The Correlation of Perceptions of Professional Roles and Teacher Beliefs with the Quality of Teacher Interaction

Slavica Šimić Šašić[1]

University of Zadar, Croatia

Ana Šimunić

University of Zadar, Croatia

Anita Ivković

University of Zadar, Croatia

Ana Ključe

University of Zadar, Croatia

Abstract: The literature and research results suggest that teachers' behavior in the classroom is under the strong influence of teachers' beliefs about their own role in the educational process. The aim of this study was to examine the perception of teacher's professional roles and teacher's beliefs about teaching, and their correlation with the quality of teacher interaction. The study was conducted on a sample of 99 primary school teachers. The perception of the role of teachers and pupils was examined by the metaphor technique, and the Approaches to Teaching Inventory and Questionnaire on Teacher Interaction were applied. The results show that teacher beliefs differ depending on the research approach. The qualitative approach shows a dominant protective - traditional orientation in understanding the role of a teacher, and a typical traditional orientation in understanding the role of pupils, while the quantitative approach based on teacher self-assessments points to the dominance of the constructivist approach focused on the pupil. There was also a weak correlation between teacher beliefs and teacher interpersonal behavior, which is considered in the context of data collection technique, teacher self-assessments.

Keywords: *teacher professional identity, teacher beliefs, quality of teacher interaction.*

Introduction

Everyday teaching practice in school depends on a number of factors, including the

professional identity of teachers. Professional identity is defined as a set of values, beliefs and

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[1]**Corresponding author: Slavica Šimić Šašić**

Email: ssimic@unizd.hr

attitudes about the chosen profession (Domović & Vizek Vidović, 2013). Korthagen (2013) believes that one's professional identity consists of unconscious needs, feelings, values, role models, previous experiences and behaviors. Professional identity is defined as the perception of professional roles, it is variable and depends on the personal characteristics, the work and life context and relationships with others of the individual, and individuals are mostly not fully aware of their professional identity (Domović & Vizek Vidović, 2013). Sachs (2005) considers that the professional identity of a teacher provides a framework in which teachers construct their own ideas of who they are, how to behave and understand their own job and place in the world they live in. In understanding the relationship between professional identity, teacher beliefs, and teacher behavior, we can use Korthagen's The Onion Model (Korthagen, 2013). The model distinguishes six levels: Mission, identity, beliefs, competencies, behavior and environment. The most distant levels, environment and behavior, are levels that can be directly perceived. The behavior of teachers in a professional situation is influenced by the external (environment) and inner levels. The environment can affect behavior, and competencies develop through repetitive behaviors. There is also a reverse effect, one's behavior can affect the environment, and competencies determine the manifested teacher behaviors. Competences as knowledge, skills and attitudes are influenced by teacher beliefs, and beliefs are part of the teacher's identity. In the end, everything ranges from the mission level that actually refers to the personal understanding of the teacher's purpose, or what being a teacher means? Ultimately, the model assumes that the teacher's behavior depends on his / her self-awareness (identity), sense of mission (ideals, call), and awareness of the possibilities of action and requirements in a particular situation. Korthagen believes that all levels interact and change at any level affects changes in other levels, or manifests in professional activity.
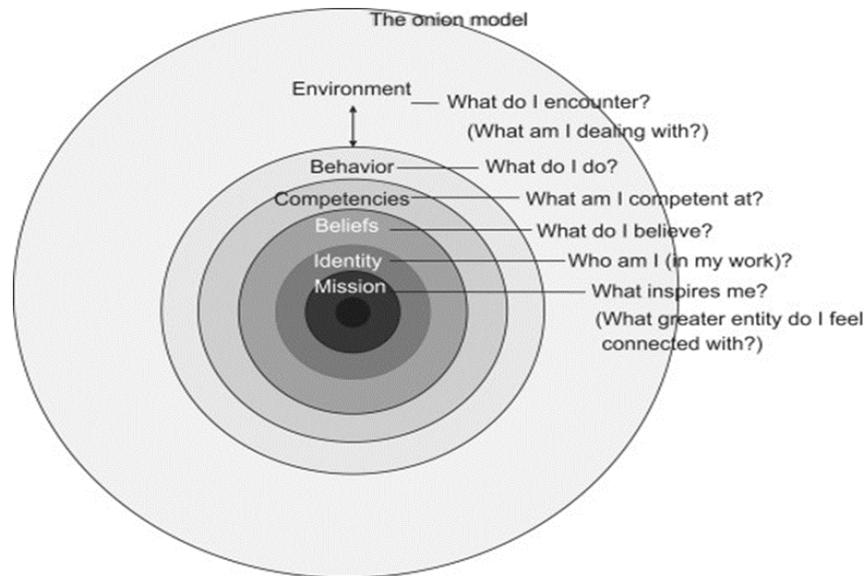
Figure 1. The onion model (Korthagen, 2013).

A part of a professional identity consists of beliefs about oneself, their own professional role, and about pupils (Korthagen, 2013). Teacher beliefs represent a set of conceptual concepts that include general knowledge of phenomena, people and events related to their professional context (Domović & Vizek Vidović, 2013). The authors believe that the subject or the content of beliefs is very important to the individual, especially his integrity, and that beliefs are deeply rooted and strongly emotionally toned. Beliefs are acquired very early, in the period when the teacher was a pupil, and could resist the rational arguments that teachers are exposed to during initial education (Domović, 2011). Teacher beliefs determine the teaching behavior and the way of teaching. Different categories of teacher beliefs can be distinguished:

a) educational beliefs or implicit theories about the purpose of education, where "education as a process of social adaptation" is concerned, as opposed to "education as the process of individual self-actualization";

b) beliefs in the teaching role, relating to the perception of "teacher as a knowledge transferor" or "teacher as a learner". These beliefs are the basis of two approaches to teaching: an

approach oriented towards the teacher and the content or subject of teaching and an approach oriented towards pupils.

c) beliefs about pupils and learning related to an understanding about the nature of the ability and capacity for learning,

d) self-efficacy beliefs related to the feeling of one's own competence (Domović & Vizek Vidović, 2013).

Prosser and Trigwell (1999) distinguish a teacher-centred approach, characterized by transferring information from teacher to pupil, and a pupil-centred approach that is characterized by a focus on conceptual changes in the pupil's understanding of the teaching content. These two approaches are linked to the pupil's approach to learning, and numerous authors emphasize the benefits of the pupil-centered approach compared to the traditional approach (Cornelius-White, 2007, Kaye & Brewer, 2013). The teacher-centered approach is associated with a surface approach to learning, while the pupil-centred approach is associated with a deeper approach to learning in pupils (Trigwell, Prosser, & Waterhouse, 1999) and greater pleasure in teaching (Trigwell & Prosser, 2004). Pupils who experience pupil-centred approach have more opportunities for active learning, increased autonomy and greater ownership in learning (Lea, Stephenson, & Troy, 2003).

As already emphasized, the teacher's beliefs are a key determinant to the teacher's behavior. Research also shows that different approaches to teaching are related to different teaching methods, teaching philosophy and teacher emotions (Trigwell, 2012). In a traditional teacher-centred approach, the teacher has a directing role, creates activities for pupils to achieve goals, controls the interaction among pupils, uses external incentives for pupil motivation, and uses evaluation to form grades. In a constructivist approach, oriented towards pupils/learners, the teacher encourages pupils to construct the meaning and understanding of the content that they

learn, encourage interaction, collaborative learning through interesting tasks (problem-based learning, project-based learning) all promoting intrinsic motivation (Schreurs & Dumbraveanu, 2013; Thomas, 2013). Therefore, it seemed interesting to examine the relationship between teacher beliefs and teaching behavior.

Wubbels, Creton and Hooymayers (1985) have developed a Model of interpersonal teacher behavior based on two dimensions: the dimension of influence (dominance / submissiveness) and the dimension of proximity (cooperative / oppositional). Based on these two dimensions, the authors distinguish eight types of teaching behavior: leadership, helpful/friendly, understanding, giving pupils freedom, uncertain, dissatisfied, admonishing, and strict.
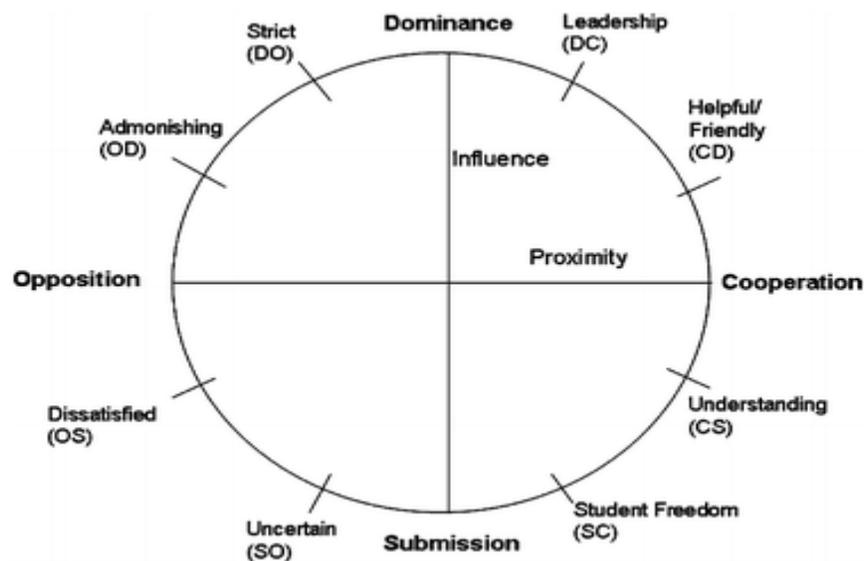

Figure 2. Model of interpersonal teacher behavior (Wubbels et al., 2006)

Leadership refers to leading, teacher involvement and organization of class activities, clear teaching and maintaining pupil attentiveness. Helping refers to help in learning, support, friendly behavior, and humor. These behaviors contribute to a sense of comfort among pupils.

Understanding includes teacher patience and appreciation of pupils, empathy and openness, whereby pupils develop a sense of trust towards the teacher. Giving pupils freedom means allowing pupils to work independently, participate in decision making, and influence teachers. Uncertainty indicates teacher insecurity in the classroom interaction, often changing opinions; the teacher gives the impression that he does not know what to do. Dissatisfaction points to negative attitudes towards pupils, mistrust, criticism, and belittling of pupils. Admonishing indicates the teacher's anger, prohibition, and the inclination to punish pupils. In the end, teacher rigidity points to a firm teaching attitude, the teacher checks, evaluates, demands and maintains silence in the class, is strict and requires compliance with the rules he has set up. Different combinations of these teaching behaviors give different types of interpersonal relationships between teachers and pupils (e.g., directive, authoritative, tolerant/authoritative, tolerant, uncertain/tolerant, uncertain/aggressive, repressive, drudging, etc.; Wubbels et al., 2006). The type of interpersonal relationship can also be determined based on the results on the dimensions of influence and proximity. Research shows that teacher behavior, as well as results on dimensions of influence and proximity, are related to the learning outcomes of pupils. Influence and proximity dimensions show a positive correlation with cognitive learning outcomes (e.g., test results), as well as affective learning outcomes (motivation), with stronger effects of proximity in the latter case (Wubbels & Brekelmans, 2005). Teacher behaviors such as leadership, helping and understanding, show a positive correlation with components of self-regulated learning such as self-efficacy beliefs, orientation towards learning and performance, and depth and surface processing, while teacher behaviors such as insecurity, dissatisfaction and admonishing show a negative correlation with self-efficacy beliefs, orientation towards learning and performance, and depth and surface, while showing a positive correlation with orientation to self-handicapping (Šimić Šašić, 2012).

As the behaviors of teachers are under the influence of teaching beliefs, the aim of this study was to examine the correlation of perceptions of the professional role of teachers and teacher beliefs about teaching with teacher interpersonal behaviors in interaction with pupils. We assumed that a pupil-centered approach and the perception of the teacher role as instigators of learning will be more strongly associated with positive teacher behavior (such as leadership, helping and understanding, or impact and proximity).

Method

Participants

The study included 99 teachers of elementary school teachers (73.47%) and of subject teachers (26.53%) at elementary schools in Zadar, Metković and Opuzen. There were 90.91% of women in the sample, the average age of the teachers was 43, and two-thirds of the teachers had over 10 years of work experience. Out of the total number of teachers, 2% were in trainee status, 81% teachers, 13% mentors, and 3% counsellors.

Instruments

In the first part of the questionnaire, the questions concerned gender, age, years of working experience of teachers in the system of education, degree of professional qualifications and status of the teachers. In the second part of the questionnaire, qualitative and quantitative methodology, metaphors and the Approaches to teaching inventory were used for examining the perceptions of the role of teachers and pupils, respectively the teacher's beliefs. Metaphors are used as an analytical tool for understanding the teaching beliefs. A metaphor acts as a lens or filter through which the subject looks and becomes a mental model for thinking about something in the light of something else (Saban, Kocbeker & Saban, 2007). Metaphors below the threshold of

consciousness act on giving meaning to a person's own life (Massengill, Shaw & Mahilos, 2011). So, the teacher's task was to complement the sentences:

A teacher is like a...........because................; A pupil is like a..............because..............(according to Domović & Vizek Vidović, 2013).

The Approaches to Teaching Inventory (ATI, Trigwell i Prosser, 2004), originally intended to test beliefs in a university context, was adopted for teachers in primary schools. The scale contains 22 items, where the respondents evaluated their agreement with statements on a five-degree Likert type scale, from 1 (completely disagree), 2 (mostly disagree), 3 (neither agree nor disagree), 4 (mostly agree), up to 5 (I completely agree). Factor analysis with the common factors extraction method showed the two-factor structure of the scale: teacher/information transferring-oriented approach (e.g., the item: "My teaching focuses on transferring what I know to pupils") and pupil-centered approach (e.g., the item: "I give pupils the opportunity to discuss their changes in understanding the subject"). Cronbach alpha reliability coefficients were 0.84 and 0.79.

The Questionnaire on Teacher Interaction (QTI; Wubbels, Creton, Levy & Hooymayers, 1993). The Australian version of the questionnaire for teachers containing 48 items was used and the respondents evaluated their agreement with statements on a five-degree Likert type scale where 1 means never, 2 rarely, 3 occasionally, 4 often, and 5 always. The questionnaire includes eight sub-scales to measure the following teacher's interpersonal behaviors: Leadership ("I'm teaching with enthusiasm"), Helpful / Friendly ("I help pupils in learning"), Understanding ("I'm patient"), giving pupils freedom ("in my class, pupils participate in making some decisions"), Insecurity ("I seem insecure"), Dissatisfaction ("I think the pupils do not know anything"), Admonishing ("I get angry unexpectedly") and strictness ("I am strict"). Each scale includes six items. Factor analysis (common factors) for each subscale, with the number of factors fixed to 1, confirmed satisfactory

factor saturations of the majority of items with the predicted factor. When forming the total result, one item from the Leadership subscale, three from the Understanding subscale and one from the Admonishing subscale were excluded. Reliability coefficients were: 0.67, 0.69, 0.61, 0.72, 0.70, 0.67, 0.66 and 0.70. In scoring results in single subscales, it is possible to express individual results in two dimensions: dimension of influence and dimension of proximity[2]. The teacher's behavior: strictness and leadership, uncertain and giving pupils freedom contribute more to the result of the dimension of influence, while friendship and understanding with dissatisfaction and conflict contribute more to the dimension of proximity (Wubbels & Brekelmans, 2005).

Procedure

The research was conducted during May and June year 2017. The questionnaires were delivered to the teachers through the school's professional service, and were returned in the same way. The research was conducted according to the ethical code of the psychological profession.

Data Analysis

In the metaphorical analysis, a qualitative approach, thematic analysis (Braun & Clarke, 2006) was used, which serves to identify, analyse and interpret patterns in text analysis. The original submissions of the respondents were independently read by three researchers, each outlining potential topics (categories) for the classification of the answers, and defining categories. After that, the researchers compared themes and categories. Finally, the response patterns were related to the theoretical concepts of the role of teachers and pupils and the frequency of the occurrence of individual responses within the categories were determined.

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[2] According to the formula: (.92*lea)+(.38*hel)-(.38*und)-(.92*giv)-(.92*unc)-(.38*dis)+(.38*adm)+(.92*str) for influence dimension and (.38*lea)+(.92*hel)+(.92*und)+(.38*giv)-(.38*unc)-(.92*dis)-(.92*adm)-(.38*str) for closeness dimension (Wubbels & Brekelmans, 2005).

Data collected through questionnaires were analysed in the program Statistica 13. Descriptive statistics and Spearman correlation coefficients were calculated.

Results

The first problem was to examine the perception of the role of the teacher and the pupil, that is, the teacher's beliefs about the role of the teacher, the pupil, and teaching. Teacher metaphors for the role of the teacher were classified in seven and metaphors for the role of pupils in five categories (Table 1).

Table 1.

Frequencies of metaphors for the role of teacher and pupils in individual categories

Categories for the role of teachers	f	%	Categories for the role of pupils	f	%
Parent	22	28.57	Sponge	35	48.61
Source of knowledge	14	18.18	Plant	13	18.06
Guideline / support	17	22.08	Child	6	8.33
Guardian	4	5.19	Researcher	2	2.78
Friend	7	9.09	Other	16	22.22
Shaper	2	2.59			
Other	11	14.29			

From the table we see that the most of the metaphors for the role of the teacher were in the parent category (28.57%), e.g. "A teacher is a parent because he educates and teaches children". The theme of a parent was most closely linked to the verbs to educate, teach, guard, and care for. In the second most frequent category, the teacher as a guideline / support (22.08%), metaphors were quite diverse. Thus, teachers see themselves as leaders, lighthouses, promoters, guides, etc., "A teacher is like a lighthouse because it lights and directs."

Metaphors related to the perception of the role of pupils were classified into four categories, while in the last category, as in the previous case, there were answers that we could not classify in any specific category. The highest portion of responses (48.61%) were in the category of the pupil as a sponge, and the lowest in the category of the pupil as a researcher (2.78%).

In the next step of the analysis, we coded the metaphors of the teacher on his role and on the role of the pupil in accordance with theoretical concepts in three categories: the traditional, protective and constructivist orientation (Domović & Vizek Vidović, 2013). We put responses in which teachers differently perceived their role and the role of pupils, or metaphors that differed in the orientation of the role of teacher and the role of pupils into a combined orientation category. Table 2 shows the portion of responses in each category.

Table 2.

The portion of responses in individual categories

Categories	f	%
1. Traditional orientation	15	19.48
2. Protective orientation	13	16.88
3. Combined orientation	36	46.75
4. Constructivist orientation	13	16.88

Table 2 shows the domination of responses in the combined orientation category (46.75%). With a more detailed analysis of this category, we found that the protectionist - traditional orientation in which we coded responses of 18 teachers was predominant (50%). In this category, teachers were most often compared with parents, while the role of pupils was associated with metaphors related to absorbing knowledge. Then the responses were equally represented by the traditional - constructivist (25%) and protective - constructivist orientation (25%). Compared to

the other 3 categories, the traditional orientation (19.48%) was mostly represented, while protective and constructivist were represented in a similar portion.

In addition to qualitative, metaphor analysis, the teachers' beliefs were analysed by the self-assessment scale of the teacher's teaching beliefs, and the quality of teacher-pupil interaction was examined by interpersonal behavior of the teacher. Table 3 shows descriptive statistics for the measured variables.

Table 3.

Descriptive statistics for measured variables

Variable	M	Mdn	sd	range	skewness	kurtosis
Approach oriented towards the teacher / transference of information	3.76	3.80	0.61	2.20 - 4.90	-0.66	0.16
Approach oriented towards the pupil / conceptual change	4.27	4.27	0.37	3.36 - 5	-0.15	-0.32
Leadership	4.39	4.40	0.42	3.20-5.00	-0.41	-0.30
Helpful / friendly	4.48	4.50	0.39	3.5-5.00	-0.40	-0.74
Understanding	4.60	4.67	0.42	2.33-5.00	-1.97	7.86
Pupil freedom	2.88	3.00	0.54	1.33-4.17	-0.40	0.32
Uncertain	1.62	1.50	0.50	1.00-4.17	1.90	6.67
Dissatisfied	1.58	1.5	0.47	1.00-4.17	2.25	8.52
Admonishing	1.61	1.60	0.52	1.00-4.00	1.25	3.34
Strict	2.66	2.67	0.58	1.67-4.33	0.43	-0.06
Influence	2.27	2.39	1.21	-0.58-5.39	-0.05	.20
Proximity	6.55	6.79	1.54	0.09-9.07	-1.39	3.36

According to the results presented in Table 3, we see teachers assess a higher orientation to pupils / conceptual change in understanding than the orientation to the teacher / information transfer. We also see that positive behaviors such as leadership, helping and understanding are

highly rated, and ratings of negative insecurity, dissatisfaction and admonishing are relatively low. Teachers feel that they occasionally give pupils freedom and are periodically strict. The influence of the teacher in their interaction with the pupils is moderate, while the proximity is estimated to be high.

As can be seen from table of descriptive statistics, the results on the subscales of helping, insecurity, dissatisfaction, admonishing and proximity significantly deviate from a normal distribution. The results on the helping and proximity subscales are shifted to higher and on the remaining scales to lower values. Therefore, the Spearman's correlation coefficient (Table 4) was used to calculate the correlation between teacher beliefs and behavior as an indicator of teacher interaction quality.

Only five statistically significant correlation coefficients were obtained. The metaphors were related to the level of education the teacher is working at (class or subject teaching) and with the teacher's strictness. The teacher-centered approach is not associated with any single variable, while the pupil-centered approach is associated with teacher status, understanding, and proximity in classroom interaction. The correlation between metaphors and the teacher-centered and pupil-centered approaches were not statistically significant, while a statistically significant low correlation between the teacher-centered and pupil-centered approaches (.26) was established.

Table 4.

The correlation of teacher beliefs measured through metaphors and self-assessment and teacher interpersonal behaviors

	Metaphors	**Teacher-centered approach**	**Pupil-centered approach**
Duration of work experience	.08	.01	.08
Status	.09	-.01	.22*
Elementary school teachers and of subject teachers	.25*	-.03	-.09
Leadership	-.04	.16	.06
Helpful / friendly	.07	-.03	.13
Understanding	-.08	.01	.26*
Pupil freedom	.13	.07	.03
Uncertain	-.09	.02	-.14
Dissatisfied	-.02	-.08	-.19
Admonishing	.02	-.10	-.16
Strict	-.24*	-.06	-.13
Influence	-.16	-.08	-.06
Proximity	.02	.07	.23*

*p<0.05

Discussion

The first problem in this research was to examine teachers' perceptions of the role of the teacher and the pupil, that is, teachers' beliefs about the role of the teacher, the pupil, and teaching. The two different approaches used in this research point to different conclusions. The metaphor analysis, as a qualitative approach, suggests that a protective orientation with a pronounced element of emotional support and ethics of care is dominant in the understanding of the role of teachers. As most teachers in the sample were elementary school teachers, this result is not surprising and we can associate it with the educational component that may be most pronounced

precisely in primary education. Although we could have expected that metaphors of a pupil as an unprotected child who needs care, attention and help would dominate in the perception of the role of pupils, this was not the case. Understanding the role of pupils is dominated by the traditional approach of pupils as sponges, which is linked to a behavioral learning orientation in which the pupil is a passive recipient of knowledge and consistent with the results of other researches (Domović & Vizek Vidović, 2013, Saban et al., 2007). When we categorized the answers taking into account both the role of the teacher and the role of the pupil, we can conclude that the teachers in this sample are represented by a protector-traditional orientation. Some other researches that used metaphors indicate that the smallest percentage of teachers demonstrate constructivist beliefs (Duru, 2015; Martinez, Sauleda, & Huber, 2001). The metaphors for the role of pupils are classified into smaller categories compared to metaphors for the role of a teacher. In other words, teachers have more diverse concepts about their role, but almost half of them see pupils as sponges. There is much talk about the constructivist approach in our education system, so it is possible that the trainings that the teachers forgo give a clearer picture of what the teacher should do, but not how to do so in order to encourage learning with understanding and conceptual change in pupils.

On the other hand, quantitative analysis of the teachers' self-assessments in this research suggests that a pupil-centered approach is more pronounced. It is possible that the differences in the results are the result of the disadvantages of each of the research approaches. The disadvantage of teachers' self-assessment is the subjectivity and preference of teachers to giving socially acceptable responses and overestimate their behavior. Although metaphors put the teacher's beliefs below the level of consciousness, there is a disadvantage of interpretations being done by the researchers.

According to the Onion Model (Korthagen, 2013), we expected the teachers' behaviors to be associated with teacher beliefs, and that positive teacher behavior would be more strongly associated with a pupil-centered approach. The hypothesis is partially confirmed. Only three statistically significant coefficients of correlation were identified. The teacher-centered approach has not shown any relation to any teacher behavior. The pupil-centered approach was associated with teacher understanding and proximity. So, teachers who are more pupil-centered, who encourage pupils to construct the meaning and understanding of the content they learn, encourage interaction, and collaborative learning show more understanding for pupils and are more closely involved in interacting with pupils. The metaphors have shown a correlation only with the strictness of the teacher. Teachers with a more pronounced constructivist orientation are less strict in their interaction with pupils. The relationships of these variables were expected. The correlations also show that a pupil-centered approach is more represented in higher-status teachers (mentors and counselors), and that teachers in the subject teaching are more constructivist oriented. This is also not surprising because higher status teachers have more experience, and elementary school teachers are more likely to be more concerned with care and upbringing.

The weak correlation between teacher behaviors and teaching beliefs could be a result of the disadvantages of the used data collection techniques (qualitative and quantitative) on the one hand, and on the other hand, it is possible that the relationships would be stronger with behaviors that are more directly related to teaching, since the Questionnaire of Teaching Interaction (QTI) measures teacher interpersonal behaviors. The Questionnaire of Teaching Interaction showed somewhat poorer validity and reliability than a version of the questionnaire designed to assess teacher interpersonal behaviors by pupils (Šimić Šašić, 2012; Šimić Šašić & Klarin, 2017). It is well-known that teachers are more optimistic in their behavioral appraisals than pupils, that pupils'

appraisals of teacher behavior is more similar to perceptions by observers than by teachers (Khine & Atputhasamy, 2005; Wubbels, Brekelmans, & Hooymayers, 1993).

The advantage of this research is the use and comparison of different approaches to measuring teacher beliefs, and the emphasis on the need to use more different approaches (qualitative approach, pupil assessment) in the study of teacher beliefs and the quality of class interaction. The research also has a practical value. The results point to the need for teacher education in the field of a constructivist approach to learning and teaching. The constraints of this research are therefore associated with a small and occasional sample that disables the generalization of the results, and to the disadvantages of the used measuring instruments (self-assessment as a data-collecting technique and metaphors interpreted by the researcher). Therefore, it seems that future research on the quality of teacher interaction as well as teaching beliefs should continue involving different approaches. It would be interesting to examine the correlation of teachers' beliefs measured by metaphors and pupil perceptions of teacher behavior.

Conclusion

In the conducted research, we found that teacher beliefs differ depending on the research approach. The qualitative approach shows a dominant protective - traditional orientation in understanding the role of a teacher and a typical traditional understanding of the role of pupils, while the quantitative approach based on teacher self-assessments points to the dominance of the constructivist approach oriented towards pupils. Also, there is a weak correlation between teacher beliefs and teacher interpersonal behaviors. The research points to the need to use different approaches in the research of the teaching practice.

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