Pedagogue students' opinions on ideal teacher interaction

Based on Leary's interpersonal model (Interpersonal Circumplex), Wubbels elaborated the scheme of interpersonal behaviour that was completed by questionnaires (Questionnaire on Teacher Interaction (QTI)). Our research involved 336 students of four teacher training institutions of the Carpathian Basin. In our survey, we searched for the answer to the question of what opinions students held about the ideal interpersonal behaviour. The reliability of the Hungarian version of the QTI query proved to be similar to that of the English version. According to the students, the main characteristics of the ideal interpersonal behaviour are decisive, directive, helpful and understanding; it is less characterised by doubt and emotionality. In terms of imposing and compliant manner, opinions are rather divided. It is pre-school teachers and teachers of lower primary school classes who prefer cooperation with the children the most, while teachers of upper classes tend to emphasise the importance of directive behaviour.

Keywords: *teacher training, interpersonal behaviour, QTI query*

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1. Introduction

In terms of the successfulness of teaching and education, the teacher's activity, and within that his/her interpersonal behaviour and interaction skills and dispositions, is of decisive importance (Berliner and Calfee 2004; Brekelmans et al. 2002; den Brok et al. 2004). Several authors point to the importance of elaborating measuring tools by means of which the pupils become able to assess their teacher's interpersonal behaviour while the teacher can evaluate his/her own (Goh and Fraser 1998; Koul and Fisher 2005; Wubbels et al. 2006; Passini et al. 2015).

Interaction can be understood as a two-way, interpersonal communication that elicits cognitive and/or emotional impacts and is directed at influencing the parties' behaviour and actions (Amidon and Hough 1967; Dunkin and Biddle 1974; Mehan 1979).

In relation to classroom communication, we can basically distinguish between three trends: the behaviourist logical-empiric one with a quantitative approach, the intuitive interpretative one with a qualitative approach and the one based on personality theories.

The first trend strives to categorise speech events and determine their regularity, which manifests in coding the functions of social interaction and the analysis of classroom interactions (Erickson 2006; Flanders 1977).

The relation side of communication constitutes the intuitive and interpretative trend with a qualitative approach of classroom communication in which researches applying sociological and ethnographic approaches have evolved. The sociological trend examines specific speech–behaviour patterns, the ritual phenomena (Jordan and Henderson 1995; Erickson 2006). By examining the teacher/student roles, it has been proved that teacher–student interactions, and thus the relation formed by the teacher with the class, bear very importance for performing an optimal teacher role. Researches applying the ethnographic approach provided a quantitative analysis of the classroom dialogues (Greeno 2006; Jordan and Henderson 1995) and emphasised the primacy of learning as a social system (Erickson 2006).

Later, attention was directed not only to observation of interactions made during a certain lesson but to trying to explore the expressions of behaviour and personal characteristics that reflected the teacher's generalisable interaction shown in pedagogical situations. Of these personality theories, we must highlight the interpersonal teacher behaviour model (IPC-T) elaborated by Wubbels et al. (1985), which was created by adapting Leary's Interpersonal Circumplex (IPC) model (Leary 1957) in an educational context.

According to the establishment, in Timothy Leary's IPC model:

- the variables of interpersonal behaviour make a circular continuum (circumplex);
- its characteristics bear two dimensions: (1) control (direction), the end values of which are dominance and submissiveness, and (2) affiliation, the dipoles of which are love, agreeableness, friendliness and warmth and hate, feud and hostility;
- the characteristics of interpersonal behaviour are counter-pairs that mutually condition each other;

- its variables organise into behaviour patterns and form roles;
- it is also characterised by the measure of insistence to roles since the more a certain feature appears in a certain role, the more difficult it is to transform the given role and change the behaviour.

Leary described the interpersonal behaviour of personality (Interpersonal Check List, ICL) at five levels, and he elaborated a query for the first (public communication), the second (conscious communication) and the fifth (evaluation of the ego ideal): evaluation and characterisation by the peers and the professional taking part in the interaction; conscious self-evaluation; and diagnostic analysis in terms of the ego ideal or value order (Leary 1957; Leary and Harvey 1956).

ICL was used in pedagogical surveys, as well; for example, one researcher examined how interpersonal relationships affect learning outcomes (Martin 2014). During the promotion of career socialization in teacher training, it was confirmed that the ego-ideal evaluation of students strengthened where a consciously designed development program was applied (Balázsné Csuha 1993).

During the most recent years, several researches have dealt with examination of the teacher–student relation system (e.g. Telli et al. 2007; Wubbels 2014; Passini et al. 2015; Misic et al. 2021; Kanczné Nagy and Csehiová 2021). One of the most important findings of these was that good interpersonal relationships have a positive impact on learning both in and outside the classroom (Goh and Fraser 1998; den Brok et al. 2004).

To explore classroom communication, and within that the interpersonal relation system between the students and the teacher, Theo Wubbels et al. (1985) adapted the Leary theory and elaborated the model of the teacher's interpersonal behaviour (Teacher Interpersonal Circle, IPC-T), which is based on the circumplex model and has been modified several times since (Wubbels and Levy 1991; Wubbels and Brekelmans 1998; Wubbels 2014; Pennings and Mainhard 2016).

The original Wubbels' IPC-T model (Wubbels et al. 1985) wished to explore the quality of the relationship between the teacher and the students (closeness or proximity) on the horizontal axis and the person directing this relation on the vertical axis (impact or influence). Excessive values of relationship quality are (1) teacher cooperation (cooperation), (2) refusal to work together or teacher isolation (opposition), and (3) lack of cooperation. The poles of control of the relationship (influence) are teacher dominance and compliance or submission. The IPC-T model includes eight octants, each describing a certain prototype of teachers' interpersonal behaviour.

Leary's circumplex model was further developed by specifying the dimensions (Horowitz and Strack 2011): (1) communion or affiliation and (2) agency or control.

Communion refers to interpersonal proximity, joining, initiation of contacts, cooperation, inclusion and affiliation; it describes the level of emotional relatedness that the individual is able to transmit, the scale of which goes from isolation to keeping in contact with others. Thus, affiliation expresses the degree to which the teacher is able to create various forms of cooperation with the students.

Agency and control refer to interpersonal influence and restraint and show the level of one's endeavours to achieve superiority, domination and control; this scale

leads from yielding to autocratic power mania or influencing. So control reflects the degree to which the teacher is able to exert an impact on the class and influence the students with his/her will.

Each octant of the IPC is made of the weighted combination of these two dimensions. For example, the leading or directing behaviour prototype inherits dominance more strongly than cooperation, while it is just the other way round with the helpful behaviour prototype.

The developed version of the IPC was also reflected in the IPC-T model developed by Wubbels et al. (2012) and Brekelmans et al. (2011), so the eight behaviour prototypes were named like this (starting from the upper right quarter, clockwise):

- directing
- helpful
- understanding
- compliant
- uncertain
- dissatisfied
- confrontational
- imposing.

It is important to add that in terms of both the IPC and the IPC-T, corrections rather concern the naming and labelling of the two main dimensions and the eight prototypes and not the core of the Leary model serving as the base. As Wubbels put it in relation to his latest researches, the IPC-T model is apt to introduce the general behavioural attitudes by means of the interpersonal technical terms, so they can help students assess how a certain teacher behaves in class (Wubbels et al. 2012; Wubbels 2014; Mainhard 2015; Sun 2018).

Within the IPC-T model, the contiguous octants or behaviour prototypes have positive correlative relations, while the opposite ones have negative correlative relations, and the prototypes taking the positions 90° from each other have in principle no relationship (Wubbels et al. 1985). We must remark, though, that most of the research (Misbah et al. 2015; Passini et al. 2015) has proved this assertion only partially. Regarding certain interpersonal teacher behaviour prototypes, the situation is the same as with the IPC model. A moderately high level of agency or control can be attended by either strong or weak affiliation or proximity. In the previous case, one will see a helpful and friendly interpersonal teacher manner, while in the latter one we find confrontational or rebuking behaviour.

The original Questionnaire on Teacher Interaction (QTI) containing 77 items was elaborated in Dutch (Wubbels et al. 1985) in order to survey how students assess their teacher's classroom activity in terms of the two IPC-T dimensions, agency or control and communion or proximity. They also elaborated a query by which the teacher could evaluate his/her own interpersonal activity. This offered the opportunity to compare the way the class saw him/her and how the given teacher saw him/herself. In addition, a query measuring the teacher's ideal interpersonal behaviour was also elaborated.

The items of the QTI were ordered to the interpersonal teacher behaviour proto-types of the IPC-T model. The students were asked to evaluate each item on a five-grade Likert scale (Never … Always).

In the next step, the first English version of the query was made, which was, after checking its validity, reliability and usability, applied in the United States (Wubbels and Levy 1991; Wubbels and Levy 1993). The internal consistency of the measuring tool proved to be very similar to that of the Dutch version (Cronbach-alpha (Dutch)= 0.61–0.90; Cronbach-alpha (American)=0.75–0.88). The Dutch research involved 1105 students and 66 teachers, while the American one covered 1606 students and 66 teachers. The 48-item version was adopted first in Australia; this also provides the base for our study. In Australia, 489 students at the 11th and 12th grade and specialised in biology filled in the query, and reliability proved to be similar again (Cronbach-alpha (Australian)= 0.63–0.83) (Fisher et al. 1995).

A great advantage of the QTI is that it can be used for several purposes. It is apt to get the students' evaluation concerning a given teacher or the best teacher who teaches or has ever taught them. They can express their opinions about the inter-personal behaviour they think is ideal and the teacher can also evaluate his/her own relevant activity. This way, the researches will be able to compare these elements.

Examining 792 pupils and 46 teachers of mathematics and nature sciences in Australia, Wubbels et al. (1993) found that, according to the pupils' evaluation, teachers do not generally reach the scores of the ideal teacher, and also differ from the teacher thought to be the best. It is a remarkable finding that the best teachers are stronger directing personalities, are helpful and more understanding, and are at the same time less uncertain, dissatisfied and confrontational than teachers in general. When the concerned teachers were asked to evaluate their own interac-tion activities, they appraised themselves little better than the class, so they be-lieved they stood closer to the ideal picture than the pupils thought.

Another Dutch research (Wubbels et al. 1991) looked for interrelations between the learning performance and the QTI averages and found that the more strict, directing, helpful and friendly a teacher is, the better learning outcomes the pupils will produce. In opposition to this, the impacts of the types of interpersonal teach-er behaviour positioned below the horizontal axis are rather negative in terms of the learning performance. Regarding the proximity dimension, the more a teacher is cooperative, the better the affective performance and the students' sense of re-sponsibility and autonomy will be (Wubbels et al. 1991). The teacher's helpfulness and assertive leader behaviour have a positive impact on these attitudes of the pupils.

Levy, Créton and Wubbels (1993) compared the Dutch, Australian and Ameri-can data where the students were asked to compare the interpersonal behaviour of their best and worst teachers. The best teachers were strong directing individuals, helpful and understanding, while those assessed as worst were confrontational and dissatisfied.

In another research implemented in the Netherlands, eight types of interpersonal behaviour were identified by cluster analysis (Wubbels et al. 2006): (1) prescriptive,

demanding and directive, (2) authoritative, (3) tolerant – authoritative, (4) tolerant, (5) uncertain – tolerant, (6) uncertain – aggressive, (7) repressive, (8) "drudging". Pupils could take the biggest cognitive and affective advantage of the teacher behaviours (1) and (2), but the smallest one of (5) and (6).

In another Australian research, Fisher and Rickards (1998) used a 64-item QTI query, involving 3994 pupils and modifying, adding or deleting several items. The reliability of this measurement tool was similar to that of the previous ones (Passini et al. 2015). This version was translated into and used in several languages, e.g., French, Greek, Hebrew, Malay, Korean, Turkish, Italian and Indonesian (Passini et al. 2015). The reliability of these measuring tools varies on a wide scale (Cronbach-alpha: 0.57–0.93), the η^2, which indicates the explained variance between the certain groups (proportion of variance accounted for), was between 0.12 and 0.45 and proved, partially or totally, the circumplex structure.

The 48-item QTI query was applied in Singapore, Malaysia, Greece and China (Fisher et al. 1995; Passini et al. 2015; Sun et al. 2018). In their paper, Fisher et al. (1995) presented six case studies based on which they considered the 48-item QTI query to be valid and reliable. The measuring tool proved to be a valuable information source for the teachers in comparing their own self-evaluations with the students' opinions, which clearly served their professional development. The QTI also allowed the teachers of natural sciences who attended the research to compare themselves to the ideal interpersonal behaviour.

2. Goals, Questions, Methods and Samples

As presented above, Leary described his thoughts about the ego ideal as the fifth level of the interpersonal behaviour of personality, and he also developed a diagnostic query for this issue. This served as the base for Wubbels et al. (1991) when elaborating a measurement tool that aimed to explore the ideal teacher interaction or interpersonal behaviour. After Wubbels (2014) three measurement tools were developed by Fisher et al. (1995): the first one for pupils to evaluate a given teacher, a second one for the self-evaluation of the given teacher and a third to describe the interpersonal behaviour considered ideal by the given teacher.

We used the third one and asked pedagogue students what they thought about the teacher's ideal interpersonal behaviour.

We applied the Hungarian translation of the 48-item QTI query introduced by Fisher et al. (1995) in an online version. The original query uses a 0 ... 4 scale and then transforms it into a 1 ... 5 scale. We did the same.

The English query was translated by two experts from English to Hungarian, and then back. The Hungarian version was checked and tried in a pilot survey, and then the phraseology was refined.

This research involved 336 students of four Hungarian-speaking teacher training institutions of four countries (Slovakia, Ukraine, Romania and Serbia) (Table 1).

Institution	Pre-school teacher	Teacher in lower classes	Teacher in upper classes	Pre-school teacher and teacher in lower classes	Total
J. Selye University, Komárno, Slovakia (JSU)	130	0	67	0	197
Ferenc Rakoczi II Transcarpathian Hungarian College of Hungarian Education, Berezhany, Ukraine (FRTHC)	6	12	41	0	59
Partium Christian University, Oradea, Romania (PCU)	0	0	20	17	37
University of Novi Sad, Hungarian Language Teacher Training Faculty, Subotica, Serbia (UNS HLTTF)	10	33	0	0	43
Total	146	45	128	17	**336**

Table 1. Students involved in the research (own editing)

The students' demographical data were as follows:
- Grade: 1. 69.6%; 2. 26.8%; 3. 3.6%
- Training: full time – 84.5%; correspondence – 15.5%
- Sex: female – 82.4%; male – 17.6%
- Place of residence: village/small settlement – 61.6%; small town – 32.1%; city – 6.3%
- Country of secondary school leaving exam: Hungary – 21.7%; Slovakia – 37.8%; Romania – 10.4%; Ukraine – 17.6%; Serbia – 12.5%
- Language of secondary school: Hungarian – 89.0%; Slovak – 3.0%; Ukrainian – 2.7%; Serb – 0.3%; bilingual, one of them Hungarian – 5.1%
- Type of secondary school: technical school – 51.8%; grammar school – 48.2%
- Own child: none – 88.4%; 1–2 children – 10.8%; 3 or more – 0.9%
- High grade degree: none – 96.4%; BA – 1.8%; MA – 1.8%
- Place of residence during studies: home – 46.7%; sublet – 7.7%; hostel – 44.6%; with relatives or friends – 0.9%
- Distance between residence and the university: 0–10 km – 17.0%; 11–100 km – 64.9%; 101–200 km – 7.1%; 201–300 km – 6.8%; 301+ km – 4.2%.

During the research, we searched for answers to the following questions:
- What opinions do Hungarian-speaking pedagogue students of the Carpathian Basin have about the ideal teacher interaction?

- Are there any significant differences between the certain QTI variables in terms of the three examined background variables (specialisation, university and country of secondary school leaving exam)?

3. Results

In the 48-item query, each of the eight octants includes six items that are mixed up in the query. The subject does not know which item belongs to which prototype of interpersonal teacher behaviour. The average values of the variables are between 1 and 5; 1 means that the given characteristic is not part of the ideal interpersonal behaviour, while 5 means that it is a strong attribute. Table 2 presents the reliability values of the certain octants in terms of the whole and some partial samples.

There are three factors that exert considerable influence on reliability: the homogeneity of the measured population, the number of the items and their scale. In our case, the population was made of students attending Hungarian-speaking teacher training in the Carpathian Basin, most of them in the first grade.

We presented the Cronbach-alpha reliability indicators in Table 2 and Figure 1, and we introduced the results in relation to some sub-samples. We can state that the Hungarian version of the QTI 48-item query can reliably investigate the opinions of the students attending teacher training in the Carpathian Basin about ideal interaction.

Prototypes of interpersonal teacher behaviour	Whole sample	Specialisation*	University**	Type of secondary school***
Directing (DC)	0.711	0.722/0.709/0.682	0.717/0.696/0.666/0.679	0.721/0.704
Helpful (CD)	0.757	0.784/0.669/0.754	0.805/0.628/0.659/0.635	0.768/0.737
Understanding (CS)	0.736	0.708/0.723/0.759	0.752/0.609/0.702/0.752	0.732/0.742
Compliant (SC)	0.676	0.702/0.615/0.661	0.686/0.654/0.651/0.682	0.644/0.706
Uncertain (SO)	0.768	0.806/0.691/0.752	0.793/0.652/0.791/0.689	0.804/0.679
Dissatisfied (OS)	0.756	0.741/0.759/0.766	0.746/0.738/0.743/0.778	0.770/0.733
Confrontational (OD)	0.688	0.711/0.652/0.718	0.703/0.608/0.605/0.758	0.740/0.675
Imposing (DO)	0.804	0.817/0.741/0.786	0.823/0.849/0.708/0.747	0.794/0.813

*pre-school teacher/teacher of lower classes/teacher of upper classes; ** JSU/PCU/ UNS HLTTF/ FRTHC; *** vocational secondary school/grammar school

Table 2. The Cronbach-alpha values of the QTI octants (own editing)

Table 3 presents the descriptive statistical indicators of the whole sample in terms of the types of interpersonal teacher behaviour. According to these data, the teacher students of the Carpathian Basin think that a teacher's ideal interaction is characterised by high values of being directing, helpful and understanding and low values of being uncertain, dissatisfied and confrontational. It was only the imposing (DO) and the compliance (SC) dimensions in which we found differing opinions concerning the ideal interpersonal conduct (at the same time, in these two cases deviation values were the highest). It is not by chance that we can see normal distribution only at these two variables.

	DC	CD	CS	SC	SO	OS	OD	DO
Mean	4.50	4.46	4.45	2.77	1.36	1.62	1.59	2.76
Standard deviation	0.414	0.445	0.439	0.553	0.499	0.524	0.483	0.663
95% Conf. int. low	4.45	4.42	4.40	2.71	1.30	1.57	1.54	2.69
95% Conf. int. upper	4.54	4.51	4.49	2.83	1.41	1.68	1.64	2.83
Normal distribution	-	-	-	+	-	-	-	+

Table 3. The descriptive statistical indicators of the QTI variables (own editing)
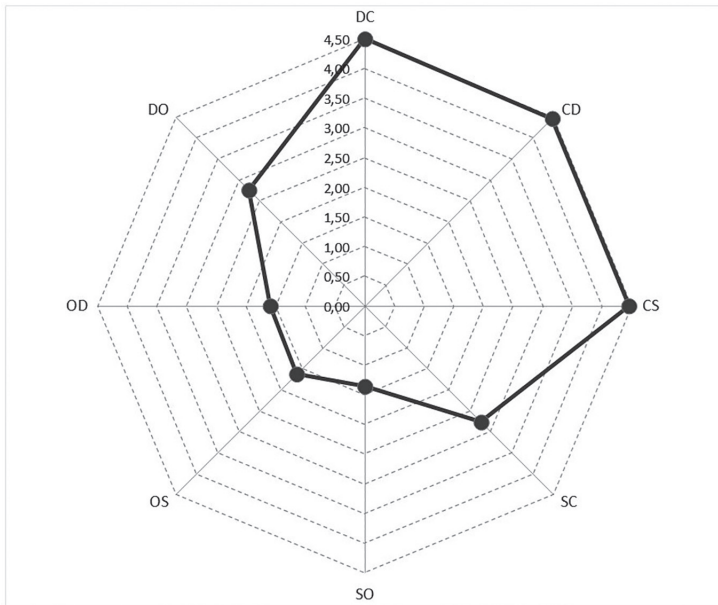

Figure 1. QTI variables in the circumplex diagram (own editing)

We examined the QTI variables in terms of the following background variables, as well: grade, specialisation, institution, country of secondary school leaving exam. Table 4 presents the averages and deviation of the sub-samples by the background variables. To compare the averages, we used the Mann-Whitney and the Kruskal-Wallis methods concerning variables DC, SO, CS, OD, CD and OS, while we used the ANOVA test with variables DC and SC.

	DC	CD	CS	SC	SO	OS	OD	DO
I. grade M (234 pers.)	4.5100	4.5100	4.4537	2.7849	1.3440	1.6660	1.6261	2.7892
I. grade SD	0.4247	0.4385	0.4361	0.5724	0.5165	0.5253	0.4746	0.7059
II. grade M (90 pers.)	4.4389	4.3556	4.4037	2.7593	1.4130	1.5426	1.5444	2.7204
II. grade SD	0.3930	0.4464	0.4504	0.5004	0.4662	0.5105	0.5088	0.5619
pre-school teacher M (145 pers.)	4.5149	4.5379	4.5057	2.8540	1.3644	1.6437	1.6241	2.6368
pre-school teacher SD	0.4148	0.4478	0.4046	0.5951	0.5401	0.5136	0.4894	0.6868
Teacher of lower classes M (45 pers.)	4.6000	4.3741	4.5407	2.6037	1.2667	1.4852	1.4481	2.6963
Teacher of lower classes SD	0.3850	0.3943	0.3813	0.4902	0.4225	0.4934	0.3673	0.5885
Teacher of upper classes M (128)	4.4258	4.3919	4.3372	2.7135	1.3893	1.6758	1.6185	2.9245
Teacher of upper classes SD	0.4203	0.4618	0.4894	0.5291	0.4977	0.5503	0.5221	0.6367
JSU M (197 pers.)	4.4941	4.4839	4.4349	2.7978	1.3680	1.7267	1.6489	2.7673
JSU SD	0.4254	0.4740	0.4575	0.5777	0.5309	0.5486	0.4998	0.6908
PCU M (20 pers.)	4.4083	4.5250	4.3917	3.0417	1.3667	1.5167	1.7500	3.0250
PCU SD	0.3646	0.3678	0.2875	0.3780	0.4379	0.4521	0.4423	0.7380
UNS HLTTF M (43 pers.)	4.6589	4.4690	4.6163	2.6434	1.2481	1.4264	1.3953	2.6550
UNS HLTTF SD	0.3272	0.3921	0.3343	0.5462	0.4761	0.4532	0.3655	0.5755

FRTHC M	4.3851	4.3276	4.3592	2.6322	1.4167	1.5144	1.5172	2.7270
FRTHC SD	0.4272	0.4257	0.4915	0.5249	0.4717	0.4634	0.5089	0.6035
School leaving exam HU* M (73 pers.)	4.4703	4.5320	4.4292	2.8858	1.3516	1.6804	1.6233	2.7603
School leaving exam HU SD	0.4601	0.4695	0.4730	0.6148	0.5035	0.5547	0.4623	0.6431
School leaving exam SK* M (127 pers.)	4.5066	4.4554	4.4357	2.7533	1.3819	1.7493	1.6732	2.7612
School leaving exam SK SD	0.4068	0.4763	0.4528	0.5487	0.5492	0.5467	0.5276	0.7147
School leaving exam RO* M (35 pers.)	4.5286	4.5810	4.4571	2.9571	1.3143	1.4762	1.6190	2.9333
School leaving exam RO SD	0.3604	0.3088	0.2781	0.3821	0.3722	0.4281	0.4094	0.7050
School leaving exam UA* M (59 pers.)	4.3814	4.3192	4.3503	2.6412	1.4237	1.5254	1.5254	2.7260
School leaving exam UA SD	0.4244	0.4269	0.4919	0.5251	0.4707	0.4671	0.5084	0.5983
School leaving exam SRB* M (42 pers.)	4.6627	4.4841	4.6389	2.6349	1.2222	1.4048	1.3611	2.6627
School leaving exam SRB SD	0.3303	0.3840	0.3034	0.5499	0.4503	0.4358	0.2920	0.5803

* HU: Hungary, SK: Slovakia, RO: Romania, UA: Ukraine, SRB: Serbia.

Table 4. The descriptive statistical indicators of the QTI variables by some background variables (own editing)

We found significant differences in terms of the grade concerning variables CD (Mann-Whitney U=9039.500; p=0.004), SO (Mann-Whitney U=8912.000; p=0.041), OS (Mann-Whitney U=8912.000; p=0.031) and OD (Mann-Whitney U=8909.500; p=0.029).

Comparing the two, first-grade students tend to think that it is rather the directing, helpful, dissatisfied and confrontational features that should be more stressed about teacher interaction, while according to the students in the second grade it is uncertain manner.

The research involved students from three different pedagogy specialisations: pre-school teacher, teacher of lower classes and teacher of upper classes. Except for dissatisfaction and uncertainty, we found significant differences concerning each variable: DC (χ^2=8.193; p=0.017), CD (χ^2=10.104; p=0.006), CS (χ^2=10.283; p=0.006), SC (Levene stat.=0.699; p=0.498; F=4.307; p=0.014), OD (χ^2=6.694; p=0.035), DO (Levene stat.=0.738; p=0.479; F=6.838; p=0.001).

	DC	CD	CS	SC	SO	OS	OD	DO
Pre-school teacher		***		***			***	*
Teacher in lower classes	***	*	***	*	*	*	*	
Teacher in upper classes	*		*		***	***	***	***

*: lowest average, ***: highest average in terms of the three specialisations.

Table 5. The biggest and smallest averages of the QTI octants by specialization (own editing)

Pre-school teachers thought that the ideal teacher interaction would include being helpful, compliant and confrontational the most and being imposing the least. Teachers of lower classes emphasised being directing and understanding as characteristics of the ideal teacher interaction more than their peers, and they thought that compliance and confrontation belonged here the least. The teachers of upper classes had the most definite opinion concerning imposing manner, while they were the least resolute in terms of the rest of the characteristics. Table 5 summarises the data presented above. It can be stated that several of the upper-class teacher students think that the attributes of the ideal teacher include denial of cooperation in the proximity dimension. Pre-school and lower-class teachers prefer cooperation with the pupils much more. Thus, it is not by chance that the upper classes of the Hungarian bilingual primary schools in the Carpathian Basin are dominated by teacher-focused working methods.

Our third background variable was the institution. Concerning this aspect, except for the evaluation of the imposing manner, we found significant differences in terms of each QTI variable: DC (χ^2=12.100; p=0.007), CD (χ^2=10.195; p=0.017), CS (χ^2=8.935; p=0.030), SC (Levene stat.=1.546; p=0.203; F=3.579; p=0.014), SO (χ^2=10.471; p=0.015), OS (χ^2=20.894; p=0.000), OD (χ^2=20.120; p=0.000).

	DC	CD	CS	SC	SO	OS	OD	DO
JSU						***		
PCU		***		***			***	***
UNS HLTTF	***		***		*	*	*	*
FRTHC	*	*	*	*	***			

*: lowest average, ***: highest average in terms of the three specialisations.
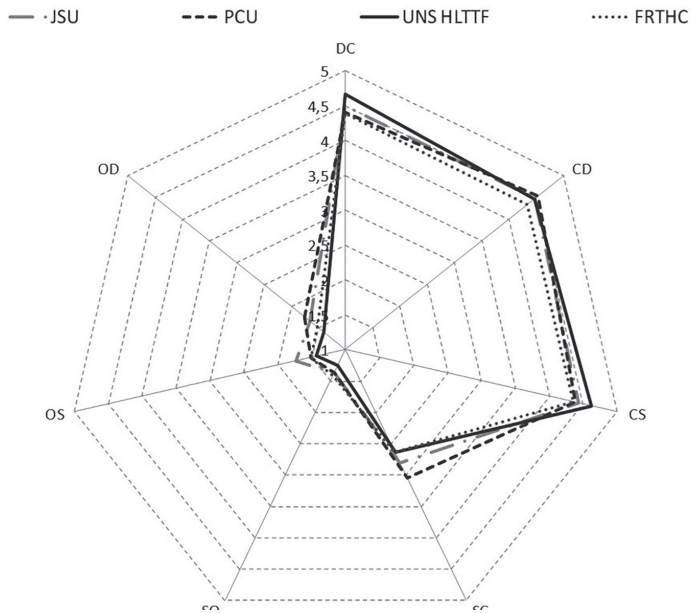
Table 6. The highest and lowest averages of the QTI octants by institutions
(own editing)

Figure 2. Significant differences in the QTI variables by institutions (own editing)

The students of the Ferenc Rakoczi II Transcarpathian Hungarian College of Hungarian Education (UA) thought that cooperation with the pupils was part of the ideal teacher interaction less than the students of the other universities in the Carpathian Basin; however, the students of Subotica (SRB) took the opposite standpoint. It was the students in Komárno (SK) who most considered dissatisfaction to be an attribute of teacher interaction. The opinions of the students at the Partium Christian University (RO) were rather contradictory. They produced the highest averages concerning two opposing attributes: having a compliant but imposing manner. Besides these, they thought that helpful and confrontational behaviours belonged to the ideal teacher interaction style more than the students of the other universities (Table 6, Figure 2).

We examined the Transylvanian students (RO) in the imposing–compliant dimension more thoroughly, using cluster analysis. We found three clusters the basis

of which proved to be strictness (Figure 3): rather compliant (+), rather imposing, medium imposing (•) – averagely or below averagely compliant (▾).
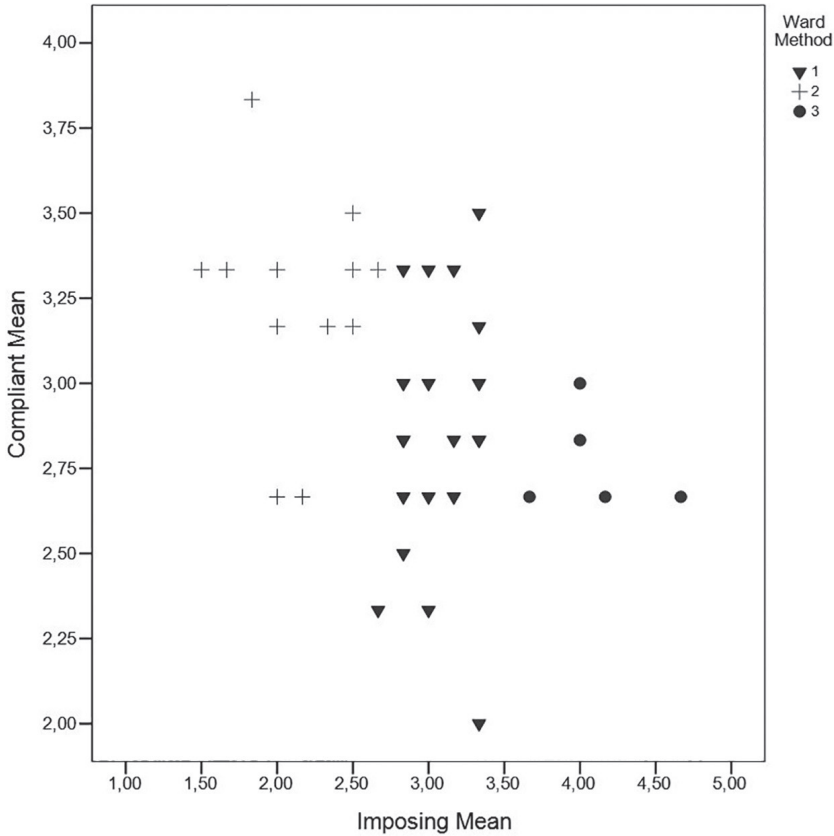

Figure 3. Student groups of the PCU in the Imposing – Compliant dimension
(own editing)

The reason for the high polarity is, as indicated by Figure 3, that some students strongly prefer an imposing manner as part of the ideal teacher behaviour, while others choose a compliant one.

The opinions of the students in Subotica were polarised in another way (Figure 4): neither imposing nor compliant (•), rather imposing (♦) and rather compliant (+). As compared to the previous one, the clusters shifted to the less imposing direction.

As for the Transylvanian students, the cluster centres appeared like this (DO; SC) (hierarchic method):
- rather compliant (+): 2.1389; 3.2361
- rather imposing (•): 4.100; 2.7667
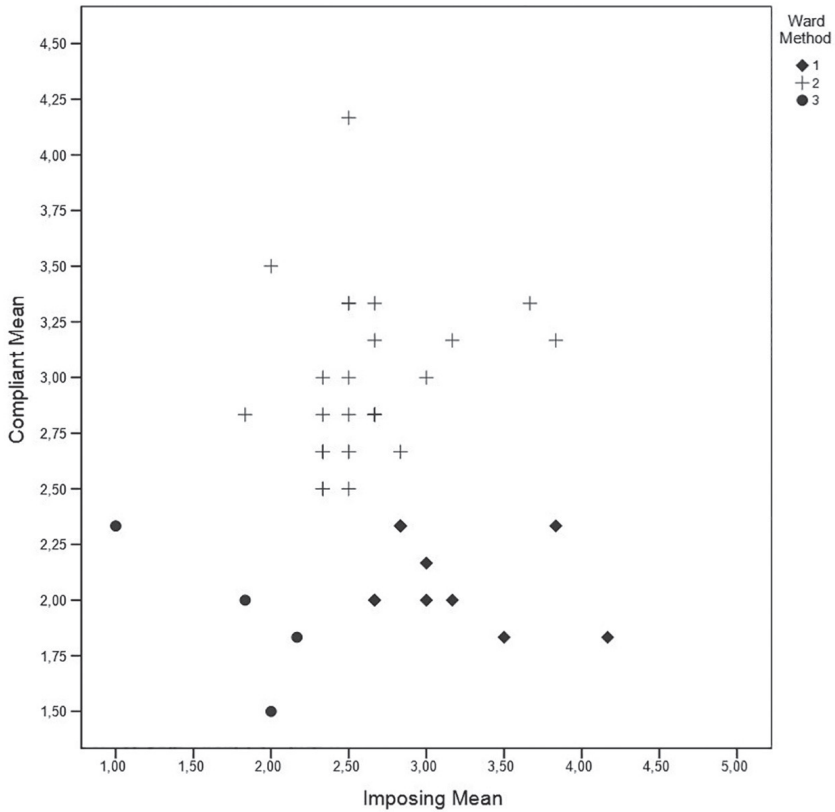- medium imposing – averagely or below averagely compliant (♦): 3.0583; 2.8500.

Figure 4. Groups of the UNS HLTTF students in the Imposing – Compliant dimension
(own editing)

The groups differ from each other in terms of both the DO (F=5.712; p=0.007) and the SC (83.484; p=0.000) variables. The clusters isolated by the Ward method account for 83.1% of the DO and 25.1% of the SC variables.

	Rather compliant (12 pers.)	Rather imposing (5 pers.)	Medium imposing – averagely or below averagely compliant (20 pers.)
Rather compliant (12 pers.)		2.02	0.99
Rather imposing (5 pers.)	2.02		1.04
Medium imposing – averagely or below averagely compliant (20 pers.)	0.99	1.04	

Table 7. Distance between the clusters on the DO–SC axis for PCU students (own editing)

We also made the reliability and validity test of the cluster analysis for which we used the K-means algorithm. The cluster centres agreed with those described above. Table 7 presents the distance between the clusters.

As for the students in Subotica (Serbia), the cluster centres were as follows (DO; SC) (hierarchic method):
- rather imposing (♦): 3.1364; 2.0161
- rather compliant (+): 2.5952; 2.9583
- neither imposing nor compliant (•): 1.7500; 1.9167.

The groups differ from each other significantly in terms of both the DO (F=14.838; p=0.000) and the SC (F=36.116; p=0.000) variables. The clusters isolated by the Ward method account for 42.6% of the DO variable and 64.6% of the SC one.

We also made a reliability and validity test of the cluster analysis, for which we used the K-means algorithm. However, the cluster centroids differ from those gained with the hierarchic method:
- rather imposing (♦): 3.19; 2.19 (minor difference)
- rather compliant (+): 2.64; 3.07 (minor difference)
- neither strict nor compliant (•): 2.09; 2.36 (bigger difference).

Table 8 presents the distance of the clusters.

	Rather imposing (12 pers.)	Rather compliant (20 pers.)	Neither imposing nor compliant (11 pers.)
Rather imposing (12 pers.)		1.03	1.12
Rather compliant (20 pers.)	1.03		0.89
Neither imposing nor compliant (11 pers.)	1,12	0.89	

Table 8. Distance between the clusters on the DO–SC axis in the case of the UNS HLTTF students (own editing)

The teacher students of Hungarian nationality in the four countries involved in the research had significantly differing opinions about how much helpful (CD), compliant (SC) and dissatisfied (OS) behaviour was part of the ideal teacher inter-action (CD: χ^2=10.800; p=0.013; SC: Levene stat.=1.127; p=0.343; F=3.348; p=0.010; OS: χ^2=11.572; p=0.009). It was the students in Oradea (Romania) who thought most strongly that helpfulness and compliance belong to the ideal teacher interaction; the students in Berezany (Ukraine) (as for the CD) and those in Subotica (Serbia) (as for the SC) were less of this opinion. Concerning dissatisfaction, it was the SK (Slovakia) who thought that this attitude was part of the teacher interaction, while those in Serbia kept this the least true.

The variables imposing and compliant were categorised. After they were formed into three categories (min. – M-0.5*SD; M-0.5*SD – M+0.5*SD; M+0.5*SD – max.), it can be stated that the two variables interrelate significantly (χ^2=9.822; p=0.044).

The cross-tabulation analysis revealed the connection system of these two variables. Disregarding the fact that almost 13% of the students (43 persons) took contradictory standpoints on this issue (both strict and compliant or neither strict nor compliant), nearly 10% (33 persons) voted definitely for compliant and approximately the same number (35 people) chose imposing, while the two variables are in an opposing relation (teacher interaction cannot be compliant and imposing at the same time) (Table 5). About 20% of the students (71 persons) voted for average imposingness and compliance. Consequently, there were only 20% (68 people) whose standpoint was polarised on the dichotomous imposing–compliant scale (Figure 5).
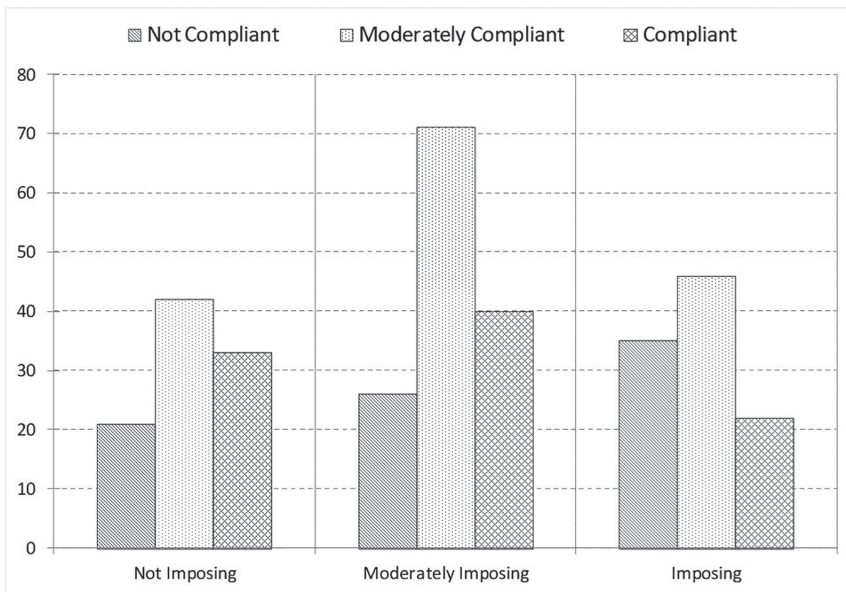

Figure 5. Mutual judgement of imposingness and compliance (own editing)

4. Conclusions

In the first section of our paper, we gave an overview of the theoretical background of teacher interaction, focusing on Wubbel's theory and the international results of the QTI measuring tool.

Relying on the query published by Darrell Fisher, Barry Fraser and John Creswell (1995), we adapted the 48-item version of the QTI to Hungarian.

In this paper, we presented the outcomes of our research conducted with the involvement of students taking part in Hungarian-speaking teacher training in the Carpathian Basin (336 persons).

We have formed the following responses to the questions put at the beginning of our survey:

- According to students of Hungarian-speaking teacher training in the Carpathian Basin, the most important features of the ideal interpersonal behaviour

are firmness of directing manner, helpfulness and understanding. According to them, confrontational and, primarily, uncertain and dissatisfied characteristics do not belong to this interaction. In terms of these variables, the students' opinions were very polarised.

- We found significant differences in relation to some of the QTI variables in terms of each of the background variables (grade, specialisation, institution, country).

First-grade students tend more to think that being directing, helpful, dissatisfied and confrontational have bigger weight in teacher interaction, while according to those in the second grade it is uncertainty that is more important.

Pre-school teachers and teachers of lower classes prefer cooperation with the pupils more than teachers of upper classes. This last group had the most definite opinions on whether a teacher should have an imposing manner and the least definite ones about the rest of the characteristics.

The universities involved in the research formed significantly differing opinions about each of the variables, except for being imposing.

It is the students in Ukraine who least thought that the ideal teacher interaction included cooperation with the students, while those in Serbia had the most opposing idea on this issue.

The students of the Partium Christian University took rather contradictory standpoints concerning two opposing attributes: compliant and imposing; they produced the highest average in terms of both variables. They also gave bigger emphasis to helpful and confrontational behaviour as part of the ideal teacher interaction than the students of other universities.

In terms of the country of the secondary school leaving exam, we detected significant differences in terms of helpfulness, compliance and dissatisfaction.

The students having taken their exams in Transylvania (Romania) thought most strongly that helpful and compliant behaviour belonged to the ideal teacher interaction, while in terms of helpfulness it was those in Ukraine who thought this the least and the ones in Serbia in terms of compliance. Concerning dissatisfaction, the students in Slovakia thought that this attitude belonged to the teacher interaction, while those in Serbia agreed less with this.

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