, other studies demonstrated relative stability of student teachers' entry motivation to teach after the period of attending organized school practice (Canrinus & Fokkens-Bruinsma, 2014; Sinclair, 2008). Given that re-examinations of pre-service teachers' motivation in these studies were done after a rather short period (one or two semesters), authors argue that more time is needed for teacher education and practical experience to have a substantial impact on the student teachers' motives (Canrinus & Fokkens-Bruinsma, 2014; Sinclair, 2008; Sinclair et al., 2006).

With these findings in mind, we can conclude that the teachers' perspective of their motivation to be a teacher may change substantially over the years spent in practice. Such changes may be attributable to a growing awareness of what teaching involves, as opposed to a more idealistic picture of what teaching is thought to involve at the beginning of initial teacher education (Canrinus & Fokkens-Bruinsma, 2014; Sinclair, 2008). This idea is supported by findings from another study of pre-service and novice teachers' professional identity and its relation to dropping out of the profession, which showed that pre-service teachers tended to have naïve and idealistic perceptions of teaching, and dropout teachers showed the most emotional burnout (Hong, 2010). Other studies also suggest that beginner teachers are primarily motivated by intrinsic values, but if such expectations from the profession are frustrated, salaries can become a source

of considerable job dissatisfaction. Alongside the occurrence of occupational stress and emotional exhaustion in the critical first five years of the teaching career, this could lead to eventual burnout and dropout from the profession (Han, Yin, & Boylan, 2016; Ingersoll, 2001; Kelly & Northrop, 2015; Sinclair, 2008). In that light, it could be that in-service teachers also refer to their motives to be teachers more realistically in hindsight than when they were students.

The aforementioned findings could explain the simpler factor structure of the OTS applied to in-service teachers than when it is used for exploring career motivation of pre-service teachers. This suggests that more effort should be put into exploring changes in motivation for the teaching profession over time, most appropriately through a longitudinal study. If future studies confirm the assumption that prospective teachers' motivation changes over time, in the sense that the teachers' perspective on the motives for choosing their profession becomes less differentiated, substantial changes should be introduced in pre- and in-service teacher education and training. Some authors suggest that reducing practice shock and early dropout of novice teachers could be achieved through closer cooperation between teacher training institutions and schools, better structuring of the transition period (through committed mentoring and supervision), and by stimulating reflection in teachers (Stokking, Leenders, De Jong, & Van Tartwijk, 2003). Teacher educators should discuss more explicitly and productively the tensions between student teachers' aspirations and ideals, and the realities they face in schools, in order to support student teachers to develop a healthy balance between their intrinsic motivations and the pragmatic demands of the teaching profession (Heinz, 2015). Within this process, the OTS could serve as a tool for both teacher educators and student teachers to estimate, monitor and reflect on their motivation for becoming a teacher during their initial education and school practice.

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Appendix

Table 1
Item distribution by factors for the two-, three- and six-factor models

	Item – I decided to enter teaching because...	Two-factor model	Three-factor model	Six-factor model
m1	I would like to work with young people	IM	AM	Interpersonal-based orientation
m2	Teaching allows me to perform a valuable service of moral worth	IM	AM	Interpersonal-based orientation
m3	I enjoy being around the school environment	EM	EM	Benefit- and convenient-based orientation
m4	I will have a chance to make a good salary	EM	EM	Benefit- and convenient-based orientation
m5	Teachers have nice benefits associated with their jobs	EM	EM	Benefit- and convenient-based orientation
m6	I like the work hours and vacation time	EM	EM	Benefit- and convenient-based orientation
m7	Teaching gives me a chance to help the less fortunate	IM	AM	Benefit- and convenient-based orientation
m8	Teaching gives me an opportunity to help students gain a sense of achievement and worth	IM	AM	Service-based orientation
m9	Teaching gives me a chance to “pay back” the good teachers I have had	IM	AM	Interpersonal-based orientation
m10	My parents felt that teaching would be a good career for me	EM	EM	Security-based orientation
m11	Teaching gives me an opportunity to be in authority	EM	EM	Security-based orientation
m12	Teaching allows me to experience the love and respect of children	IM	AM	Interpersonal-based orientation
m13	Teaching is a relatively non-competitive occupation	EM	EM	Security-based orientation
m14	I have an affection for a particular subject matter	IM	IM	Service-based orientation
m15	I was dissatisfied with work I had done in other fields	EM	EM	Interpersonal-based orientation
m16	It is less expensive to prepare to teach than to prepare for many other fields	EM	EM	Continuation-based orientation
m17	It is an intellectually stimulating occupation	IM	IM	Security-based orientation
m18	Teaching is a fulfilling and challenging occupation	IM	IM	Interpersonal-based orientation
m19	I am more comfortable with children than with adults	IM	AM	Interpersonal-based orientation

	Item – I decided to enter teaching because...	Two-factor model	Three-factor model	Six-factor model
m20	I would like to solve some of the problems in the educational system	IM	AM	Service-based orientation
m21	I like the thought of being the center of attention in a room of people	EM	EM	Security-based orientation
m22	Good teachers are needed so badly	IM	AM	Service-based orientation
m23	Teaching was the best job among those jobs most readily available to me	EM	EM	Benefit- and convenient-based orientation
m24	Teaching is prestigious occupation	EM	EM	Stimulation-based orientation
m25	Teaching gives me a chance to be my own boss	EM	EM	Security-based orientation
m26	I love children	IM	AM	Interpersonal-based orientation
m27	I have enjoyed working with children in other contexts, and felt teaching would be just a enjoyable	IM	AM	Interpersonal-based orientation
m28	Teaching was the best job among those I am most suited for	IM	IM	Interpersonal-based orientation
m29	I feel a personal “calling” to teach	IM	IM	Interpersonal-based orientation
m30	I have a desire to impart knowledge to other people	IM	AM	Service-based orientation
m31	Teaching gives me a chance to make an impact on society	IM	AM	Service-based orientation
m32	I have always wanted to teach	IM	IM	Service-based orientation
m33	Teaching is a creative profession	IM	IM	Service-based orientation
m34	As a teacher, I can have opportunities to work with extracurricular activities I enjoy	IM	IM	Security-based orientation
m35	The time schedule will be compatible with my home situation	EM	EM	Benefit- and convenient-based orientation
m36	Teaching gives me a chance to improve my social standing	EM	EM	Security-based orientation
m37	Teaching gives me a chance to serve as a positive role model for children	IM	AM	Service-based orientation
m38	Teaching fits well with my personality	IM	IM	Stimulation-based orientation
m39	Teaching is a tradition in my family	EM	EM	Security-based orientation
m40	People often regard me as a natural teacher	IM	IM	Security-based orientation
m41	Teaching gives me an opportunity to promote respect for knowledge and learning	IM	IM	Service-based orientation

	Item – I decided to enter teaching because...	Two-factor model	Three-factor model	Six-factor model
m42	Some of my friends majored in education	EM	EM	Continuation-based orientation
m43	I trained for another field but could not get a job	EM	EM	Continuation-based orientation
m44	I trained for another field but did not feel comfortable in that field	EM	EM	Continuation-based orientation
m45	Someone I highly respected told me I would be a good teacher	EM	EM	Security-based orientation
m46	I was told about a scholarship or tuition reimbursement program available to persons entering teacher education programs	EM	EM	Continuation-based orientation
m47	Teaching offers me a good opportunity for career advancement	EM	EM	Security-based orientation
m48	Teaching can easily lead me to other careers	EM	EM	Continuation-based orientation
m49	Teaching can help me develop character	IM	IM	Stimulation-based orientation
m50	Teachers have a pleasant working environment	EM	EM	Stimulation-based orientation
m51	Teaching gives me opportunities for leadership	EM	EM	Stimulation-based orientation
m52	Teaching is an easy job to train for	EM	EM	Security-based orientation
m53	Teaching gives me a lifelong opportunity to learn	IM	IM	Stimulation-based orientation
m54	Teaching gives me an opportunity to interact with interesting colleagues	IM	IM	Stimulation-based orientation
m55	Teaching gives me an opportunity to meet a lot of people	IM	IM	Stimulation-based orientation
m56	Teaching offers me a job security	EM	EM	Benefit- and convenient-based orientation
m57	Teaching is a very easy job	EM	EM	Continuation-based orientation
m58	I heard a motivating speech about teaching or was influenced by media material focused on the benefits of teaching	EM	EM	Continuation-based orientation

Note. IM – Intrinsic motivation, EM – Extrinsic motivation, AM – Altruistic motivation

Table 2
Structure and pattern matrix for the two-factor exploratory factor solution

	Item – I decided to enter teaching because...	Structure Matrix		Pattern matrix	
		Factor 1	Factor 2	Factor 1	Factor 2
m1	I would like to work with young people		0.57		0.58
m2	Teaching allows me to perform a valuable service of moral worth		0.72		0.77
m3	I enjoy being around the school environment		0.64		0.66
m4	I will have a chance to make a good salary	0.69		0.70	
m5	Teachers have nice benefits associated with their jobs.	0.74		0.74	
m6	I like the work hours and vacation time	0.52		0.52	
m7	Teaching gives me a chance to help the less fortunate		0.65		0.66
m8	Teaching gives me an opportunity to help students gain a sense of achievement and worth		0.63		0.67
m9	Teaching gives me a chance to “pay back” the good teachers I have had	0.44	0.38	0.36	
m10	My parents felt that teaching would be a good career for me	0.71		0.69	
m11	Teaching gives me an opportunity to be in authority	0.77		0.76	
m12	Teaching allows me to experience the love and respect of children.	0.31	0.54		0.49
m13	Teaching is a relatively non-competitive occupation.	0.65		0.75	-0.34
m14	I have an affection for a particular subject matter.	0.61		0.65	
m15	I was dissatisfied with work I had done in other fields.	0.74		0.78	
m16	It is an intellectually stimulating occupation		0.66		0.66
m17	Teaching is a fulfilling and challenging occupation.		0.72		0.74
m18	I am more comfortable with children than with adults.		0.46		0.42
m19	It is less expensive to prepare to teach than to prepare for many other fields	0.50	0.35	0.44	
m20	I like the thought of being the center of attention in a room of people.	0.76		0.78	
m21	Good teachers are needed so badly	0.43	0.35	0.36	
m22	Teaching was the best job among those jobs most readily available to me.	0.60		0.59	
m23	Teaching is prestigious occupation.	0.71	0.33	0.67	
m24	Teaching gives me a chance to be my own boss.	0.65		0.66	
m25	I love children.		0.67		0.72
m26	I have enjoyed working with children in other contexts, and felt teaching would be just as enjoyable.		0.51		0.47
m27	Teaching was the best job among those I am most suited for	0.31	0.51		0.46
m28	I feel a personal “calling” to teach.	0.40	0.56		0.49
m29	I have a desire to impart knowledge to other people		0.73		0.77
m30	Teaching gives me a chance to make an impact on society.	0.32	0.54		0.49
m31	I have always wanted to teach	0.34	0.56		0.50
m32	Teaching is a creative profession.		0.66		0.69

Item – I decided to enter teaching because...	Structure Matrix		Pattern matrix	
	Factor 1	Factor 2	Factor 1	Factor 2
m33 As a teacher, I can have opportunities to work with extracurricular activities I enjoy		0.42		0.38
m34 The time schedule will be compatible with my home situation.	0.56		0.53	
m35 Teaching gives me a chance to improve my social standing.	0.74		0.74	
m36 Teaching gives me a chance to serve as a positive role model for children.		0.67		0.66
m37 Teaching fits well with my personality.				
m38 Teaching is a tradition in my family.	0.48		0.47	
m39 People often regard me as a natural teacher.	0.50	0.37	0.43	
m40 Teaching gives me an opportunity to promote respect for knowledge and learning	0.33	0.65		0.60
m41 Some of my friends majored in education.		0.74		0.76
m42 I trained for another field but could not get a job	0.73		0.71	
m43 I trained for another field but did not feel comfortable in that field.	0.63		0.63	
m44 Someone I highly respected told me I would be a good teacher	0.51		0.59	
m45 I was told about a scholarship or tuition reimbursement program available to persons entering teacher education programs	0.55	0.31	0.51	
m46 It is less expensive to prepare to teach than to prepare for many other fields	0.64	0.33	0.59	
m47 Teaching offers me a good opportunity for career advancement.	0.67	0.32	0.63	
m48 Teaching can easily lead me to other careers.	0.51	0.39	0.44	
m49 Teaching can help me develop character.		0.63		0.59
m50 Teachers have a pleasant working environment.	0.39	0.52		0.44
m51 Teaching gives me opportunities for leadership.	0.73		0.72	
m52 Teaching is an easy job to train for.	0.70		0.75	
m53 Teaching gives me a lifelong opportunity to learn.		0.62		0.63
m54 Teaching gives me an opportunity to interact with interesting colleagues.		0.61		0.58
m55 Teaching gives me an opportunity to meet a lot of people	0.33	0.45		0.39
m56 Teaching offers me a job security.	0.58		0.55	
m57 Teaching is a very easy job.	0.70		.720	
m58 I heard a motivating speech about teaching or was influenced by media material focused on the benefits of teaching.	0.67		.648	

Note. loadings lower than .3 not shown

Table 3
Metric properties of the intrinsic motivation items

Item	REP	REL	Item-total correlation	Loading
m1	0.98	0.40	0.59	0.57
m2*	0.99	0.64	0.71	0.72
m3	0.99	0.50	0.67	0.64
m7	0.99	0.48	0.66	0.65
m8	0.98	0.52	0.63	0.63
m12	0.98	0.38	0.58	0.54
m16*	0.99	0.52	0.68	0.66
m17*	0.99	0.57	0.73	0.72
m18	0.96	0.36	0.51	0.46
m25*	0.99	0.53	0.70	0.67
m26	0.97	0.40	0.56	0.51
m27	0.97	0.46	0.57	0.51
m28	0.98	0.48	0.59	0.56
m29*	0.99	0.58	0.72	0.73
m30	0.98	0.37	0.55	0.54
m31	0.97	0.55	0.59	0.56
m32*	0.99	0.49	0.66	0.66
m36*	0.99	0.51	0.67	0.67
m40*	0.99	0.54	0.66	0.65
m41*	0.99	0.59	0.73	0.74
m49	0.98	0.51	0.65	0.63
m50	0.97	0.43	0.56	0.52
m53	0.98	0.47	0.63	0.62
m54	0.98	0.47	0.63	0.61

Note. REP and REL are, respectively, measures of item sampling adequacy and item reliability (Knežević & Momirović, 1996). Items labeled with an asterisk were retained in the shortened version of the instrument

Table 4
Metric properties of the extrinsic motivation items

Item	REP	REL	Item-total correlation	Loading
m4	0.99	0.61	0.70	0.69
m5*	0.99	0.67	0.75	0.74
m6	0.98	0.47	0.57	0.52
m10	0.99	0.62	0.71	0.71
m11*	0.99	0.69	0.76	0.77
m13	0.99	0.55	0.66	0.65
m14	0.98	0.55	0.63	0.61
m15*	0.99	0.66	0.75	0.74
m20*	0.99	0.63	0.76	0.76
m22	0.99	0.45	0.63	0.60
m23*	0.99	0.59	0.72	0.71
m24	0.99	0.53	0.67	0.65
m34	0.98	0.48	0.59	0.56
m35*	0.99	0.61	0.76	0.74
m39	0.98	0.38	0.52	0.50
m42*	0.99	0.67	0.74	0.73
m43	0.99	0.57	0.65	0.63
m44	0.99	0.40	0.54	0.51
m45	0.98	0.40	0.58	0.55
m46	0.99	0.53	0.67	0.64
m47	0.99	0.57	0.68	0.67
m48	0.98	0.39	0.54	0.51
m51*	0.99	0.62	0.73	0.73
m52*	0.99	0.58	0.71	0.70
m56	0.99	0.41	0.60	0.58
m57*	0.99	0.59	0.71	0.70
m58	0.99	0.52	0.68	0.67

Note. REP and REL are, respectively, measures of item sampling adequacy and item reliability (Knežević & Momirović, 1996). Items labeled with an asterisk were retained in the shortened version of the instrument