The Development of Teacher's Relational Competence Scale: Structural Validity and Reliability

Maša Vidmar and Katja Kerman

Social and emotional competences have often been an umbrella term for a wide range of competences, from emotional intelligence, interpersonal skills to cognitive regulation (Jones, Bouffard, & Weissbourd, 2013). Collaborative for Academic, Social, and Emotional Learning (CASEL, 2013) outlines five dimensions of social and emotional learning in students that have also been applied to teachers (Schonert-Reichl, Hanson-Peterson, & Hymel, 2015): self-awareness, self-regulation, social awareness, relationship skills and responsible decision-making. In the recent years, it has been suggested that teachers' social and emotional competence (SEC) are vital not only for the development of social and emotional competences in students (Schonert-Reichl, Roeser et al., 2015), but also for students' learning and development in general (Jennings & Greenberg, 2009; Jensen, Bengaard Skibsted, & Vedsgaard Christensen, 2015; Jones et al., 2013). Currently, in theoretical discourses, empirical research, teacher education programs, and policy debates little attention is paid to the cultivation and promotion of socio-emotional competences of teachers. Scientific evidence is scarce in this respect, thus much of the theoretical and empirical work is ahead. This study addresses the gap by developing a measure of teacher's SEC, specifically their relational competence, to advance the science and research in the field.

What is Relational Competence?

The topic of relational competence (also referred to as interpersonal competence) has been mostly examined in the context of relationships with peers and/or romantic partners (e.g. Adamczyk & Pilarska, 2012; Engels, Finkenauer, Meeus, & Deković, 2001; Niederberger, 2013; Ngu & Florsheim, 2011), al-

though some studies have also been done with teachers in education context (e.g. Jensen et al., 2015; Pantić & Wubbels, 2012).

Teachers' relational competence can be placed in the general framework of teachers' SEC. Several definitions exist, but establishing/sustaining quality (positive, supportive, encouraging) relationships with students lies in the core. In our work, the relational competence refers to a concept proposed by Juul and Jensen (2010) and is defined as teacher's ability *to see* a student as a unique being and to consequently adapt their own actions (behaviour) without abandoning the *leadership* role and their *authenticity*, as well taking full *responsibility* for teacher-student relationship.

Looking at this definition we can extract specific components of relational competence, such as seeing the student, leadership (of the educational process), teachers' authenticity and teachers' responsibility for the relationship. Authors (Juul & Jensen, 2010) provide an explanation of each of these components; however, they do not provide very explicit definitions or descriptions. In their work they refer to the ability and willingness to take full responsibility for the relationships as pedagogic ethics (stance), whereas other components are referred to as pedagogic skill (craft) (ibid.).

According to Juul and Jensen (2010) the teachers' ability *to see a student* refers to the fact that teachers sees beyond the most obvious apparent behaviour or words of a student (e.g. see worry or fear behind hyperactivity, see non-verbal resistance in student's body even if a student verbally says 'yes') – an adult collects all this information and shapes their own view of a student and is able to give a student full recognition and acknowledgement. As stated by Juul and Jensen (2011), the basis for high-quality relationships is that students/children are understood and treated as individuals – as autonomous people who play an active role in building and maintaining relationships. This means that the teacher does things *with* the student and not *to* the student. This also means that a student, with their reactions within this relationship, provides information about who the student is and which parts of relationship make them feel good (or less good). Students' reactions are therefore not interpreted as an expression of what a student is, but who they are in this particular relationship. The key is to observe and identify students' reactions and signals.

Leadership implies teachers' ability to plan and realize educational processes without damaging student's sense of personal integrity (i.e. students feel secure and relaxed). It means that a teacher is able to lead (guide) towards the (educational) goal and have this goal all the time in mind, but at the same time being able to see students as individuals and acknowledge them.

Authenticity refers to teachers' ability and willingness to be personal (i.e. to be present and to share own thoughts, values, boundaries) in the relationship and to develop a subject-subject relationship (i.e. two individuals engaged in educational process), rather than a subject-object relationship (i.e. teachers as the one doing teaching, transferring knowledge to the student). It also refers to the match between professional and personal values (i.e. is the teacher able to act in accordance with their own values and beliefs – about teaching, learning, education etc). The quality of relationship depends on how authentic adults (teachers) are in communication and how included children (students) feel.

Responsibility for the quality of the student-teacher relationship includes the ability to establish and maintain the relationship as well as to take an important position in students' life; it is solely on the side of the teacher. The adult has to consider both, his inner reality and the understanding of the child. The concept of teachers' responsibility for the student-teacher relationship refers to the fact that student-teachers relationships are asymmetrical (Pianta, Hamre, & Stuhlam, 2003) and that teachers are responsible for creating contact and the quality (reciprocity, dynamics) of the relationship. Thus when positive, supportive, and accepting relationship with a student or a group of students does not develop, the teacher asks themselves what are they doing that this positive relationship is not being built (and adapts their behaviour accordingly). The teacher holds the responsibility for creating good interactions and a good learning environment, and for engaging in development-supporting relations (Jensen et al., 2015). Teachers are models of how to communicate. Thus, teachers need to know how to form, maintain, improve and strengthen the quality of the relationships: how to work consciously and systematically with the relation as a space for development and learning.

All of these components are related with each other. However, we view the two components – namely teacher's ability to see a student and teacher's leadership in educational process in accordance with the 'seen' – so interrelated that we propose to merge them in a single component called *respect for individuality*. We bring these two components together because teacher's (exclusive) focus on seeing a student as an individual may imply overshadowing of the process of teaching and learning that is to take place in the classroom; when in fact the opposite is true – taking students psychological needs into account does not mean that learning is no longer important, rather that it is a prerequisite for learning. Thus 'seeing' the student is inextricably linked with leadership role in teaching and learning. It is proposed that relational competence is composed of three components (dimensions): respect for individuality, authenticity, and responsibility for the relationship.

It is important to note that relational competence is not only about communication techniques, but also about the dialogue which is based on the sincere wish and the competence of the adults to react openly and with sensitivity; it is 'an ability to meet students with openness and respect, to show empathy and be able to take responsibility for one's own part of the relation' (Jensen et al., 2015).

In a recent work, Jensen and colleagues (2015) proposed the model of relational competence (also using Juul and Jensen's definition), that is composed of five sub-elements: (1) context (relational competence includes the ability to reflect on the influence of the context for interaction and learning); (2) appreciation (respect for other people's worlds of experience – this can be understood as fundamental attitude and also as more specific relational skills, such as listening, understanding, tolerating, confirming); (3) change of perspective (taking other people's viewpoint); (4) empathy (ability to recognize and understand others' feelings); and (5) attention and presence of mind (being present in relation to yourself). The link between this sub-elements and the definition of relational competence remains unclear.

Why is Relational Competence Important?

The idea of developing teachers' relational competence is based on the centrality of relationships in human development, which has been demonstrated in many theories and studies (e.g. attachment theory, Bowlby, 1969; zone of proximal development, Vygotsky, 1978). This formed a foundation for understanding the teacher-student relationship and led to hypothesis that teacher-student relationship has an important impact on students.

Indeed, several longitudinal studies provide evidence that a teacher's report of a supportive relationship with a student has positive effects on elementary students' behavioural and academic adjustment (e.g. Curby, Rimm-Kaufman, & Ponitz, 2009; Hamre & Pianta, 2001; Hughes, Cavell, & Jackson, 1999; Ladd, Birch, & Buhs, 1999; Meehan, Hughes, & Cavell, 2003; O'Connor & McCartney, 2007; Valiente, Lemery-Chalfant, Swanson, & Reiser, 2008). Similarly, PISA 2012 (OECD, 2013) demonstrated that in all countries and economies, among students with equal performance and similar socio-economic status, those who attend schools with better teacher-student relations reported a stronger sense of belonging to school. Sense of belonging is linked to academic achievement (Anderman 2002; Pittman & Richmond, 2007). Moreover, in a seven-year study of 400 elementary schools, Bryk and Schneider (2004) found that the quality of social relationships among the school community (principals, teach-

ers, students, and parents) is central to student's functioning, and strongly predicts positive student outcomes. Hattie (2012) listed the teacher-student relationships as highly influential for student achievement in his review. Moreover, teacher-student relations have an exceptionally powerful influence over teachers' job satisfaction (OECD, 2014) and are also related to teachers' sense of efficacy (Yoon, 2002). These studies indicate the importance of relationship skills for teachers – teachers need to know how to develop quality relationships, how to improve and strengthen the relationships, i.e. they need to possess relational, interpersonal competences. Two questions emerge immediately: how can we measure teachers' relational competence and how can relational competence be developed (taught) in teachers? The present paper aims to develop an instrument to measure teachers' relational competence, whereas developing teachers relational competences is in the focus of another article in this issue (Laursen & Nielsen, this issue).

Measures of Relational Competence

Wubbels and colleagues (Wubbels, Brekelmans, den Brook, & Van Tartwijk, 2006; Wubbels et al., 2012) developed a student-report and self-report measure of interpersonal competence (Questionnaire for Teacher Interactions, QTI) based on their theoretical Model for Interpersonal Teacher Behaviour. In their model, teachers' behaviour is described along two independent dimensions: control (dominance-submission) and affiliation (cooperation-opposition). These dimensions define eight types of teacher interpersonal relations: Leadership (e.g. This teacher is sure about what they want in the classroom), Helpful/friendly (e.g. This teacher is friendly), Understanding (e.g. This teacher is willing to explain again if we don't understand), Student responsibility/ freedom (e.g. We can decide some things in this teacher's class), Uncertain (e.g. This teacher does not seem sure), Dissatisfied (e.g. This teacher is bad-tempered), Admonishing (e.g. This teacher gets angry quickly) and Strict (e.g. This teacher is strict) (examples from Kokkinos, Charalambous, & Davazoglou, 2009). The authors (Wubbels et al., 2012) also list the following five teacher competences as comprising interpersonal competence: (1) providing guidance (e.g. is able to make pupils active learners), (2) setting norms and standard (e.g. acts as a role model), (3) correcting undesirable pupil behaviour (e.g. checks whether pupils respond to their corrections), (4) paying attention to pupils (e.g. shows personal interest in pupils), and (5) giving pupils responsibility and freedom (e.g. gives the pupils an appropriate level of responsibility). The model proposed by Wubbels and colleagues (2006,

2012) resembles the work on teacher styles that are based on Baumrind's parenting dimensions – control and responsiveness (see Wentzel, 2002).

Although the focus in Wubbels' (and colleagues, 2006, 2012) and Juul and Jensen's work is similar – teachers' relationship skills – and the terms used imply substantial overlap (relational versus interpersonal competence), a closer look shows that the Juul and Jensen's conceptualization focuses much more on the relationship between teacher and student per se. In this context, correcting students' undesirable behaviour (one of the competences in Wubbels et al., 2012 model) is irrelevant, because students' behaviour is viewed and understood as a signal of who and how the student is within the relationship. We decided to develop a measure of relational competence based on the work of Juul and Jensen (2010). When constructing the scale we focused on the main three components of relational competence – respect for individuality (i.e. seeing student and leadership), authenticity and responsibility for the relationship (see Method for details on scale development).

The Present Study

The need for a measure of relational competence is practice-based on one hand (e.g. to demonstrate the need for teachers' professional development on the topic), but also research-based on the other hand (e.g. to evaluate effects of initial or in-service training for teachers, see e.g. Laursen & Nielsen, this issue; to examine links with student and teacher outcomes). Thus, in the present study, we aimed to develop and verify a new measure of relational competence (Teachers' Relational Competence Scale, TRCS) that is grounded in the conceptual work of Juul and Jensen (2010). The overall aim was to develop a self-report questionnaire for teachers and to investigate the reliability and structural validity of the new instrument. The three-factor structure assessing respect for individuality, authenticity and responsibility has been presupposed. The specific aims of the study were to: (1) identify the items that are reflected by the underlying factors in the expected manner; (2) examine whether the presupposed three factors indeed emerge and have satisfactory reliabilities, item loadings and model fit indices; (3) propose suggestions for further development of the instrument (e.g. alternative factor structure, new items).

Method

Participants

Teachers, who participated in the present study, also participated in main TIMSS 2015 study (Trends in Mathematics and Science Study). The TIMSS study is an international study of student achievement that is con-

ducted every four years at the 4th and 8th grades; students, teachers and school heads participate in the study. Out of all TIMSS 2015 teachers (n = 257 for the 4th grade and n = 882 for the 8th grade) 562 teachers responded to our invitation; 127 were 4th grade teachers (49% response rate) and 478 were 8th grade teachers (54% response rate). Teachers came from 136 Slovenian schools; most participants were females (85%).

Instruments

Teachers' Relational Competence Scale (TRCS – pilot II[1], Vidmar, Rutar Leban, & Niederberger, 2015) is a newly developed instrument for measuring teachers' relational competence as defined in the work of Juul and Jensen (2010). The development of the TRCS is described below, followed by a description of the instrument.

An expert team of three psychologists (two researchers and one psychotherapeutic counsellor) studied the original work of Juul and Jensen (Juul & Jensen, 2010, 2011; Jensen & Jensen, 2011). We followed explanations and descriptions of the relational competence dimensions – respect for individuality (i.e. seeing student and leadership), authenticity and responsibility for the relationship. For each component we constructed items that would reflect its content as much as possible. The items content was reviewed also by a Danish expert for relational competence. This resulted in the scale, comprised of 33 self-report items (TRCS-pilot II, Vidmar et al., 2015, see Table 1; only two items remained from the pilot I version). The items were assessed on a 5-point Likert scale (from *Very rarely or never*, to *Always or very often*). The items presumably described teachers' relational competence along the three dimensions – individuality (9 items, e.g. *I take into consideration that each student's thoughts, feelings and understanding of a given situation may differ from mine*), authenticity (12 items; e.g. *I am authentic in my relationships with students*) and responsibility (12 items; e.g. *When I can't build a good relationship with a student, I ask them for help)*. The respect for individuality refers to a teacher's abil-

1 The first version of the TRCS (TRSC-pilot I, Vidmar & Niederberger, 2014) was developed based on the work of Niederberger (2013) that measured relational competence within parent-child and romantic relationships. The TRSC-pilot I, comprising of 26 items was tested in preliminary study on the sample of over 100 Slovenian teachers (n = 121) of the 4th and 8th grade, who participated in the TIMSS 2015 field study. Teachers completed the TRSC on-line. Using exploratory factor analyses (EFA) 1-, 2-, 3-, and 4-factor models were tested. Fit indices were low (CFI, RMSEA, SRMR) and there were several non-significant loadings and several cross-loadings. After removing the non-significant items, fit indices remained low. The items did not load onto the factors in the expected manner; the items that had reverse coding loaded on one factor (in the 2-, 3-, and 4- factor solution), whereas the 'positive' items loaded together on another factor (in the 3- and 4-factor solution, the remaining factors were weak with only one or two items loading). The results indicated that comprehensive revision of the TRSC was needed.

ity to recognize and acknowledge students as individuals (with their own (psychological) needs, goals, values) and teacher' ability to take this into account when leading the teaching and learning. The authenticity refers to teacher's ability to be personal in the relationship with students and to be able to act in accordance with their own values and beliefs (about teaching, learning, education) in their professional life. The responsibility refers to a teacher's ability to take exclusive responsibility for the quality of the relationship with students (i.e. for what is happening in the relationship between the teacher and the student). The presupposed factor structure (Table 1) as well as final factor structure (Tables 2 and 3) and scale reliability are presented in the results.

Procedure

Teachers who participated in the TIMSS 2015 were invited via e-mail to complete the on-line TRCS – pilot II (using on-line survey tool 1ka (https://www.1ka.si/)). The participation was voluntary.

Statistical Analyses

Using statistical package IBM SPSS Statistics 23, we computed descriptive statistics, correlations and alpha coefficients. Using the "random" function in SPSS, we split the sample into two equal groups. We conducted exploratory factor analysis (EFA) on the first sample half and exploratory structural equation modelling (ESEM) on the other sample half, using Mplus Version 6.12. Full information maximum likelihood (FIML) algorithm was used to assess the parameters in the model. The ESEM approach is similar to confirmatory factor analyses (CFA), because it allows the pre-specification of target and non-target loadings in a confirmatory manner; in the ESEM all factor loadings are estimated with the cross-loadings targeted to be close to zero (but not fixed at 0 as is the case in the CFA) and main (target) loadings are estimated freely (Morin, Arens, & Marsh, 2016).

Item loadings were interpreted according to Thabachnick and Fidell (2006) who suggest cut-off values going from 0.32 (poor), 0.45 (fair), 0.55 (good), 0.63 (very good) or 0.71 (excellent); following this rule of thumb all items with loadings smaller than 0.30 were excluded from further analysis. Model fit was interpreted following the recommendations by Hu and Bentler (1998): the comparative fit index, CFI > 0,95, the root mean square error of approximation, RMSEA < 0,06 and the Standardized Root Mean Square Residual SRMR < 0,08.

Results

In the first section, descriptives for all items are presented (see Table 1). This is followed by presentation of EFA for the first random half of the sample and ESEM results for the second half of the sample. For the items in the ESEM model, inter-item correlations are also presented as well as mean differences according to grade taught and teachers' sex.

Table 1. Item descriptive statistics

Item/ factor		Mean	Std. dev.	Skew.	Kurt.
1/R	When a student doesn't agree with a certain decision I've made, I consider his/her opinion.	4,25	0,75	-0,78	0,42
2/I	I take into consideration that each student's thoughts, feelings and understanding of a given situation may differ from mine.	4,38	0,63	-0,60	-0,16
3/A	As a teacher I am able to act in accordance with my values and beliefs.	4,35	0,63	-0,50	-0,44
4 */A	Respecting the teacher authority is a prerequisite for effective teaching.	4,41	0,72	-1,29	2,28
5/R	When I find myself in disagreement with a certain student, I actively seek for new opportunities to (re)establish a harmonic relationship.	4,57	0,59	-1,17	1,15
6/A	I make sure, I don't expect (such) behaviours from students, that I don't express myself.	4,23	0,83	-1,10	1,45
7/R	When a student behaves or expresses in an inappropriate or unsuitable way, I try to understand what lies under his/her behaviour or words.	4,04	0,72	-0,40	0,18
8/I	I am aware of values, feelings, thoughts and goals of each student.	3,61	0,74	-0,54	0,60
9/A	In my demands/expectations I refer to my personal boundaries (e.g. "I do not allow this behaviour.").	4,07	0,72	-0,64	0,93
10/I	I am open to student ideas and suggestions and I consider them when teaching.	4,29	0,60	-0,24	-0,61
11/I	I take into consideration that each student experiences a given situation from a different perspective.	4,17	0,68	-0,44	0,15
12/R	As a teacher, I take full responsibility for the quality of the student-teacher relationship.	4,08	0,83	-0,75	0,48
13/R	When I realise I made a mistake, I apologise to the student.	4,81	0,48	-3,08	12,11
14/I	When I talk to a student, I encourage him/her to express his/her thoughts.	4,66	0,50	-1,00	-0,32
15/I	Feelings, emotions and thoughts of my students are important to me.	4,41	0,62	-0,87	1,54

Item/ factor		Mean	Std. dev.	Skew.	Kurt.
16/A	When I am with students, I focus on the present moment; I don't think about past situations nor think about the future ones.	4,11	0,76	-0,75	0,68
17/R	I can effectively collaborate with every student or class.	4,06	0,68	-0,38	0,17
18/R	I am not insulted by students' inappropriate/ offensive behaviour or statements; I think of them as expression of imbalances between the student and myself/environment.	3,85	0,81	-0,52	0,46
19/A	Building a personal teacher-student relationship is a prerequisite for effective teaching.	4,18	0,82	-0,84	0,50
20/A	I am authentic in my relationships with students.	4,66	0,52	-1,17	0,77
21/A	I share my personal experiences with students when their content is appropriate and they deepen our relationship.	3,88	0,93	-0,51	-0,17
22 */I	As a teacher I try to treat all students in the same way.	4,74	0,51	-2,19	5,76
23/A	I develop a personal relationship with each student.	3,98	0,87	-0,86	0,91
24/R	When I can't build a good relationship with a student, I ask him/her for help.	3,39	0,93	-0,22	-0,15
25/A	I am aware my behaviour sets an example for the students.	4,77	0,46	-1,90	3,53
26/R	After a disagreement with a student, I make sure we talk about it.	4,60	0,56	-1,02	0,04
27/I	A sense of mutuality and equality in my relation with students is important to me.	4,56	0,64	-1,69	4,55
28/I	I am aware that each student has his/her own way of thinking and functioning, so I try to adjust my behaviour accordingly.	4,33	0,62	-0,36	-0,66
29 */A	In my demands/expectations I refer to the commonly accepted rules of behaviour (e.g. "This is no behaviour.").	3,90	0,80	-0,42	-0,07
30/R	If I find myself in repeated conflicts with a certain student or a group of students, I consider my behaviour and usually modify it accordingly.	3,87	0,77	-0,35	0,20
31/R	I see relationship with each student as an opportunity for my personal and professional growth.	4,18	0,75	-0,59	-0,16
32 */R	Difficult classes/students are the cause of teacher burnout.	3,88	0,85	-0,39	-0,28
33 */A	As a teacher I don't show my weaknesses to the students.	3,51	0,88	-0,20	0,07

* Reverse coding. N = 562. I = respect for individuality, A = authenticity, R = responsibility for the relationship.

As indicated in Table 1, only item 13 had excessive skew and kurtosis that violates the recommendations on assuring multivariate normality (for all other items, univariate skewness is below 2.0 and kurtosis is below 7.0; Curran, West, and Finch, 1996).

Exploratory Factor Analyses (EFA)

A series of EFAs was conducted on the first random half of the sample (N = 281) to examine the factor structure and item loadings of the newly developed Teachers' Relational Competence Scale (TRCS – pilot II, Vidmar et al., 2015). Firstly, we conducted 1-, 2-, 3- and 4-factor EFA including all 33 items[2]. Based on fit indices (RMSEA, CFI, $\chi 2$ and SRMR), all models showed a poor fit (values ranged from .05 to .07 for RMSEA; .71 - .87 for CFI; 1205.173 (df = 495), p = .000 - 713.889 (df = 402), p = .000 for $\chi 2$ and .07 - .05 for SRMR). Across all factor solutions, two items loaded on none of the factors (items 3, 32; e.g. *As a teacher I am able to act in accordance with my values and beliefs*) and reversely coded items loaded positively rather than negatively on the factors (items 4, 22, 29, 33; e.g. *As a teacher I don't show my weaknesses to the students*). Generally, reversely coded items also correlated positively rather than negatively with other items. These six items were dropped from further analyses. Looking at the item content of these items reveals that four of the dropped items presumably tap authenticity, one individuality and one responsibility.

Secondly, after dropping inadequate items (specifically items 3, 4, 22, 29, 32 and 33) 1-, 2-, 3- and 4-factor analyses were conducted again. This did not result in improved fit indices, particularly the CFI remained low (CFI < .81). In the next step we continued with exploratory factor analysis (EFA), including only items, that showed appropriate factor loadings (i.e. loaded together with other items designed to load the same factor; loading > .30), specifically items 2, 7, 10, 11, 12, 17, 18, 24, 28, 30, 31, and tested the 2- and 3-factor models. The models show appropriate fit ($\chi 2(25) = 38.947$, $p < .05$; CFI = .98; SRMR = .03; RMSEA = .05 and $\chi 2\ (34) = 66.68$; $p < .001$; CFI = .95; SRMR = .04; RMSEA = .06) for the 3- and 2-factor model, respectively. Even though fit indices generally meet the recommended values (Hu and Bentler, 1998) for both models, the 3-factor solution shows one dominant factor with two weaker factors (see appendix, table A1 for item loadings). In light of model parsimony, we opted for the 2-factor solution. In Table 2, we can see that all item loadings are above .35, with more items loading into factor 2 than factor 1. Factor 1 is comprised of four items (items 2, 10, 11 and 28), with item 28 cross-loading into both factors, whereas factor 2 is comprised of seven items 7, 12, 17, 18, 24, 30, 31).

2 Factor loadings for the 1-, 2-, 3, and 4-factor solution are available from the first author.

Based on item content, we named the first factor Individuality and the second factor was named Responsibility.

Table 2. Item loadings for EFA

	Factor 1	Factor 2
Item 2: I take into consideration that each student's thoughts, feelings and understanding of a given situation may differ from mine.	**0.62**	-0.09
Item 7: When a student behaves or expresses in an inappropriate or unsuitable way, I try to understand what lies under his/her behaviour or words.	0.24	**0.44**
Item 10: I am open to student ideas and suggestions and I consider them when teaching.	**0.41**	0.24
Item 11: I take into consideration that each student experiences a given situation from a different perspective.	**0.78**	0.01
Item 12: As a teacher, I take full responsibility for the quality of the student-teacher relationship.	0.20	**0.38**
Item 17: I can effectively collaborate with every student or class.	0.03	**0.44**
Item 18: I am not insulted by students' inappropriate/offensive behaviour or statements; I think of them as expression of imbalances between the student and myself/environment.	0.03	**0.48**
Item 24: When I can't build a good relationship with a student, I ask him/her for help.	-0.01	**0.61**
Item 28: I am aware that each student has his/her own way of thinking and functioning, so I try to adjust my behaviour accordingly.	**0.35**	**0.35**
Item 30: If I find myself in repeated conflicts with a certain student or a group of students, I consider my behaviour and usually modify it accordingly.	<0.01	**0.59**
Item 31: I see relationship with each student as an opportunity for my personal and professional growth.	-0.05	**0.75**

Note. The highest loading is marked in bold.

Cross-validation with Exploratory Structural Equation Modeling (ESEM)

In the next set of analyses, we attempted to cross-validate the 2-factor structure obtained in the first sample half with EFA, using ESEM on the second half of the sample ($N = 281$). We specified the model based on EFA 2-factor model, assigning items 2, 10, 11 and 28 to factor 1 and items 7, 12, 17, 18, 24, 30 and 31 to factor 2. In the EFA, item 28 loaded on both factors; we decided to keep item 28 in presupposed target factor 1 based on: (1) item content, (2) higher correlation with other factor items (mean correlation with other items of the factor was .33 and .29 for factor 1 and factor 2, respectively) and (3) the higher loadings on the factor 1 compared to factor 2 in the 3-factor EFA solution (see appendix, table A1). ESEM fit indices

were within the recommended range (RMSEA = .04, CFI = .98; $\chi 2$ (34) = 50.259, p < .05 and SRMR = .03). Factor loadings are presented in Table 3.

Table 3. Item loadings to target factors (ESEM)

	Individuality	p-value	Responsibility	p-value
Item 2	**0.60**	0.00	0.03	0.79
Item 10	**0.55**	0.00	0.17	0.08
Item 11	**0.74**	0.00	0.08	0.46
Item 28	**0.14**	0.15	0.54	0.00
Item 7	0.48	0.00	**0.29**	0.00
Item 12	0.17	0.12	**0.43**	0.00
Item 17	0.09	0.54	**0.40**	0.00
Item 18	-0.00	0.99	**0.44**	0.00
Item 24	0.19	0.13	**0.43**	0.00
Item 30	0.11	0.33	**0.53**	0.00
Item 31	-0.16	0.12	**0.87**	0.00

Note. The loadings on target factors are marked in bold.

Table 3 shows satisfactory loadings for all items (above .30, except for items 7 and 28). Item 28 loads more strongly on Responsibility factor, with loading on Individuality being statistically non-significant. We repeated the above described ESEM, using the complete data set, due to the cross-loading. In the full data ESEM, item 28 loads statistically significant onto to the target Individuality factor; however, it still loads more strongly onto Responsibility factor (.40) than onto Individuality factor (.27). In light of these results, further revision of item 28 (*I am aware that each student has his/her own way of thinking and functioning, so I try to adjust my behaviour accordingly*) is needed.

Based on the final EFA and ESEM results (presented in Table 2 and 3) and item content, we named the first factor Individuality and the second factor was named Responsibility. Items 2, 10, 11 and 28 comprise the Individuality factor, with item correlations ranging from .28 to .45 (see Table 4) and Cronbach's alpha coefficient of .70. Responsibility factor is comprised of items 7, 12, 17, 18, 24, 30 and 31, with inter-item correlations ranging from .18 to .49 (see Table 4), and Cronbach's alpha coefficient of .76. Although some correlations are low, all correlations are statistically significant. The latent factors correlate moderately (r = .73, p < .001).

Table 4. Inter-item correlation matrix for the final set of items

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Item 2											
2. Item 10	.28**										
3. Item 11	.45**	.42**									
4. Item 28	.29**	.36**	.44**								
5. Item 7	.30**	.33**	.37**	.32**							
6. Item 12	.16**	.36**	.33**	.28**	.33**						
7. Item 17	.07	.21**	.23**	.27**	.22**	.36**					
8. Item 18	.22**	.15*	.23**	.28**	.33**	.23**	.32**				
9. Item 24	.13*	.30**	.25**	.33**	.42**	.37**	.26**	.24**			
10. Item 30	.18**	.21**	.29**	.30**	.32**	.22**	.18**	.32**	.37**		
11. Item 31	.15*	.35**	.29**	.41**	.38**	.29**	.31**	.36**	.39**	.49**	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Sex and Grade Differences

As this study was conducted in an exploratory manner, we also wanted to test differences in the two factors of relational competence based on teacher's gender and the grade they teach (4th and 8th) using Mann-Whitney U test[3]. The results showed that there are statistically significant differences (or come close to statistical significance) for both dimensions, based on sex ($U = 4540{,}000$ and $p = .055$; $U = 4137{,}500$ and $p = .007$; for Individuality and Responsibility, respectively) and based on grade taught ($U = 5411{,}000$ and $p = .002$; $U = 5194{,}000$ and $p = .001$ for Individuality and Responsibility, respectively). More specifically, for both Individuality and Responsibility, the higher average was found for females compared to males ($\mu = 17{,}23$; $\sigma = 1{,}82$ for Individuality and $\mu = 32{,}39$, $\sigma = 3{,}84$ for Responsibility) and for 4th grade teachers compared to 8th grade teachers ($\mu = 17{,}72$; $\sigma = 1{,}73$ for Individuality and $\mu = 33{,}40$ $\sigma = 3{,}31$ for Responsibility).

Discussion

In the present study, we investigated the reliability and structural validity of the newly developed TRCS questionnaire for measuring teachers' relational competence, using exploratory factor analysis (EFA) and exploratory structural equation modelling (ESEM). EFAs were conducted on the

3 Mann-Whitney U test was used due to non-normal distribution of latent factors, computed with Shapiro-Wilk test ($W = .95$, $p < .001$ and $W = .987$, $p < .001$ for Individuality and Responsibility, respectively).

first half of the teacher sample and then cross-validated with ESEM on the other half of the teacher sample.

Exploratory Factor Analyses (EFA)

A series of EFAs led us to the construction of 11-items model with 2 factors. The model showed adequate fit and appropriate item loadings to respective factors (only item 28 cross-loaded into two factors). Items loadings ranged from fair to excellent. Item 28 was kept in further analysis on factor 1, based on its content, higher correlation with other items on factor 1 (compared to factor 2) and higher loading on factor 1 (compared to factor 2) in 3-factor EFA solution.

The two obtained factors were named Individuality and Responsibility. Individuality consists of 4 items and taps items that reflect a teacher's ability to respect and consider each student on an equal-footing – as an individual with their own experiences, perspectives and ways of functioning. This also means that teachers are able to see beyond the most apparent behaviour or words of a student, take this into consideration in the interactions and yet remain in their leadership (guidance) role in the context of learning and teaching. Responsibility consists of 7 items and taps items that reflect a teacher's ability and willingness to take responsibility for what is happening in the teacher-student relationship – to take responsibility for the relationship in general as well as in conflicting/challenging situation (e.g. bad relationship with a student, inappropriate students' behaviour). It includes the ability to establish and maintain relationship.

The two obtained factors are consistent with two components of relational competence as defined by Juul and Jensen (2010); however, the third components emphasized in their definition – teachers' authenticity – did not emerge as a cohesive factor. Thus, even though the three-factor structure (individuality, responsibility, authenticity) was presupposed, our study did not support this.

Items tapping authenticity loaded on different factors and did often not correlate with each other significantly ($.004 < r < .52$, $.00 < p < .98$). Looking closely at items presumably tapping authenticity, we can see that four items have already been dropped from analyses after the first set of EFAs, due to low loadings or loadings in the wrong direction (e.g. *As a teacher I don't show my weaknesses to the students*; *As a teacher I am able to act in accordance with my values and beliefs*). These items were conceptually based, but empirically do not seem to measure authenticity. Moreover, looking at content of other items presumably tapping authenticity, they seem to also cover concepts like mindfulness (e.g. *When I am with students, I focus on the present moment*; *I don't think about past situations*

nor think about the future ones) and self-disclosure (*I share my personal experiences with the students when their content is appropriate and they deepen our relationship*). This heterogeneity of item content could result in the fact that authenticity did not emerge as an independent factor or did not emerge with more items on one of the other two factors. This indicates that in the future studies, the construct of authenticity should be revisited and re-examined with several newly developed items.

Given that this is pioneering work in the field, and that items for the scale were newly constructed based on the conceptual work of Juul and Jensen (2010), there are not many referential studies to which we could compare our findings. Similar to Wubbels and colleagues (2006, 2012), our study supports the notion that teacher's relational competence (or more general social and emotional competences) can be reliably measured using self-report. The dimensions examined in this study differ from Wubbels' work; Juul and Jensen's (2010) concept includes components such as respect for individuality, authenticity and responsibility for the relationship, while Wubbels concept includes components such as providing guidance, setting norms and standards, correcting undesirable pupil behaviour, paying attention to pupils and giving pupils responsibility and freedom (Wubbels et al., 2012). The first and the last two of Wubbels' components could be seen as taping respect for individuality, while authenticity and responsibility for the relationship are not captured in his conceptualization.

As indicated in the results, the 3-factor EFA solution with 11 items also showed adequate fit (2-factor was chosen because it is more parsimonious). Comparing the 2- and 3-factor solutions that emerged in the EFA shows that two items from the second factor emerged as a third factor in 3-factor solution. In the 3-factor solution, factor Responsibility from the 2-factor solution was decomposed in such a way, that two distinct types of responsibility occurred: on one hand responsibility for restoring relationship in time of conflict or lack of good relationship (e.g. item 30: *If I find myself in repeated conflicts with a certain student or a group of students, I consider my behaviour and usually modify it accordingly*) and on the other hand responsibility for the relationship in general (item 12: *As a teacher, I take full responsibility for the quality of the student-teacher relationship*). Future studies should bear in mind this possible distinction of the two types of responsibility when investigating the dimensions of relational competence.

Cross-validation using exploratory structural equation modelling

The final 2-factor model was then cross-validated on the second data half, using exploratory structural equation modelling (ESEM). Fit indices were within the recommended range, confirming that the 2-factor structure with presumed item loadings fits the data well and most item loadings were found to be statistically significant (when repeating the ESEM on the complete dataset, all loadings proved to be statistically significant). Item 28 cross-loaded into both factors; but loaded more strongly and statistically significant onto the non-target Responsibility factor. Looking at the item content, cross-loading is not surprising. It seems that the first part of the items indeed taps respect for individuality (*I am aware that each student has his/her own way of thinking and functioning*...), however the second part also describes behaviour that is indicative of a teacher's responsibility for the relationship (...*so I try to adjust my behaviour accordingly*). The item was kept in the final version, because the behaviour describes relational competence of teachers; the item was designated to measure factor 1 (Individuality). We suggest a revision of item 28, specifically the second part (e.g....so I try to take it into account when teaching or otherwise interacting with students). Overall, with the ESEM results, we were able to find support for the 2-factor structure of the newly developed TRCS questionnaire (as indicated by the EFA results).

Sex and Grade Differences

Finally, we tested whether dimension scores differ based on the teacher's sex and grade taught. Results showed statistically significant differences on both dimensions, for both categories (results for sex differences on Individuality are marginally significant). These findings indicate that female teachers (compared to male counterparts) and 4th grade teachers (compared to 8th grade teachers) report that they are better at respecting students' individuality and taking responsibility for the relationship with students. Additionally, these results, at least to some extent, demonstrate the discriminant validity of the instrument.

Limitations and Strengths

One of the strengths of this study is a large initial sample size, which enabled us to cross-validate the factor structure of the TRCS questionnaire. Additionally, advanced statistical tools, such as FIML and ESEM were used. The limitation is that no other aspects of validity, except structural (i.e. external, Messick, 1995) were investigated within this study; however further studies of validity will be possible after TIMSS 2015 data becomes available and will be merged with our data on relational competence. Fi-

nally, we have doubts about the generalizability of our findings. As our initial sample was representative (of Slovenian school teachers), only 50% of teachers completed the TRCS. The low response rate may also indicate a response bias, possibly related to the teachers' relational competence.

Conclusion

In accordance with the aims of our study we have: (1) identified items that are adequately reflected by the underlying factors using EFAs – 11 items were kept and 22 items of the initial 33 were dropped due to low or non-target loadings; (2) not found support for the presupposed three-factor structure of TRCS (individuality, responsibility, authenticity), because authenticity did not emerge as a cohesive factor; and (3) suggested to develop new authenticity items.

Nevertheless, our study shows that teachers' relational competence (its two dimensions – individuality and responsibility) can now be reliably measured, using the newly developed TRCS. The scale was tested on a large sample size using advanced statistical procedures. We found that a 2-factor model, consisting of 11 items fits the data best; the first factor represents Individuality (items 2, 10, 11 and 28; $\alpha = .70$) and the second factor represents Responsibility (items 7, 12, 17, 18, 24, 30, 31; $\alpha = .76$). These results were confirmed with ESEM, but a modification of item 28 (that cross-loaded on both factors) was suggested. The third presumed factor, authenticity, proved to be the weakest (it did not emerge), with items usually loading onto other factors and items correlating poorly. To appropriately address the authenticity aspect of the relational competence, the construct needs to be revised and new items need to be developed and examined in future studies whether they load on a separate factor or load together with any of the other two factors. Future studies on validity of the instrument are needed.

References

Adamczyk, K., Pilarska, A. (2012) Attachment style, relationship status, gender and relational competences among young adults. *Polish Psychological Bulletin 43* (2), pp. 59–69.

Anderman, L. H. (2003) Academic and social perception as predictors of change in middle school students' sense of school belonging. *Journal of Experimental Education 72* (1), pp. 5–22.

Bryk, A. S., Schneider, B. (2004) Trust in schools: A core resource for improvement. *Contemporary Sociology 33* (3), pp. 368–369.

Bowlby, J. (1969) *Attachment and loss: Vol 1. Attachment*. New York: Basic Books.

CASEL, Collaborative for academic, social, and emotional learning (2013) *2013 CASEL guide: Effective social and emotional learning programs—preschool and elementary school edition*. Chicago: Author.

Curran, P. J., West, S. G., Finch, J. F. (1996) The robustness of test statistics to nonnormality and specification error in confirmatory factor analysis. *Psychological Methods 1*, pp. 16–29.

Curby, T. W., Rimm-Kaufman, S. E., Ponitz, C. C. (2009) Teacher–child interactions and children's achievement trajectories across kindergarten and first grade. *Journal of Educational Psychology 101*, pp. 912–925.

Engels, R. C. M. E, Finkenauer, C., Meeus, W., Deković, M. (2001) Parental attachment and adolescents' emotional adjustment: The associations with social skills and relational competence. *Journal of Counseling Psychology 48* (4), pp. 428–439.

Hamre, B., Pianta, R. (2001) Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development 72*, pp. 625–638.

Hattie, J. (2012) *Visible learning for teachers. Maximizing impact on learning*. Routledge.

Hu, L. Bentler, P. M. (1998) Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods 3* (4), pp. 424–453.

Hughes, J. N., Cavell, T. A., Jackson, T. (1999) Influence of teacher-student relationships on aggressive children's development: A prospective study. *Journal of Clinical Child Psychology 28*, pp. 173–184.

Jennings, P. A., Greenberg, M. T. (2009) The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research 79*, pp. 491–525.

Jensen, E. Jensen, H. (2011) *Dialog s starši* [Dialogue with parents]. Ljubljana: Inštitut za sodobno družino Manami.

Jensen, E., Bengaard Skibsted, E., Vedsgaard Christensen, M. (2015) Educating teachers focusing on the development of reflective and relational competences. *Educational Research for Policy and Practice, 14* (3), pp. 201–212.

Jones, S. M., Bouffard, S. M., Weissbourd, R. (2013) Educators' social and emotional skills vital to learning. *Phi Delta Kappan, 94*, pp. 62–65.

Juul, J., Jensen, H. (2010) *Od poslušnosti do odgovornosti*. [From obedience to responsibility] Radovljica: Didakta.

Juul, J., Jensen, H. (2011) Vzgojno delovanje v vrtcu in šoli [Up-bringing acting in kindergarten and school]. *Šolsko svetovalno delo 3-4*, pp. 61–74.

Kokkinos, C. M., Charalambous, K., Davazoglou, A. (2009) Interpersonal teacher behaviour in primary school classrooms: A cross-cultural validation of a greek translation of the questionnaire on teacher interaction. *Learning Environments Research 12* (2), pp. 101–114.

Ladd, G. W., Birch, S. H., Buhs, E. S. (1999) Children's social and scholastic lives in kindergarten: Related spheres of influence? *Child Development 70*, pp. 1373–1400.

Laursen, P. Nielsen, A. M. (this issue) Teachers' relational competencies: the contribution from teacher education. *Šolsko polje 27* (1-2), pp. 139–161.

Meehan, B. T., Hughes, J. N., Cavell, T. A. (2003) Teacher–student relationships as compensatory resources for aggressive children. *Child Development 74*, pp. 1145–1157.

Messick, S. (1995) Validity of Psychological Assessment: Validation of Inferences From Persons' Responses and Performances as Scientific Inquiry Into Score Meaning. *American Psychologist 50* (9), pp. 741–749.

Morin, A. J., Arens, A. K., Marsh, H. W. (2016) A bifactor exploratory structural equation modeling framework for the identification of distinct sources of construct-relevant psychometric multidimensionality. *Structural Equation Modeling: A Multidisciplinary Journal* 1, pp. 116–139.

Ngu, L., Florsheim, P. (2011) The development of relational competence among young High-Risk fathers across the transition to parenthood. *Family Process, 50* (2), pp. 184–202.

Niederberger, U. (2013) *Relational Competence Theory: Can Respect, Authenticity, and Re-sponsibility for the Relationship Predict Relationship Quality*? Bachelor thesis, Kristianstad University, Sweden. http://hkr.diva-portal.org/smash/record.jsf?pid=diva2%3A635406dswid=OATDFullTextWindow (1.3.2013).

O'Connor, E., McCartney, K. (2007) Examining teacher–child relationships and achievement as part of an ecological model of development. *American Educational Research Journal 44*, pp. 240–269.

OECD (2013) *PISA 2012 results: ready to learn: students' engagement, drive and self-beliefs (volume iII).* Paris: OECD Publishing.

OECD (2014) *A Teachers' guide to talis 2013: teaching and learning international survey*. Paris: OECD Publishing.

Pantić, N., Wubbels, T. (2012) Teachers' moral values and their interpersonal relationships with students and cultural competence. *Teaching and Teacher Education 28* (3), pp. 451–460.

Pianta, R. C., Hamre, B. K., Stuhlman, M. (2003) Relationships etween teachers and children. In Reynolds, W., Miller, G. (eds.). *Comprehen-*

sive handbook of psychology (vol. 7) educational psychology . New York: John Wiley Sons, pp. 199–234.

Pittman, L. D., Richmond, A. (2007) Academic and psychological functioning in late adolescence: The importance of school belonging. *Journal of Experimental Education 75* (4), pp. 270–290.

Schonert-Reichl, K. A., Hanson-Peterson, J. L., Hymel, S. (2015) Social and emotional learning and pre-service teacher education. In Durlak, J. A., Weissberg, R. P., Domitrovich, C. E., Gullotta, T. P. (eds.). *Handbook of social and emotional learning: Research and practice*. New York: Guilford, pp. 406–421.

Schonert-Reichl, K. A., Roeser, R. W., Oberle, E., Whitehead, J., Kitil, M. J., Lawlor, M. S. (2015, April) Singular and combined effects of mindfulness-based education programs on teacher and student well-being and classroom context. In R. W. Roeser (Chair), *Systematic Approaches to mindfulness-based interventions for teachers and students: Early childhood and elementary school settings*. Symposium presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Tabachnick, B. G., Fidell, L. S. (2006) *Using multivariate statistics (5th edition)*. Needham Heights, MA, USA: Allyn Bacon, Inc.

Valiente C., Lemery-Chalfant K., Swanson J., Reiser M. (2008) Prediction of children's academic competence from their effortful control, relationships, and classroom participation. *Journal of Educational Psychology 100*, pp. 67–77.

Vidmar, M., Niederberger, U. (2014) *Lestvice odnosne kompetentnosti učiteljev-pilotna I* [Teacher relational competence scale – pilot I], unpublished.

Vidmar, M., Rutar Leban, T., Niederberger, U. (2015) *Lestvice odnosne kompetentnosti učiteljev-pilotna II* [Teacher relational competence scale – pilot II], unpublished.

Vygotski, L. S. (1978) *Mind and society: The development of higher psychological processes*. Cambridge: Harvard University Press.

Wentzel, K. R. (2002) Are effective teachers like good parents? Teaching styles and student adjustment in early adolescence. *Child Development 73* (1), pp. 287–301.

Wubbels, T., Brekelmans, M., den Brok, P., Van Tartwijk, J. (2006) An interpersonal perspective on classroom management in secondary classrooms in the Netherlands. In Evertson, C. M., Weinstein, C. S. (eds.). *Handbook of classroom management: Research, practice, and contemporary issues*. New York: Lawrence Erlbaum Associates, pp. 1161–1191.

Wubbels, T., Brekelmans, M., den Brok, P., Levy, J., Mainhard, T. Van Tartwijk, J. (2012) Let's make things better. In Wubbels, T., den Brok, P., van Tartwijk, J., Levy, J. (eds.). *Interpersonal Relationships in Education. An Overview of Contemporary Research*. Rotherdam, the Netherlands: Sense Publishers, pp. 225–249.

Yoon, J. S. (2002) Teacher characteristics as predictors of teacher-student relationships: Stress, negative affect, and self-efficacy. *Social Behavior and Personality 30* (5), pp. 485–493.

Appendix

Item Loadings for the Final 3-factor EFA model

Table A1. Item loadings for the final 3-factor model EFA model

	F1	F2	F3
Item 2	**0.666**	-0.016	-0.164
Item 7	0.256	**0.344**	0.118
Item 10	**0.398**	0.120	0.187
Item 11	**0.752**	0.034	-0.013
Item 12	0.164	-0.004	**0.666**
Item 17	-0.002	0.234	**0.351**
Item 18	0.051	**0.457**	0.025
Item 24	-0.003	**0.438**	0.252
Item 28	**0.353**	0.345	0.006
Item 30	0.012	**0.682**	-0.116
Item 31	-0.064	**0.797**	-0.012

Note. The highest loading is marked in bold.