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### Abstract

This cross-sectional research focused on social problem-solving (SPS) among Hungarian 10-, 14-, and 16-year-olds (N=459) in connection with people who considerably affect one's SPS as a field within social behaviour (mothers, fathers, teachers, peers). We used the Social Problem Solving Inventory–Revised (SPSI–R; D’Zurilla, Nezu, & Maydeu-Olivares, 2002; factors: PPO=Positive Problem Orientation; NPO=Negative Problem Orientation; RPS=Rational Problem Solving; I=Impulsivity; A=Avoidance) as a measurement. The content of the original questionnaire has not been changed; the only applied modification regards the instruction of being person-based upon filling in the questionnaire. Based on the results, mothers’ and children’s opinion is quite similar in all age groups. Fathers believe that RPS and PPO are more typical contrary to their children’s standpoint (only among 16-year-olds). The teachers see less and less difference between pupils in terms of their SPS as they spend more and more years together. In light of the collected data, person-based SPS differs mainly in terms of NPO and A.

## **Introduction**

Several theoretical models have been drawn up with the aim of describing the reconciliation of person-based problems. According to Chang, D’Zurilla and Sanna (2004), social problem-solving (SPS) can be viewed as a special field within general problem-solving in which interpersonal problems are being solved in light of individual and situational information, based on the lack there and, to a larger extent, on personal regulation. The latter is a conscious, rational, effortful activity that, due to unforeseen events, may be supplemented by spontaneous processes which, entirely refer to the sensible, controlled, impulsive and automated cognitive procedures and the links between them.

The role of the conscious and unconscious mental processes and their influence on one another is very important: earlier experiences and social patterns highly impact the practical solution, its success and effectiveness of the solution for the given situation and problem (e.g. Frauenknecht & Black, 2009). Strough and Keener (2013) highlight the importance of the environmental factors (situation, person) with regard to the procedure of SPS. According to them, it is a crucial point in the analysis how an individual’s SPS specialises in a given context and in connection with other people; in other words, what similarities and differences can be revealed in terms of their SPS along the lines of these characteristics.

The model developed by D’Zurilla, Nezu and Maydeu-Olivares (2004) provides the theoretical foundation of the measurement instrument applied in this study. SPS is a “[...] self-directed cognitive-behavioural process by which an individual, couple, or group attempts to identify or discover effective solutions for specific problems encountered in everyday living.” (D’Zurilla et al., 2004. 12.). According to Maydeu-Olivares and D’Zurilla (1996), SPS has five different factors:

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positive problem orientation, negative problem orientation, rational problem solving, impulsivity/carelessness, and avoidance. The Social Problem Solving Inventory–Revised (SPSI–R, D’Zurilla et al., 2002) is one of the most widely accepted instruments in SPS assessment, measures these five factors.

International cross-sectional studies (e.g. D’Zurilla et al., 2002; Graf, 2003; Maydeu-Olivares, Rodríguez-Fornells, Gómez-Benito, & D’Zurilla, 2000) suggest that in puberty positive orientation decreasing, while negative orientation shows growing tendency, as well as rationality and avoidance. It is also revealed, that high level of impulsivity characterizes the younger students, which level seems to be almost permanent during puberty. Based on the analysis, girls are more often characterized by impulsivity, while in the case of boys rationality is more frequent from mid-puberty.

International longitudinal studies involving adult participants suggest that negative problem orientation predicts future anxiety, depression, and stress (Ciarrochi & Scott, 2006). This pattern is also seen in adolescence: adolescents characterised dominantly by positive problem orientation were shown to exhibit positive emotions and empathy more frequently (Ciarrochi et al., 2009). Positive problem orientation also seems to be related to better family quality of life (e.g. through fewer parent-adolescent conflicts). This latter effect, in turn, has a positive influence on relationships with peers and on SPS at school. Rational problem solving improves the social behaviour of both children and adults, but this is still a matter of debate (D’Zurilla & Nezu, 1990). The findings of Shure (1999) seem to bear out this proposition while there is also evidence to suggest the opposite: in a study by Cooper (2011), early adolescents were found to exhibit rational problem solving and a high level of aggression at the same time. According to Takahashi, Koseki and Shimada’s

research (2009), those adolescents who list less adequate modes of solution with regard to a problem situation tend to solve their conflicts more aggressively. An earlier study (Messer, 1976) also confirms that more impulsive children are worse problem-solvers if the means is not instantly apparent in a given situation.

Based on Hungarian cross-sectional and longitudinal studies (Kasik, 2014, 2015), which are mostly in accordance with other national research data, positive orientation decreases while negative orientation increases in adolescence and, furthermore, rationality and avoidance become more representative. In addition to this, impulsivity becomes more characteristic of children at this age and the degree of this stays steady during the whole of puberty. Girls' and boys' SPS starts to show increasing levels of discrepancy from mid-adolescence; for example, rationality becomes more typical among boys, and impulsivity becomes more characteristic of girls.

The age- and gender-related characteristics and the changes in the style of SPS are influenced by several individual, environmental and cultural factors. According to international studies (e.g. Chang et al., 2004; Grusec & Davidov, 2007), numerous biological and psychosocial changes take place during adolescence which may deepen SPS. The age- and gender-specific functioning and alteration of SPS are, on the one hand, defined by the cognitive, emotional and social features of one's personality and, on the other hand, by environmental variables, and by the interaction between them (e.g. Rich & Bonner, 2004). The most studied mediator variables are the genetic aptitudes, the five supertraits; namely, anxiety, emotions, optimism-pessimism and perfectionism. There is no obvious evidence that can prove that SPS is genetically determined. According to some international results, emotion regulation, empathy and some cognitive ability (e.g. inductive reasoning) have an important effect on the

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development of SPS (e.g. Chang et al., 2004). In our Hungarian studies (e.g. Kasik, 2009, 2015) the correlation between personal distress and impulsivity was stronger among girls than boys, and the relationship between rationality and inductive reasoning was stronger among boys than girls. In the case of correlation between empathy and SPS, similar results were also reported by Siu and Shek (2005).

Moderator variables include environmental influences and many components of the impact system can be separated. The most influential among these components are family background, parents' and other adults' (e.g. teachers') SPS, their opinion of the child's SPS and peers' patterns as represented in a given problem situation (Pakaslahti, Karjalainen, & Keltikangas-Järvinen, 2002). All social activities are profoundly influenced by the structure of one's family, the quality of communication, emotions and hierarchical relations between its members (Conger & Dogan, 2007). The research conducted by Pakaslathi et al. (2002) as well as Keltikangas-Järvinen (2005) has proved that SPS in childhood and adolescence are most influenced by communication between one's family members and parents' SPS. Communication specified by the attachment style, the emotional relationship and the mother's SPS play a crucial role as a very important model in this phenomenon (Rich & Bonner, 2004).

Although mothers and fathers provide different patterns, they impact their children's adult relationships and their ways of handling problem situations both respectively and in a combined way; therefore, the degree of similarity between their patterns is also significant (e.g. Markulin, 2009). Different SPS styles may be traced back to inherited and learnt reasons, such as gender and role. Negative problem orientation is more typical of adult women while rational problem solving is more representative among men (D'Zurilla & Nezu, 1998). While men prefer problem-

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focused, women favour emotion-focused problem solving (Ptacek, Smith, & Dodge, 1994). We identified the same gender difference in our longitudinal study among adolescent (12- and 14-year-old) girls and boys. In all years of data collection, rationality and positive problem orientation were typical among boys, whereas negative problem orientation and impulsivity were representative among girls (Kasik, 2014).

Children's SPS is also defined by how parents and teachers see and reflect on children's behaviour and cognition. Their reactions (which also serve as patterns in the child's social learning) and expressed expectations also influence them in dealing with their social problems. Mothers' and fathers' education, which impacts their practice of upbringing and their goals, informs the measured SPS factors varyingly. Mothers tend to define negative orientation, impulsivity and avoidance, while fathers influence positive orientation and rationality (Kasik, 2014).

Webster-Stratton (1988) argues that parents' and teachers' reactions to the child's way of overcoming social problems are largely dependent on his/her age and gender. In light of their cultural background, they formulate expectations regarding how a boy and a girl should solve a problem at a given age; for example, whether a boy can cry or can be aggressive, and whether or not he can apply this to them as well. Kim and Rohner (2003) claim that both parents' and their children's gender influences the evaluation of SPS; mothers tend to put their daughters, and fathers tend to put their sons into a more positive light. In line with Spivack, Platt and Shure's study (1976), the connection between mothers' and fathers' sensibility and orientation towards a problem and the seeking of alternative solutions is stronger with their daughters and sons, respectively, as compared to mothers with their sons and fathers with their daughters. Fathers usually insist more on social expectations regarding

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gender roles; however, this also depends on one's culture, for example the differences between western and eastern societies are substantial (Goldstein, 2001; Chang, 2011).

It has also been proven that teachers' work determines the development of SPS. The efficiency of their work depends on what information they have about the child's personality, family, what expectations and pedagogical aims have they drafted and how they carry them out (e.g. Bredekamp & Copple, 1997). Children's age and gender determine teachers' beliefs as well (Webster-Stratton 1988). Their information about the child's family and to what extent they agree with parents' educational style fundamentally determines their expectations and disapproval or approval of their problem solving. For instance, the higher the parent's educational qualification is, the more the teachers expect their child to abide rules and to present efficient SPS (Webster-Stratton & Lindsay, 1999). Hastings and Coplan (1999) have observed that teachers' evaluation was less strict in the case of those children who have shown behavioural problems and whose mothers' educational methods they have approved of as compared to the opposite.

The Hungarian education system is very selective (Csapó, Molnár, & Kinyó, 2008). It is widely known that students of different social backgrounds attend different secondary schools (grammar school, technical college and vocational school) in Hungary; vocational programmes are mostly attended by learners of varying disadvantages (Vári, 2003). Based on the Hungarian research of SPS (Kasik, 2014), in terms of school-type differences, the most apparent is that grammar school students show more rationality while vocational students display more avoidance. The latter group of students also exhibit other mutual features with the former.

### **Research problem, aims and hypotheses**

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The results of international research are various, and most of these studies describe individuals' general SPS and do not account for the variations of the person- or factor-based characteristics of SPS. Both in Hungarian and other international studies many of the characteristics of the SPS has been revealed by using SPSI-R (positive problem orientation and negative problem orientation; rationality, impulsivity, and avoidance). While completing this questionnaire, children may think of more than one person (in accordance with the instructions of the questionnaire), so we do not know actually whose process of SPS is reflected in the answers. Before developing a school improvement program, it is advisable in any cases to uncover the characteristics of person-based SPS (based on the problems associated with a particular person).

The presented 2012 research focused on the characteristics of SPS among 10-year-olds in pre-puberty, and 14- and 16-year-old adolescents in connection with the people who considerably affect one's problem solving as a field within social behaviour, i.e. mothers, fathers, form teachers and peers. We know relatively little about 10-year-old students SPS, because of they were part of the sample.

Apart from the children's self-evaluation, mothers, fathers and teachers have also assessed students' SPS in the study. Participants (both children and adults) were asked to evaluate their SPS by taking into consideration their problems and their solutions with the given person.

It has been examined whether there are any age- and school type-related discrepancies in relation to SPS with parents and teachers with regard to children's and adults' perception of it, and whether adults' and children's opinion differs at a certain age in addition to aiming to point out any significant variations between mother-son and mother-daughter, father-son and father-daughter, teacher-boy and



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teacher-girl evaluations. A comparison of peer-related SPS could not be carried out due to the lack of fellow students' evaluation.

Based on international research carried out with students of the same age and previous cross-sectional and longitudinal studies, it could have been hypothesised that the older a child is, the more similarities he/she exhibits with parents' and teachers' evaluations; however, this is different in every factor and cannot be generalised to all. It has also been proposed that both the adult's and the child's gender plays an important role in the assessment of SPS: as compared to students' own self-evaluation parents display a tendency of overrating while teachers tend to underrate them. Yet, fathers assess their sons and mothers assess their daughters more positively. In addition to this, it has been theorised that opinions vary among vocational school, technical college and grammar school students in terms of every evaluators, especially in the case of teachers: the first group is evaluated more negatively compared to the other two.

## **The present study**

### **Sample**

10-, 14- and 16-year-olds have taken part in the study (N=459 – 10: 150, 14: 149, 16: 160 – 10: M=10.11 SD=.56; 14: M=14.23 SD=.24; 16: M=16.32 SD=.45) in Hungary. Based on the Family Background Questionnaire (Kasik, 2009), girls slightly outnumber boys in all age groups (10: 56%, 14: 53%, 16: 51%), and the students lived with their parents (with mother and father) under the study. The native language of all participants was Hungarian.

The traditional Hungarian education system is made up of eight elementary and four secondary school class. The 10 and 14 old one participants are elementary

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schools students (4<sup>th</sup> and 8<sup>th</sup> grade), while the 16 old (10<sup>th</sup> grade) ones attend secondary schools. The 16-year-olds are grammar school, technical college and vocational school students in similar proportions (34, 35 and 31%, respectively). In the Hungarian educational system the grammar school students do not learn profession, they take the Matura Examination at the end of their studies (receive a high school diploma), and the majority of them continue their studies in higher education. The technical college students are also learning a profession in addition to taking the Matura Examination, while vocational school students only learn a profession.

Apart from the students, mothers (N=459), fathers (N=459) and teachers have also evaluated the children. We only analysed the data of those children whose parents filled out the questionnaire, so the number of children is equal to the number of mothers and fathers. 26 form teachers have taken part in the research (all female). All of the students SPS of a particular class was evaluated by their form teacher thus, their number is equal to the number of classes involved in the research. It was very important to gain information about SPS related to the same teacher in a particular class.

## **Instrument**

We used the short version of SPSI-R (D’Zurilla et al., 2002). The original version was translated into Hungarian at first, the resulting Hungarian version then was translated back to English, with the Hungarian version finalized only after clarifying all potentially problematic words or phrases (see Kasik, 2014). The version of the Hungarian adaptation showed adequate reliability (Cronbach-alphas) and factor structure (Kaiser–Meyer–Olkin-indexes) at all studied ages (12, 14, 16, 18). The

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results are similar to other international studies results and to the results of the first Hungarian adaptation (see Kasik, 2014). In the present study the Cronbach-alphas were above .81, and KMO indexes were above .82, which is sufficient.

This version assesses the five factors of SPS: PPO=Positive Problem Orientation; NPO=Negative Problem Orientation; RPS=Rational Problem Solving; ICS=Impulsivity/Carelessness Style; AS=Avoidance Style. All factors include 5 items (resulting in a total of 25 items). PPO covers elements of constructive problem solving, such as self-efficacy and positive outcome expectancy. NPO covers a set of dysfunctional cognitive-emotional schemes, for instance low self-efficacy and negative outcome expectancy. RPS can be defined as a constructive problem solving style that is characterised by rational, deliberate, and systematic application of effective problem-solving skills. ICS is a set of dysfunctional problem solving attempts like impulsivity and carelessness. AS is a dysfunctional dimension characterised by passivity and attempts to shift the responsibility of problem solving to others. The SPSI-R subscales consist of 5-point (from 0 to 4) Likert-type items where: 0=Not at all true of me; 1=Slightly true of me; 2=Moderately true of me; 3=Very true of me; 4=Extremely true of me.

### **Data collection**

The contents or the structure of the original questionnaire has not been changed; the only applied modification regards the instruction of being person-based upon filling in the questionnaire (who the student should think of while doing so: mother, father, form teacher or peers). Accordingly, students had to fill out the survey four times with week-long intervals between each one (the order was the following: mother related, related to a peer, father related and teacher related). For the students it took 20-25

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minutes to fill out the questionnaire each time. Every occasion took place during a home class with the form teacher. Parents had to complete the SPSI-R and Family Background Questionnaire (Kasik, 2009) during parent-teacher meetings and teachers had two weeks to finish it. All children's parents allowed pedagogical evaluation and they have also verified their participation in the study and the evaluation their children with their signature (based on Hungarian Ethical Norms for Psychologist).

## **Results**

### **Age and evaluator differences**

Tables 1–4 display the characteristics of SPS regarding mothers, fathers, form teachers and peers in light of the five factors (the tables contain only the significant differences). Table 1 shows the specifics of SPS regarding one's mother along the lines of students' and mothers' evaluation. According to students' evaluation in connection with their mothers, negative orientation and avoidance is significantly more typical in 16-year-olds than it is in 10- and 14-year-olds; impulsivity is more characteristic of 10- and 16-year-olds than of 14-year-olds; however, there is no discrepancy related to either positive orientation or rationality in either of the age groups. Being in agreement with children, mothers claim that negative orientation and avoidance is more representative in 16-year-old students but at the same time there is no noteworthy disparity regarding the other factors in the different age groups.

Table 1

By comparing mothers' and their children's evaluation in every respective age group, it may be observed that their opinion shows no variation with regard to either

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of the factors in the case of 10-year-olds; thus, they share a viewpoint in terms of measured aspects of SPS. 14-year-olds see their SPS with their mothers more rational than actually their mothers do ( $t=2.45$   $p=.04$ ) and 16-year-olds claim that they have a more positive approach to solving their problems than their mothers believe they do ( $t=3.03$   $p=.04$ ).

In terms of SPS with fathers (Table 2), 10-16-year-olds all have a similar opinion, there is no one factor where children reveal a remarkable difference in their self-evaluation. Nonetheless, fathers of children of different ages have a diverse standpoint in relation to positive orientation, rationality and avoidance as compared to students. A constant increase of positive orientation may be presumed based on the surge of values which show growth that is exponential with age. 14- and 16-year-olds' fathers tend to observe a higher degree of rationality in their children's SPS as compared to fathers of 10-year-olds. The fathers of the 16-year-olds regard avoidance less typical than fathers of the younger participants.

Similarly to mothers, fathers' and children's opinion display no variation among 10-year-olds in either of the factors. According to fathers, negative orientation ( $t=3.11$   $p=.05$ ) and rationality ( $t=3.23$   $p=.03$ ) are more common in the case of 14-year-olds, and positive orientation ( $t=2.25$   $p=.04$ ) is regarded to be more typical of the oldest age group in the survey by them as compared to how children see themselves.

## Table 2

With regard to SPS with their form teachers (Table 3) and based on their self-evaluation, 10- and 14-year-olds exhibit a higher tendency of positive orientation than the oldest participants in the research of who negative orientation is more typical. The

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three age groups differ entirely in terms of the evaluation of impulsivity: it is the least typical of 10-year-olds and the most of 16-year-olds.

Based on the teachers' evaluation, it also becomes apparent that each age group increasingly secludes from one another along the lines of impulsivity that becomes more and more typical; in other words, their evaluation is similar to the students'. Negative orientation is the least characteristic of 10-year-olds than the older ones according to the teachers' evaluation as well in addition to the values that account for avoidance.

As compared to parents, teachers see children differently in all three age groups along the lines of more aspects. Teachers describe 10-year-old students varyingly with regard to three factors when compared to students' own evaluation of their SPS: their negative orientation ( $t=3.11$   $p=.03$ ), avoidance ( $t=3.45$   $p=.04$ ) and impulsivity ( $t=3.56$   $p=.03$ ) is regarded more significant by teachers. They also deem 14-year-olds more impulsive ( $t=2.56$   $p=.02$ ) and claim that negative orientation is more characteristic among 16-year-olds ( $t=3.01$   $p=.02$ ).

Table 3

SPS related to peers reveals no discrepancy along the lines of neither factor at the ages of 10 and 14 (Table 4). 16-year-olds, however, significantly separate from the younger participants in this research in terms of impulsivity and avoidance; based on their self-evaluation, both are more typical of them.

Table 4

### **The links between gender-related evaluations**

Boys' and girls' self-evaluation has been compared with their parents' and teachers' evaluation as per age group with correlation analysis (Pearson  $r$ ). Then, with a  $z$ -probe, it has been tested whether there are any substantial alterations between mother-son and mother-daughter, father-son and father-daughter, teacher-boy and teacher-girl evaluations ( $p < .05$  in the case of all significant differences). Altogether, it can be seen that mothers and their daughters, and fathers and their sons more or less share their opinion in all age groups; nonetheless, none of the patterns observed in relation to parents could have been identified among teachers who are all women.

The strength of the links between mother-daughter evaluations is .32–.47 and .25–.39 between mother-son. The lowest values can be seen among 16-year-olds, both in girls and boys and related to negative orientation in both cases. The mother-daughter relationship is stronger in the case of 10-year-olds' impulsivity ( $z=3.76$ ), 14-year-olds' impulsivity ( $z=2.58$ ) and avoidance ( $z=3.11$ ), and 16-year-olds' avoidance ( $z=3.24$ ) as compared to the mother-son connection. The strength of the mother-son relation is bigger along the lines of 16-year-olds' rationality ( $z=2.42$ ) than in the case of mothers and their daughters.

Fathers' correlation values are between .20–.34 with their daughters and .25–.41 with their sons. The lowest sums show up in relation to 16-year-olds once again; impulsivity in the case of girls and negative orientation in the case of boys. Father-son relationships are significantly stronger in all age groups (10-year-olds:  $z=3.16$ ; 14-year-olds:  $z=2.98$ ; 16-year-olds:  $z=3.06$ ) as compared to fathers' connection with their and daughters. The correlation value of negative orientation is higher in father-daughter than in father-son relations ( $z=3.11$ ) and the father-son bond is, again, more solid in the case of 16-year-olds' positive orientation ( $z=2.66$ ).

The values of teacher-girl and teacher-boy connections in the whole sample are between .15–.34 and .14–.27, respectively. The lowest sums represent themselves in the case of 10-year-old girls' rationality and 14-year-old boys' negative orientation. Teachers' relation to 10-year-olds is stronger in the case of boys' rationality ( $z=3.23$ ) and girls' positive orientation ( $z=2.77$ ). There is only one factor with a noteworthy disparity in the case of 14-year-olds: impulsivity is stronger in the teacher-girl relationship ( $z=2.54$ ). Teachers' bond with 16-year-old boys and girls is stronger along the lines of rationality ( $z=3.20$ ), and avoidance ( $z=2.64$ ) and impulsivity ( $z=2.57$ ), respectively.

### **School type differences**

It has been analysed in the 16-year-olds' subsample whether there are any discrepancies between vocational school, technical college and grammar school students' person-based SPS based on their self-evaluation or adults' assessment ( $p<.05$  in the case of all significant differences). According to this, the conclusion may be drawn that grammar school and technical college students tend to think similarly of their SPS to their parents which is in contrast with vocational school students and their parents.

Rationality related to mothers is more common among grammar school and technical college students in light of children's and mothers' evaluation ( $F=35.23$  and  $F=20.11$ , respectively) than vocational students; the latter groups of participants also see themselves as more impulsive ( $F=18.34$ ). In the meantime, mothers' assessments show no variation in this regard. As with mothers, the judgement of rationality is the same as with fathers: based on the self- and fathers' evaluations, this is more typical of grammar school students ( $F=40.01$ ). In addition to this, both evaluations reveal that



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avoidance is more common among grammar school and technical college students ( $F=30.78$ ).

Furthermore, grammar school students view their SPS with regard to teachers as more rational than vocational school and technical college students ( $F=22.67$ ), the former of which also attribute more avoidance to themselves ( $F=30.34$ ). Teachers also claim in their evaluations that rationality is more characteristic of grammar school and technical college students ( $F=27.10$ ) while impulsivity ( $F=26.23$ ) and avoidance ( $F=42.12$ ) is more typical of vocational school students. According to the self-evaluations, grammar school students are more rational ( $F=30.67$ ), learners at a technical college display more avoidance ( $F=46.03$ ) and vocational school students are more impulsive ( $F=28.25$ ) when it comes to SPS with peers.

## **Discussion**

Features of non-person-based SPS among children of different ages have been studied in earlier cross-sectional and longitudinal research (e.g. Kasik, 2010, 2014). The results of the study aimed at person-based SPS only partially support these features. One of the possible explanations to this is that adults and children have given their opinion of the solutions of their mutual problems in present research while in previous ones no such restrictions were given to either of the parties, they could think of anyone, even more people at the same time, upon filling out the questionnaire. Thus, the results of the person-based survey are different from the non-person-based.

In previous studies aimed at non-person-based SPS it became apparent based on correlation analysis that children's and mothers' evaluation is more similar to each other than child-teacher or teacher-mother ratings; the latter showed the most discrepancy (Kasik, 2014). It has come to light in the present research how mothers

and their children, fathers and their children, and teachers and their students see their SPS related to their mutual problems (the scope of the survey could not cover comparison with peers as children could have thought of many of their fellow students; nonetheless, a lot of new information has been gathered with regard to the variations of SPS with adults and contemporaries).

In connection with person-based SPS, too, it can be seen that mothers' and their children's opinion is quite similar in all age groups and, as compared to previous results, no overrating can be seen in the formers' opinion when contrasted with self-evaluations. According to Gauvain (2001), for the similarity the attachment between mother and child can be one key explanation. In this study, any kinds of overrating of mothers' opinion weren't experienced, on the contrary, children see rationality as more characteristic than their mothers. Overrating by fathers has not been identified in previous research and in this study they believe that rationality and positive orientation is more typical contrary to their children's standpoint. Both evaluation-related variations appear among the oldest participants; consequently, mothers and fathers share their opinion with their children pre-adolescence. Considerable differentiation, based on international research as well, is attributive to adolescents.

Webster-Stratton (1999) sees overrating as profoundly defined by expectations in the case of both mothers and fathers that may be increased and, additionally, formed subjective by evaluations of personal or mutual SPS as well as by other measured fields. This becomes apparent among fathers in relation to their sons' positive orientation and rationality, the development of which is known to be more influenced by their educational levels, which bears a strong connection with their style and practice of upbringing, than the other three factors (e.g. Chang et al., 2002; Kasik, 2014). Underrating self-evaluations and mothers' assessment, as in the case of

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all earlier research, was characteristic of the teachers who took part in the current one, too. Webster-Stratton and Lindsay (1999) claim that teachers often underrate children's self-evaluation in which the fact that their assessment is based on comparison as opposed to parents plays a crucial role.

The steady decrease of deviation values in a study carried out among kindergarten and lower primary school (4-10-year-old) children's parents and teachers (Kasik & Gál, 2014) has indicated that the latter group sees less and less difference between pupils in terms of their SPS as they spend more and more years together. The fact that the number of fields in which evaluations sharply differ drops with the advancement of age is related to the changes observed among the teachers in the 2013 research. Teachers have been educating 10-year-olds for a year, 14-year-olds for an average of three years, and 16-year-olds for two years. It was the teachers who instruct 10-year-olds who have evaluated children the most differently as compared to their self-assessments, an issue that, once again, brings up the notion of the importance of the time spent together apart from other factors. A possible explanation to this everyday occurrence among the teachers is the reconsideration of their opinion about the children by constantly forming it by taking their self-evaluations into account.

As in the case of parents, children's aspiration to social desirability has to be borne in mind as well as with regard to filling out the questionnaire in which they have evaluated themselves as expected by their teachers in which it might play a role that they did so in a school setting, much reminiscent of taking a test. Based on the time spent together, 10-year-olds had less information about their teachers' anticipations than 14- and 16-year-old students. It is known from international studies regarding the change of social desirability that it shows a decline as of adolescence;

yet, higher values may be observed among Hungarian students even at this age (see Gulyás & Varga, 2009; Kálmánchey & Kozéki, 1998).

In light of the collected data, person-based SPS differs mainly in terms of negative orientation and avoidance. One of the core indications of the international results is that rationality is more typical someone who approaches a problem positively and the same link can be seen between negative orientation and avoidance. Successful SPS can amalgamate all these person-based connections into patterns; to put it another way, they merge and inform SPS (Chang et al., 2004).

The results also show that this tightness cannot be assumed in the case of negative orientation and avoidance while it can be with regard to rationality and positive orientation, but only in terms of SPS with peers and teachers, and not with parents. In order to gain a deeper insight into person-based SPS, future analysis is required. For instance, it might be suitable for examine the process, the plan and the possibilities of solution within interviews and situational exercises which are also important means and tools of development. The longer, 52-item version of SPSI-R is apt for this as it measures these very fields, within the realms of rationality, in detail.

Many international studies (e.g. Kim & Rohner 2003; Spivack, Platt, & Shure 1976) argue that parents' and children's gender profoundly defines how they think of SPS (and about their behaviour in general). Based on the research, evaluation includes gender-related expectations and their differences; mothers and fathers tend to put their daughters and sons, respectively, into a more positive light. The discrepancy is more considerable in terms of problem orientation than in the case of solution style: it is stronger between mother and daughter, and father and son than between mother and son, and father and daughter. Variations may also be identified in teachers' evaluation

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as well: they attribute negative orientation less to girls than to boys, and they also see the latter as more rational problem-solvers.

Based on present research, mothers' evaluation shares more similarities with their daughters' than with their sons'; however, contrary to the findings of international studies, not in relation to orientation but to solution styles (impulsivity, avoidance). The mother-son relationship is only more solid in the case of the factor of rationality than the mother-daughter one. The rate of agreement is especially high among 10- and 14-year-olds. This underlies the general result according to which the connection with judgement is tight in adolescence; nonetheless, a small drop may be observed with the advancement of age. Father-daughter and father-son relationships are also stronger in the age groups of 10- and 14-year-olds, but father-son bonds are stronger (mostly with regard to rationality and positive orientation), except 14-year-olds' negative orientation where father-daughter links are more solid.

Parent-related results approximately reveal, that mothers regard impulsivity and avoidance, and fathers generally see rational SPS to be similar with their same-sex children. This is in line with the data of earlier research (Kasik, 2014), according to which mothers' educational level influences their children's impulsivity and avoidance, and fathers' impact rationality the most. Therefore, these results account for parents' anticipation which, according to Grusec and Davidov (2007), can be identified in several cultures: the exposure of emotions are seen differently by parents and their opinion varies in relation to the manifestation of these in the behaviour of girls and boys and, at the same time, they contrast it with the behaviour-shaping power of emotions and rational thinking, and the chance of their display in social interactions.

The strength of the connections and their gender-related differences are more varied in relation to teachers and with regard to the age of the children; their opinion may be regarded as the mixture of parents' views. They mostly agree with boys' rationality and girls' positive orientation with regard to the youngest age group; the teacher-girl connection is stronger in the case of impulsivity and avoidance with regard to the older age groups; and, in addition to this, teacher-boy relations are only solid in the case of rationality with regard to the older age groups.

Parents' and teachers' different evaluations, either age- or gender-related, are largely defined by the fact that they see and assess the children and their behaviour in different situations (at home, at school). It is a vital point to consider that person-based problems at home and at school can be of fundamentally different nature (e.g. Vitaro, Gagno, & Tremblay, 1991; Kasik, 2014). The adherence to rules of behaviour and norms, which play a crucial role in SPS, can be applied in practice varyingly at home and at school, in addition to the possibility of the existence of different ones in both respective contexts. The dissimilarity between mothers' and female teachers' evaluation also shows that, in the latter's, gender plays a less significant role as opposed to the teacher's role and expectations related to it.

Based on the earlier Hungarian research data, students show significant difference based on many social and cognitive areas (e.g. Csapó, 2001; Kasik, 2009). Based on the results of present study, we have to take school type into consideration, too. Grammar school and technical college students tend to think similarly to their parents about their SPS than vocational students. Grammar school students are also regarded as more rational while vocational students as more impulsive both by their mothers and fathers. Conversations and communication about family- and school-related problems and their solution as well as the occurrence of solution types as

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models are also supposedly different which may account for the variation in behaviour. The school type appears to be defining in the case of teachers: they claim that rationality is more typical of grammar school and technical college students, while vocational learners tend to exhibit more impulsivity and avoidance. Rationality is seen as more typical of grammar school students based on childrens' evaluations regarding peer-related SPS, technical college students display more avoidance, and vocational school students are more impulsive, according to them.

The previously revealed age-, gender- and school type-related characteristics have only been partially supported by the results of present research which points out the necessity and importance of person-based analysis. The collected data, as presented in this paper, provides an opportunity for the development of SPS in an institutional setting that also allows for person-based SPS with attitudes and modes of solution related to it. In the 2015–2016 academic year, we are trying out a developmental program among adolescents on experimental basis, which integral part is the data deriving from the study of person-based SPS, related to both the program content, structure and the range of people involved. Because in addition to the involvement of teachers, parents' participant is also planned, it is very important to take into account the differences of their beliefs and opinions. According to Anderson (2000) and Webster-Stratton (2011), it is fundamentally determine the long-term development success, efficiency and effectiveness.

In this study, it was not possible to analyse the problems of peer to each other, but it is very important to discover how the students feel about the solution of problems related to each other. There is certainly identifiable differences in SPS in preferred and non-preferred ones, as well as their friends and solving problems related to their partner is not regarded as friends. Another limitation of the study can also be

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a basis for further research: it has to be taken account in the teacher-student relationship, that all of the teachers were women. It is possible, that we would have obtained other results in the case of some factors, if the teachers were male.



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## Tables

**Table 1.** Characteristics related to SPS with mothers according to children and mothers (M, SD, ANOVA: F, p,  $\eta^2$ )

Rater: child (N=459)									
Factors	10-year-olds		14-year-olds		16-year-olds		F	p	$\eta^2$
	M	SD	M	SD	M	SD			
Negative orientation	7.01	1.23	9.55	1.04	11.23	1.10	45.23	.03	.38
Impulsivity	12.22	1.23	10.23	1.44	14.16	1.16	34.22	.04	.27
Avoidance	8.02	1.21	8.56	1.33	9.77	1.40	32.23	.04	.23
Rater: mother (N=459)									
Negative orientation	7.33	1.23	8.12	1.12	9.45	1.44	35.23	.04	.22
Avoidance	8.11	1.53	9.02	1.23	9.85	1.04	22.01	.03	.18

*Note.* The table shows only the significant differences.

**Table 2.** Characteristics related to SPS with fathers according to fathers (M, SD, ANOVA: F, p,  $\eta^2$ )

Rater: father (N=459)									
Factors	10-year-olds		14-year-olds		16-year-olds		F	p	$\eta^2$
	M	SD	M	SD	M	SD			
Positive orientation	10.22	1.02	11.20	1.23	12.12	.97	30.21	.03	.29
Rationality	10.03	1.34	11.12	.78	11.34	.67	25.21	.03	.22
Avoidance	8.93	1.62	9.07	1.20	8.19	1.12	17.21	.05	.14

*Note.* The table shows only the significant differences.

**Table 3.** Characteristics related to SPS with teachers according to students and form teachers (M, SD, ANOVA: F, p,  $\eta^2$ )

Rater: student (N=459)									
Factors	10-year-olds		14-year-olds		16-year-olds		F	p	$\eta^2$
	M	SD	M	SD	M	SD			
Positive orientation	10.78	1.23	11.02	.78	9.34	1.33	25.22	.03	.22
Negative orientation	7.89	.88	8.45	1.06	9.89	.76	17.22	.05	.24
Impulsivity	11.30	1.11	12.67	1.12	14.04	1.60	35.11	.02	.29
Rater: form teacher (N=26)									
Negative orientation	7.12	.56	9.34	1.01	9.87	1.22	20.17	.03	.24
Impulsivity	11.34	1.43	12.55	1.32	14.20	1.11	43.10	.01	.40
Avoidance	8.02	1.02	9.68	1.34	9.56	.84	26.39	.03	.13

*Note.* The table shows only the significant differences.

**Table 4.** Characteristics related to SPS with peers according to students (M, SD, ANOVA: F, p,  $\eta^2$ )

Rater: student (N=459)									
Factors	10-year-olds		14-year-olds		16-year-olds		F	p	$\eta^2$
	M	SD	M	SD	M	SD			
Impulsivity	8.77	1.66	9.17	1.28	12.41	1.07	26.28	.03	.30
Avoidance	8.23	.44	9.04	1.01	10.45	1.06	22.43	.03	.19

*Note.* The table shows only the significant differences.