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Evaluating the social outcomes of inclusive education

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CHAPTER 6

VALIDATION OF THE SOCIAL PARTICIPATION QUESTIONNAIRE

A slightly adapted version of this article has been submitted for publication and was co-authored by Alexander E.M.G. Minnaert, Han Nakken, Sip Jan Pijl and Els J. van Houten

Abstract

This study addresses the convergent validity of a new teacher questionnaire to assess the social participation of pupils with special needs in regular primary schools. This Social Participation Questionnaire consists of four subscales representing four key themes of social participation: friendships/relationships, contacts/interactions, pupil's social self-perception and acceptance by classmates.

Inspection of the correlations between the Questionnaire's subscales and other instruments to assess the four key themes revealed that evidence for the Questionnaire's convergent validity was rather spurious. A second order analysis, a confirmatory factor analysis using the LISREL program, removed this lack of clarity and provided evidence for the Questionnaire's convergent validity. The outcomes of this analysis support the model of social participation, distinguishing four key themes.

6.1 Introduction

Educating pupils with special needs in inclusive classrooms is an important objective of many countries. Inclusion in education focuses not only on academic issues, but also on meeting pupils' physical, social and emotional needs (Koster, Nakken, Pijl & Van Houten, in press). In this respect, maximizing social participation of pupils with special needs is generally considered as a main aim of inclusion. As described by Koster, Nakken, Pijl & Van Houten (in press), social participation is about the presence of positive social contacts/interactions between pupils with special needs and their classmates, acceptance of them by their classmates, social relationships/friendships between them and their classmates, and the pupils' own perception of their social position.

The different aspects of social participation are closely connected. For instance, having interactions with classmates seems to be a prerequisite for making friends and, at the same time, pupils with many friends presumably have many interactions, as friendships in pre-adolescence are associated with shared activities (LaGreca, 1997, in Male, 2007). Having friends is associated with enhanced opportunities to exercise behaviours and acquire skills related to social, emotional and cognitive growth (Ladd, 1990; Newcomb & Bagwell, 1996). Acquiring these skills may facilitate acceptance by peers, which subsequently may have a positive influence on the pupil's social self-perception. Conversely, a lack of friends may negatively influence a pupil's social self-perception. Pupils' social self-perception may also influence their relationships. For instance, pupils with a low social self-perception may avoid social situations, which prevents them from building relationships with peers (Pijl & Frostad, 2008). Because of this strong interrelatedness of the aspects of social participation, pupils may become involved in a vicious circle, either positive or negative. This latter scenario is alarming, as it is known from international research that peer relationship difficulties, a low social status and a negative self-concept might lead to psychological maladjustment later in life (Bagwell, Newcomb & Bukowski, 1998; Nelson, Rubin & Fox, 2005; Parker & Asher, 1987; Terry & Coie, 1991).

In this respect, pupils with special needs are at risk, since international studies have frequently shown that inclusion of these pupils does not automatically lead to an increase of friendships between them and their typical peers (De Monchy, Pijl & Zandberg, 2004). Whereas the majority of pupils

without special needs find no difficulty in making friends and building positive relations with their peers (Powless & Elliott, 1993), pupils with special needs experience considerably more difficulty building friendships in inclusive classrooms (Frostad & Pijl, 2007). Several studies have shown that pupils with (mild) disabilities — compared to their typical counterparts — report significantly higher loneliness scores (Heiman & Margalit, 1998; Lackaye & Margalit, 2006; Luftig, 1988; Pavri & Monda-Amaya, 2000; Williams & Asher, 1992) and a higher degree of social dissatisfaction with their peer relationships (Taylor, Asher & Williams, 1987, in Gresham & McMillan, 1997). In addition, the self-concept of pupils with special needs is found to be significantly lower (Bender & Wall, 1994; Cambra & Silvestre, 2003; Pijl, Skaalvik & Skaalvik, 2008), which might lead to externalizing problems (e.g. aggression) and internalizing problems (e.g. anxiety) (Durrant, Cunningham & Voelker, 1990).

Because of the rather harmful long-term effects of negative social experiences at school, it is important to monitor the social participation of pupils with special needs, an increasing percentage of whom attend regular education. This concerns a vital task for teachers, since they should be the first ones to notice if a pupil is excluded by peers and becomes isolated (De Monchy et al., 2004). However, several studies (De Monchy et al., 2004; Scheepstra, Nakken & Pijl, 1999; Whitney, Smith & Thompson, 1994) have shown that teachers' assessments of the social participation of pupils with special needs in their classroom are not always appropriate. They seem to have too positive a view of the social participation of these pupils, and negative occurrences (like bullying or neglecting) seem to be noticed insufficiently. It is vital that teachers make appropriate and complete assessments of the social participation of pupils, because only when they notice that a pupil becomes isolated or is being teased can they take appropriate measures. Koster, Nakken, Pijl, Van Houten and Lutje Spelberg (in press) developed a questionnaire for teachers to assess the social participation of pupils with special needs. This Social Participation Questionnaire aims at pupils in Grades 1 to 3, a crucial age period in the lives of children. The friendships and contacts of pupils in lower grades (pre-schoolers) are still of a transitory nature, as is their social position in class. In higher grades, children's friendships and contacts are more stable. However, in the highest grades of primary education the social position of pupils tends to be so stable that it is very hard to change it. Pupils' views of each other are often persistent, so changing

these views is very difficult. Therefore, it is desirable to start intervening at an early age instead of postponing interventions to the higher grades.

The Social Participation Questionnaire is based on a model of social participation developed by Koster, Nakken, Pijl and Van Houten (in press). This model is derived from a review of the literature and distinguishes four key themes within the concept of social participation: friendships/relationships, contacts/interactions, pupil's social self-perception and acceptance by classmates. The Social Participation Questionnaire covers the total concept of social participation, with four key themes represented in four subscales. Unlike other instruments, which aim at certain aspects of social participation (like sociometric questionnaires or observation scales), the Social Participation Questionnaire takes into consideration the comprehensiveness of the total concept of social participation. This study addresses the question of whether the Social Participation Questionnaire is valid to assess the social participation of pupils with special needs in regular primary schools.

6.2 Method

In this study, the focus lies on one aspect of the construct validity, namely the convergent validity of the Social Participation Questionnaire. Convergence means that evidence from different sources gathered in different ways all indicates the same or similar meaning of the construct (Kerlinger & Lee, 2000). Convergent validity is therefore the degree to which two or more attempts to measure the same concept are in agreement (Bagozzi & Philips, 1982, in Ariño, 2003). Examination of this type of validity is important, since the correspondence of results when a concept is measured in different ways is one of the most convincing evidences of construct validity (Singleton, Straits & Miller Straits, 1993). Examination of the convergent validity of the Social Participation Questionnaire will take place by comparing the outcomes of the Questionnaire with the outcomes of other instruments that are also meant to measure social participation. As there is no instrument which, like the Social Participation Questionnaire, focuses on the total concept of social participation, several instruments that aim at certain aspects of social participation were selected (see instruments section). The Social Participation Questionnaire consists of four subscales, representing the four important themes within the concept of social

participation mentioned above: friendships/relationships, contacts/interactions, social self-perception of the pupil and acceptance by classmates. In order to examine the convergent validity of the Questionnaire, four instruments, each focusing on one of these themes, were applied. Pupils' scores on the Questionnaire and on each of the four subscales were compared with their scores on these instruments.

6.2.1 Respondents

The study took place in Grades 1 to 3 of regular Dutch primary schools that have at least one pupil with an official special-needs indication. In order to examine the Questionnaire's convergent validity it was expected that each key theme would have to be assessed by one questionnaire, which would result in four questionnaires per pupil. The researchers considered filling in more than two questionnaires too large a burden for pupils. Furthermore, when administering four questionnaires in each class, the researchers would have to spend a long time in classes. This would probably disturb the teachers' schedules too much, and may deter them from participating. It was therefore decided to divide the study into two. By splitting the study, pupils had to fill in two questionnaires at most, and time spent in the classroom was expected to be less than one hour. As a result, disturbance of the daily routine would be minimized.

In total, 600 schools were invited to participate. The first sub-sample of 300 schools was used to compare the Questionnaire with instruments to measure both the social self-perception of pupils and their acceptance by peers. The second sub-sample of 300 schools was applied to compare the outcomes of the Questionnaire with instruments to assess the friendships of pupils as well as their contacts and interactions. The invited schools are a randomly drawn sample from the population of 2074 Dutch regular primary schools within 2.5 hours of traveling time from the city of Groningen. This area, covering nearly two-third of the Netherlands, was chosen to make the data collection feasible. According to files from the Ministry of Education, the schools have at least one pupil in Grades 1 to 3 who receives a pupil-bound budget. Such a budget is allocated to pupils who, according to independent committees, meet certain Dutch national criteria. Several categories of disabilities are distinguished, each with their own criteria. These involve, among other things, categories of the Diagnostic and Statistical

Manual of Mental Disorders (DSM IV) and intellectual ability, assessed by qualified psychiatrists or psychologists who operate independently from the committees.

First sub-sample. Of the 300 invited schools, 53 were involved in the study. A non-response survey (Koster, Timmerman, Nakken, Pijl & Van Houten, 2008) showed that there are no significant differences (at $\alpha=5\%$) between cooperating and non-cooperating schools concerning their attitudes towards and experiences with inclusive education. Hence there is no reason to assume any systematic bias in the sample involved in the study. Since several of the 53 participating schools had a pupil with special needs in more than one class, and since 15 classes included two or more pupils with special needs, 75 classes with a total of 96 pupils with special needs were involved in the study. The analyses in this article aimed at social self-perception and acceptance by classmates are based on the 96 pupils with special needs and 148 pupils without special needs. For these 244 pupils, the teacher filled in the Social Participation Questionnaire. An overview of the categories of disabilities and their distribution in the first sub-sample is presented in the second and third columns of Table 1.

Second sub-sample. Of the 300 schools that were invited to participate in the study, 66 took part. As no evidence of systematic bias was found in the former sample, we refrained from repeating the non-response survey. In total, 27 schools had a pupil with special needs in more than one class and 34 classes included two or more pupils with special needs. Consequently, 105 classes with a total of 141 pupils with special needs participated in the study. The analyses in this article that aim at friendships as well as contacts/interactions are based on (a selection of) these 141 pupils with special needs and 205 pupils without special needs. For these 346 pupils, the teacher filled in the Social Participation Questionnaire. An overview of the categories of disabilities and its distribution in the second sub-sample is presented in the fourth and fifth columns of Table 1.

Table 1. Distribution of pupils with special needs into categories of disabilities and gender in both sub-samples

Category of disabilities	# pupils (% total) first sub-sample	# boys (% disabilities category) first sub-sample	# pupils (% total) second sub-sample	# boys (% disabilities category) second sub-sample
Behavioural disorder	13 (13.5%)	11 (84.6%)	16 (11.3%)	14 (87.5%)
Autistic spectrum disorder	42 (43.8%)	38 (90.5%)	55 (39.0%)	45 (81.8%)
Motor disability	10 (10.4%)	9 (90.0%)	25 (17.7%)	18 (72.0%)
Intellectual disability	11 (11.5%)	5 (45.5%)	15 (10.6%)	5 (33.3%)
Speech/language disabilities	20 (20.8%)	13 (65.0%)	27 (19.1%)	19 (70.4%)
Learning disabilities	0	0	2 (1.4%)	2 (100%)
Chronic illness	0	0	1 (0.7%)	1 (100%)
Total	96 (100%)	76 (79.2%)	141 (100%)	104 (73.8%)

6.2.2 Instruments

Social Participation Questionnaire

The Social Participation Questionnaire consists of 24 statements, five of which belong to the 'Friendships/relationships' subscale, nine belong to the 'Contacts/interactions' subscale, five to the 'Pupil's social self-perception' subscale and five to the 'Acceptance by classmates' subscale. In total, 19 statements are phrased in terms of social participation and five are formulated in terms of social segregation. Table 2 gives some examples of both types of statements.

Table 2. Examples of statements of the Social Participation Questionnaire

Key theme	Statement representing social participation	Statement representing social segregation
Friendships/relationships	`the pupil is a member of a group of friends'	
Contacts/interactions	`in free time (e.g. during recess) the pupil plays with classmates'	`classmates regularly exclude the pupil from activities'
Pupil's social self-perception	`the pupil has the feeling s/he belongs to the group'	`the pupil feels lonely at school'
Acceptance by classmates	`classmates stand up for the pupil when pupils from other classes or schools (would) treat the pupil unpleasantly'	

The statements have to be assessed on a 5-point scale, ranging from 'this does not apply at all to the pupil' (1) to 'this strongly applies to the pupil' (5). In order to facilitate interpretation of the subscale scores, they were linearly rescaled so that the minimum score on all subscales is 0 and the maximum 25. The total score on the Questionnaire ranges between 0 and 100. The higher the score, the higher the social participation of the pupil is assessed. In a previous study (Koster et al., 2008) the quality of the subscales was examined and approved by means of a Mokken Scale Analysis, which uses non-parametric item response. For each of the subscales, the Mokken's double monotonicity model appeared to fit well, which implies that the resulting subscale scores are on an ordinal scale and that the individual statements per subscale are invariantly ordered along the subscale. The scale scores are directly comparable across pupils with and without special needs, as differential item functioning appeared to be absent. Moreover, the data supported the division of social participation into the four distinct key themes. Although there is a clear distinction between the Questionnaire's four subscales, the correlations between them appeared to be strong (Spearman's Rho ranged from 0.54 to 0.77). Therefore, the concept of social participation should be regarded as a macro construct consisting of four closely connected sub-dimensions. Even though the subscales are strongly related, it is still important to distinguish them, as the correlations are not perfect. If only the score on the total Questionnaire were viewed, valuable differences in the key

themes might remain unnoticed. If the subscale scores are also taken into consideration, the expected result is a more appropriate and balanced view of the social participation of pupils.

The reliability of the Questionnaire turned out to be high (Rho is 0.95), and the four subscales were found to be reliable (Rho varies between 0.80 and 0.95). In addition, one aspect of discriminant validity of the Questionnaire was demonstrated. As pupils with special needs are generally known to have lower levels of social functioning in regular classrooms, they were expected to obtain on average lower scores on the four subscales and on the total Questionnaire than pupils without special needs. Because these differences were clearly present, evidence was obtained for the Questionnaire's discriminant validity (Koster et al., 2008).

Instruments to assess key themes

- Assessment of friendships

Many researchers (e.g. Asher & Hymel, 1981, in Asher, Parker & Walker, 1996; Larrivee & Horne, 1991; Parker & Asher, 1993) regard reciprocal friendship nomination as the best method to assess friendship. This method, which requires children to name classmates who fit a particular sociometric criterion (Larrivee & Horne, 1991), has been used to assess the friendship of children of various ages. It has been adopted in the literature as the primary method for assessing friendship (Yugar & Shapiro, 2001), and is likely to be valid for the whole range of childhood and adolescent years (Bukowski & Hoza, 1989). As the nomination method is generally regarded as the most suitable to assess friendship, it was selected for our study.

- Assessment of contacts/interactions

Observation schemes are often used when assessing contacts and interactions between children (e.g. Blatchford, Bassett & Brown, 2005; Cushing, Horner & Barrier, 2003; Hall & McGregor, 2000; Murphy, 2004; Odom et al., 1999; Ohna, 2005; Roberts, Pratt & Leach, 1990). For our study, observation schemes focusing on the nature and number of classroom interactions and which make use of the time-sampling method were selected.

An exploration of the literature revealed three observation schemes (Gresham, 1982; Scheepstra et al., 1999; Wood; 1972, in McCauley, Bruininks &

Kennedy, 1976) suitable for pupils in Grades 1 to 3, which aim at nature and number of interactions and which do not take up a lot of time (maximum 30 minutes per pupil). It was chosen to mainly use Gresham's Observation Categories (Gresham, 1982), since the applied categories of social interaction are very clear and the interobserver agreement is high (0.93 to 1.00 in a study of Montague and Rinaldi, 2001; 0.95 to 1.00 in a study of Lago-Delello, 1998). In addition, the categories provide an overview of the nature of interactions (positive and negative), initiated and received interactions, and number of interactions. Following the observation schemes of Scheepstra et al. (1999) and Wood (1972, in McCauley et al., 1976), not only interactions between pupils but also interactions between pupils and teachers are added, since research has shown that pupils with special needs have many interactions with their teachers (Scheepstra et al., 1999). Pupils are observed during lessons and free time, given that when observing social behaviours it is important to collect observations across a variety of settings and situations (Gresham, 2001; Hamilton, 2005).

- Assessment of social self-perception

In order to select instruments to measure pupils' social self-perception, several instruments were compared for content, psychometric qualities, size, applicability to pupils in Grades 1-3 and availability of a Dutch version. After a first selection on the basis of these aspects, three instruments remained: the Self-Perception Profile for Children (SPP-C, Harter, 1985, in Berndt & Burgy, 1996), the Self-Description Questionnaire I (SDQI, Marsh, Parker & Smith, 1983, in Berndt & Burgy, 1996) and the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PSPCSA, Harter & Pike, 1984). A comparison of the social subscales of these instruments was made. Since the content, size and reliability of the scales were rather similar (Berndt & Burgy, 1996), the applicability for first-to-third graders and the availability of Dutch versions were decisive. It turned out that none of the three instruments aimed at pupils in all three grades. The SDQI focused on pupils in Grades 2-9, the SPP-C focused on pupils in Grades 3-8 and the PSPCSA on first- and second-graders. Therefore, it was necessary to select two instruments for our study. Because of the very similar content, the same response format and the availability of Dutch versions, it was decided to use the SPP-C and the PSPCSA. As a result, in Grade 3 the

social subscale of the Dutch version of the SPP-C (in Dutch this profile is abbreviated as CBSK) (Veerman, Straathof, Treffers, Van den Bergh & Ten Brink, 1997) was used. The reliability (Alpha) of the social subscale is 0.74 (Veerman et al., 1997), which is sufficient when used for research purposes (Nunnally, 1967).

The social subscale of the Dutch version of the PSPCSA (Harter & Pike, 1984; Van Rossum & Vermeer, 1992) was selected for pupils in Grades 1 and 2. In this scale, verbal items are supplemented by pictures. The reliability of the social subscale is sufficient ($\alpha=0.78$) (Van Rossum & Vermeer, 1992).

- **Assessment of acceptance by classmates**

Peer acceptance is often assessed with sociometric techniques (Berndt & Burgy, 1996). Both procedures of nomination (see *Assessment of friendships*) and procedures of peer rating are frequently used. In the procedure of peer ratings, all classmates rate each of their peers in terms of how much they like them or would like to play with them on a Likert-type scale. Usually, a 3- or 5-point scale is used (Hymel, Vaillancourt, McDougal & Renshaw, 2002; Jiang & Cillessen, 2005; Terry & Coie, 1991). There seems to be general agreement that using a rating scale is the best method to assess acceptance, while the nomination method is most suitable for the assessment of friendship (Asher & Hymel, 1981, in Asher et al., 1996; Larrivee & Horne, 1991; Parker & Asher, 1993). According to Asher et al. (1996), research suggests the utility of distinguishing acceptance, based on the average ratings children receive from friendship, based on reciprocal friendship choices. The evidence consistently suggests that acceptance and friendship are non-overlapping yet not fully independent dimensions of individual differences (Asher et al., 1996). In accordance with the above-mentioned results, in our study the peer rating method was selected as instrument to assess acceptance.

6.2.3 Procedure

Social Participation Questionnaire. The teachers of the 180 classes (75 classes in the first sub-sample, 105 in the second) filled in the Social Participation Questionnaire for the pupils with special needs and for two pupils with typical development. The latter were chosen at random by using the 3rd and 16th pupil in the class register. If the pupil with special needs was number 3 or 16 on the

register, then the following pupil on the list was chosen. Also, if pupils number 3 and 16 were of the same sex, the first following pupil of the opposite sex on the list was chosen. In classrooms with two or more pupils with special needs, the teacher completed the Questionnaire for all pupils with special needs and for two typical pupils.

Assessment of friendships (nomination). All pupils in the 105 classes of the second sub-sample were asked to fill in a sociometric questionnaire. They were asked which classmates they considered to be their best friends. Following Frostad and Pijl (2007), the pupils were allowed to give a maximum of five nominations.

Assessment of contacts/interactions (observation schedule). For practical reasons, observations took place only in some of the classes of the second sub-sample. In 59 classes, observations were carried out during lessons and during free time. In each class, both the pupil with special needs and a pupil of the same sex without special needs (for whom the teacher filled in the Social Participation Questionnaire) were observed for 20 minutes, divided into periods of five minutes. Fifteen minutes of the observation took place during lessons, the remaining five minutes took place during free time. Each five-minute period was divided into 30 ten-second intervals. If a interaction occurred during that period, a tick was noted in the correct category (positive/neutral/negative initiated interaction with classmate; positive/neutral/negative received interaction with classmate; initiated interaction with teacher/received interaction with teacher). If more than one interaction occurred in a period, only the first one was noted. The observers were five university students and the first author, who initially received three hours' training using videotaped recordings of a classroom situation. During the training sessions, it turned out that almost all interactions were coded as neutral: both positive and negative interactions were rarely coded. Therefore, it was decided to leave the nature of interactions aside. After training, the agreement between observers was determined by calculating Cohen's kappa for three major aspects: 'interaction/no interaction between pupil and classmates', 'initiated/received interaction of pupil with classmates' and 'interaction/no interaction between pupil and teacher'. For these aspects, Cohen's kappas were respectively 0.84, 0.76 and 0.72, suggesting reasonable agreement.

Assessment of social self-perception (CBSK / Pictorial Scale). Social self-perception of pupils was assessed in the 75 classes of the first sub-sample. In Grade 3, the social subscale of the CBSK was administered as a group test, while the social subscale of the Pictorial Scale in Grades 1 and 2 was administered individually. On the basis of the scores on the social subscale of the CBSK/Pictorial Scale, a self-perception score was calculated for each pupil. The minimum score of the CBSK (consisting of six questions) was 6, the maximum score 24. The score on the Pictorial Scale (consisting of five questions) could vary between 5 and 20. For both scales it applies that, the higher the score, the higher the social self-perception.

Assessment of acceptance by classmates (peer rating). All pupils in the 75 classes of the first sub-sample were asked to fill in a rating scale containing the names of all their classmates. They were asked to indicate on a 3-point scale to what degree they would like to play with each classmate. They could choose between the following three answering categories, each visually supported by smileys: 1) yes, I would like to 😊, 2) I don't care 😐, and 3) no, I would not like to ☹.

In Grades 2 and 3 the rating scale was administered as a group test, while in Grade 1 the scale was administered individually: the researcher read aloud the names of all classmates and the pupil mentioned how much s/he liked to play with each of them. Table 3 shows which instruments to assess the four key themes were applied to what number of pupils (with and without special needs).

Table 3. Instruments for assessment of key themes related to number of pupils

Subscale	Instrument	# pupils with special needs	# pupils without special needs
Friendships/relationships	Sociometric nomination method	140	202
Contacts/interactions	Observation schedule	59	59
Pupil's social self-perception	Social subscale of CBSK/Pictorial Scale	27, 67	42, 99
Acceptance by classmates	Sociometric Rating scale	96	148

6.2.4 Analysis

The Questionnaire's convergent validity was assessed by comparing the scores of pupils on the four subscales with their scores on the four instruments, which successively assess friendships, contacts/interactions, social self-perception and acceptance. Two levels of expectations on convergent validity can be distinguished. First, specific correlation patterns were expected. It was supposed that pupils' scores on the instrument to assess one of the key themes would correlate the strongest with the subscale representing that key theme. For instance, pupils' number of friendships were expected to correlate more strongly with the 'Friendships/relationships' subscale than with the other three subscales. Secondly, correlation coefficients which meet or exceed .35 were regarded as another source of evidence of convergent validity (Hammill, Brown & Bryant, 1989, in Trout, Ryan, La Vigne, & Epstein, 2003).

Friendships. The sociometric data resulting from the reciprocal friendship-nomination method were analysed using the UCINET software (Borgatti, Everett & Freeman, 1999) to identify friendships. Friendship was defined as a reciprocal choice, implying that two pupils choose each other as each other's best friend (Frostad & Pijl, 2007). The number of friendships was expected to correlate positively with the score on the 'Friendships/relationships' subscale and with the score on the total Questionnaire. It was decided to use the absolute number of friendships (instead of standardized Z-scores) in calculating correlations with the Social Participation Questionnaire, as class size had only minimal influence on a pupil's number of friendships.

Interactions. For each pupil the total number of (both initiated and received) interactions with fellow classmates and the total number of interactions with the teacher were calculated. The number of interactions with fellow classmates was expected to show a positive correlation with the 'Contacts/interactions' subscale and with the total Questionnaire. Conversely, a pupil's number of interactions with the teacher was expected to correlate negatively with his/her scores on the 'Contacts/interactions' subscale and on the total Questionnaire, since having interactions with the teacher might be at the expense of interactions with classmates.

Social self-perception. For each pupil a social self-perception score was calculated on the basis of the outcomes of the CBSK (Grade 3)/Pictorial scale (Grades 1 and 2). The raw scores of both scales were used for this purpose. For

pupils in Grade 3 the score could range between 6 and 24, for pupils in Grades 1 and 2 the score could vary from 5 to 20. The social self-perception score of pupils was expected to correlate positively with their score on the 'Pupil's social self-perception' subscale and with their score on the total Questionnaire.

Acceptance. Each pupil received points from all classmates, since all classmates had indicated on a 3-point scale (see Procedure section) to what degree they would like to play with the pupil (☺= 1 point, ☹= 0 points, ☹= -1 point). Counting up all points resulted in a raw score for each pupil. As the number of points a pupil could receive was strongly related to class size, Z-scores were calculated. This was done by subtracting the mean score of the class from the pupil's raw score, then dividing the difference by the standard deviation of the class. By means of these Z-scores, a correction for class size was made. As a result, scores of pupils could not only be compared with their classmates' scores, but also with scores of pupils from other classes (comprising various numbers of pupils). The Z-score of acceptance was expected to correlate positively with the 'Acceptance by classmates' subscale and with the total Questionnaire.

Finally, confirmatory factor analyses using LISREL software (LISREL 8.80, Jöreskog & Sörbom, 2007) were conducted in order to further evaluate our model of social participation. These analyses are a more comprehensive approach towards assessing the Questionnaire's convergent validity, as it is a multi-trait, multi-method assessment. Moreover, these analyses were expected to provide insight into the degree to which the data fit our model of social participation (see Introduction section). The Maximum Likelihood (ML) estimation algorithm was used to verify the conceptual structure of the data.

Four indexes were used to evaluate model fit: the ratio of chi-square to degrees of freedom is given as a first indication of model fit. This ratio (χ^2/df) is, in comparison with chi-square or the *P*-statistic, less sensitive to group sizes and departures from normality (Rozendaal, Minnaert & Boekaerts, 2003). Following Byrne (1989) and Browne and Cudeck (1993, in Vermunt & Minnaert, 2003), a χ^2/df ratio equaling or below 2 is considered as a good fit. Next to the χ^2/df ratio, the following three indexes were used to evaluate model fit: the root mean square error of approximation (RMSEA), the goodness of fit index (GFI) and the incremental fit index (IFI). The latter is based on comparison of the fit of a target model with that of a null model, and aims at quantifying the proportional improvement in fit for a target model relative to a null model (Schmukle & Hardt,

2005). According to Jaccard and Wan (1996, in Vellutino, Tunmer, Jaccard & Chen, 2007), statistically non-significant RMSEAs that are no greater than 0.08 suggest acceptable model fit, as do GFIs ≥ 0.90 . Finally, IFIs ≥ 0.90 indicate an acceptable fit with the data (Bollen & Curran, 2006).

6.3 Results

6.3.1 Convergent validity of the four subscales

As anticipated, the number of friendships, the number of interactions with classmates, the self-perception score and the acceptance score correlated positively with the score on the total Questionnaire and with the score on the subscales, whereas the number of interactions with the teacher showed a negative correlation with the scores on the total Questionnaire and the subscales. As described in the Analysis section, specific correlation patterns were regarded as evidence for the Questionnaire's convergent validity. It was supposed that pupils' scores on the instrument to assess one of the key themes would correlate the strongest with the subscale representing that key theme. For the 'Friendships/relationships' subscale the expected correlation pattern was demonstrated, as the number of friendships showed a stronger correlation with the 'Friendships/relationships' subscale than with the other three subscales. For the 'Contacts/interactions' subscale the expected correlation patterns were mainly demonstrated: the number of both initiated and received interactions with classmates showed a stronger correlation with the 'Contacts/interactions' subscale than with the other subscales. However, the number of interactions with the teacher showed a slightly stronger correlation with the 'Friendships/relationships' subscale than with the 'Contacts/interactions' subscale. For the other two subscales, the correlation patterns deviated from the expectations. The expectation that the self-perception score would show a stronger correlation with the 'Pupil's social self-perception' subscale than with the three other subscales could not be confirmed. The expected pattern could not be demonstrated, neither for pupils in Grade 3 nor for those in Grades 1 and 2. The same applies for the 'Acceptance by classmates' subscale: contrary to the expectations, the acceptance score showed a stronger correlation with the

'Friendships/relationships' and 'Contacts/interactions' subscales than with the 'Acceptance by classmates' subscale.

After having examined the correlation patterns, the strength of correlations was inspected. As explained in the Analysis section, correlation coefficients should meet or exceed 0.35 in order to be regarded as evidence for convergent validity. It turned out that only for the 'Friendships/relationships' and 'Acceptance by classmates' subscales were the correlation coefficients equal to or above 0.35. For the other two subscales, the correlations coefficients were below this value. Table 4 provides a detailed overview of the correlations for each of the four subscales.

Table 4. Correlation between (subscales of) Social Participation Questionnaire and scores on instruments to assess the four key themes

Subscale	Number of friendships	Initiated interactions with classmates	Interactions Received interactions with classmates	Interactions with teacher	Self-perception score	Acceptance score
Friendships / relationships	0.50**	0.16	0.22*	-0.29**	Grade 1/2: 0.33** Grade 3: 0.29*	0.50**
Contacts / interactions	0.45**	0.20*	0.27**	-0.28**	Grade 1/2: 0.27** Grade 3: 0.29*	0.58**
Pupil's social self-perception	0.32**	0.11	0.20*	-0.14	Grade 1/2: 0.22** Grade 3: 0.25*	0.35**
Acceptance by classmates	0.26**	0.04	0.09	-0.14	Grade 1/2: 0.17* Grade 3: 0.12	0.35**
Total Questionnaire	0.46**	0.15	0.23*	-0.25**	Grade 1/2: 0.29** Grade 3: 0.30*	0.54**

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

6.3.2 Second order analysis

Introduction. Inspection of the correlation matrix (Table 4) reveals that evidence for the Questionnaire's convergent validity is rather spurious. A confirmatory factor analysis using the LISREL program was conducted in order to attempt removing the lack of clarity. The data from the correlation matrix were used as input for this second order analysis.

Model specification. The sociometric nomination method and the 'Friendships/relationships' subscale are supposed to be indicators of the latent factor 'Friendship' (ξ_1), the observation schedule and the 'Contacts/interactions' subscale are indicators of the latent factor 'Contact' (ξ_2), the social subscale of the CBSK/Pictorial Scale and the 'Pupil's social-self-perception' subscale are expected to be indicators of the latent factor 'Social-self-perception' (ξ_3) and, finally, the sociometric rating scale and the 'Acceptance by classmates' subscale are supposed to be indicators of the latent factor 'Acceptance' (ξ_4).

Two separate analyses were run for both sub-samples (see Participants section). In order to run the analyses, the sub-samples were split into Grades 1/2 and Grade 3, as the instrument to assess pupils' social self-perception differed for the pupils from these different grade groups.

Results. Inspection of the fit indexes concerning ξ_1 (Friendship) and ξ_2 (Contact) called up the necessity to release the method factor regarding initiated and received interactions with classmates. As both methods are observation scales focusing on interactions between pupils, the scales have some common variance. Hence it is obvious to release this method factor. As presented in the upper part of Table 5, there is a significant gain due to releasing the method factor. A significant change in $\Delta\chi^2/df$ is realised and the fit indexes (GFI, RMSEA, P of close fit) meet the aforementioned criteria (see Analysis section). Also, the IFI is acceptable after release of the method factor (0.96 for Grades 1/2, 0.99 for Grade 3). Because of this major improvement of fit, the release of the method factor can be regarded as valid. After having released the method factor for both Grades 1/2 and Grade 3, the confirmatory factor analysis to verify the conceptual structure of the data on item level indicated a good fit.

The results on ξ_3 (Social-self-perception) and ξ_4 (Acceptance) are presented in the lower part of Table 5. As can be seen, for pupils in Grades 1/2 the confirmatory factor analysis indicates a good fit for ξ_3 and ξ_4 . However, for pupils in Grade 3 the model fits the data less well.

Table 5. Goodness-of-fit indices for competing models for ξ_1 'Friendship', ξ_2 'Contact', ξ_3 'Social self-perception' and ξ_4 'Acceptance'

Competing models	χ^2	df	χ^2/df	GFI	RMSEA	P of close fit
$\xi_1 \xi_2$						
Grades 1/2						
Basic model	527.48	14	37.68	0.35	1.37	0.00
Release of method factor	15.54	10	1.55	0.94	0.08	0.22
Grade 3						
Basic model	320.89	14	22.92	0.26	1.75	0.00
Release of method factor	11.30	10	1.13	0.91	0.06	0.42
$\xi_3 \xi_4$						
Grades 1/2						
Basic model	6.44	4	1.61	0.98	0.06	0.36
Grade 3						
Basic model	10.28	5	2.06	0.93	0.13	0.11

Table 6 shows the results of the maximum likelihood estimations of ξ_1 and ξ_2 for pupils in Grades 1/2 and Grade 3. With regard to ξ_2 the correlation patterns are notable, as in Grade 3 the maximum likelihood estimation shows that the interactions with classmates present no significant correlations with this latent factor; by contrast, in Grades 1/2 the correlations between interactions with classmates and ξ_2 are evidently significant. For the interaction with the teachers, the opposite is true: in Grade 3 the interaction with the teacher shows a significant correlation with ξ_2 and in Grades 1/2 interaction with the teacher only minimally correlates (significant at the 0.10 level) with this latent factor.

Table 6. ML solutions of the measurement model for ξ_1 and ξ_2

	λ			
	Grades 1/2		Grade 3	
	ξ_1 Friendship	ξ_2 Contact	ξ_1 Friendship	ξ_2 Contact
Subscale 'Friendships/relationships'	0.95**		0.95**	
Number of friends	0.48**		0.64**	
Subscale 'Contacts/interactions'		0.95**		0.95**
Initiated interactions with classmates		0.37**		-0.11
Received interactions with classmates		0.40**		0.11
Interactions with teacher		-0.22 ^o		-0.44**

^o Correlation is significant at the 0.10 level

* Correlation is significant at the 0.05 level

** Correlation is significant at the 0.01 level

The results of the maximum likelihood estimations of ξ_3 and ξ_4 for both groups of pupils are presented in Table 7. As can be seen in the Table, the correlation patterns of Grades 1/2 and Grade 3 are very similar.

Table 7. ML solutions of the measurement model for ξ_3 and ξ_4

	λ			
	Grades 1/2		Grade 3	
	ξ_3	ξ_4	ξ_3	ξ_4
	Social self-perception	Acceptance	Social self-perception	Acceptance
Subscale 'Pupil's social self-perception'	0.95**		0.95**	
Social self-perception score	0.24**		0.27*	
Subscale 'Acceptance by classmates'		0.95**		0.89**
Acceptance score		0.41**		0.36**

* Correlation is significant at the 0.05 level
 ** Correlation is significant at the 0.01 level

The correlations between the latent factors are strong, implying that the constructs are closely connected. For Grades 1/2, the disattenuated correlation between ξ_1 (Friendship) and ξ_2 (Contact) is 0.83, for Grade 3 it is 0.84. The correlations between ξ_3 (Social-self-perception) and ξ_4 (Acceptance) are slightly weaker, as for Grades 1/2 the disattenuated correlation is 0.60 and for Grade 3 this correlation is 0.63. The disattenuated correlations are not perfect, indicating that the constructs are not wholly overlapping. However, the intercorrelatedness is high.

6.4 Discussion

In this paper, the convergent validity of a new teacher questionnaire to assess the social participation of pupils with special needs in regular primary schools was examined. Pupils' scores on the total Social Participation Questionnaire and on each of the four subscales were compared with their scores on four other instruments, each focusing on one of the key themes of social participation.

Inspection of a correlation matrix, consisting of correlations between the Questionnaire's subscales and other instruments to assess the four key themes, revealed that evidence for the Questionnaire's convergent validity was rather

spurious. Only the convergent validity of the 'Friendships/relationships' subscale was satisfactory, as both the strength of the correlation (>0.35) and the correlation pattern were in accordance with expectations. For the 'Contacts/interactions' and 'Acceptance by classmates' subscales, the convergent validity was only proven partly. For the former subscale the expected correlation patterns were mainly found, but the correlation coefficients were below 0.35, while for the latter subscale the opposite was the case. For the 'Pupil's social self-perception' subscale, no evidence for its convergent validity was demonstrated, as the correlation coefficients were below 0.35 and the expected patterns were not demonstrated.

The relatively low correlations between the Social Participation Questionnaire and the instruments to assess the four key themes of social participation are not surprising, as several categories of respondents were involved. Whereas the Social Participation Questionnaire was filled in by teachers, pupils and observers were involved in the assessment of the four key themes. It is known from various studies that assessments of different informants often provide discrepant outcomes (Achenbach, 2006; Bartels et al., 2003). For instance, a meta-analysis by Achenbach, McConaughy and Howell (1987) showed only limited correlation between maternal and paternal ratings of problem behaviour of the same child. As in our study teachers, pupils and observers were involved as respondents, their varying perspectives might have negatively influenced the correlations between their assessments. Moreover, the various assessment instruments applied by the different types of respondents might have reduced the correlations.

Because of the partly low correlations between the different assessment instruments and the Social Participation Questionnaire, and due to the correlation patterns which partly deviated from the expectations, the outcomes on the Questionnaire's convergent validity were rather inconclusive. However, a second order analysis, a confirmatory factor analysis using the LISREL program, did provide evidence for the Questionnaire's convergent validity. The results from this second order analysis provide support for the model of social participation, distinguishing four key themes. The fit indexes for ξ_1 (Friendship) and ξ_2 (Contact) were satisfactory in all grades. The fit indexes for ξ_3 (Social-self perception) and ξ_4 (Acceptance) were acceptable for Grades 1/2, but for Grade 3

the model fitted the data less well. The fit indexes suggest that our model is theoretically viable for Grades 1/2 and only partly viable for Grade 3.

With regard to ξ_2 (Contact), an unknown factor seems to play a role. In Grade 3 the maximum likelihood estimation shows that the interactions with classmates show no significant correlation with the latent factor Contact, whereas in Grades 1/2 the interaction with the teacher shows only a minimal correlation (significant at the 0.10 level) with this latent factor. One possible explanation for this correlation pattern might have to do with the fact that in the higher grades the focus lies increasingly on academic learning and less on play. Pupils with special needs may be ever more dependent on the teacher, as the gap between them and their typical classmates becomes larger. As a result, pupils with special needs in Grade 3 might be more focused on the teacher instead of associating with classmates. Another possible explanation concerns the different focus of the 'Contacts/interactions' subscale versus the observation schedule. Whereas the subscale encompasses both the quality and the quantity of interactions, the observation schedule aims solely at quantity of interactions. This difference might have influenced the correlation between the observations and the latent factor 'Contact'.

In further examining the Social Participation Questionnaire, investigating its utility should be a next step — for instance, examining the meaning of the scores on the Questionnaire is advisable, as it would be valuable for teachers to know which scores on the Questionnaire are cause for concern. Future research should aim at establishing a cut-off point beyond which a score is alarming and additional measures need to be taken. In addition, further research into the convergent validity of the subscales 'Social self-perception of pupil' and 'Acceptance by classmates' for pupils in Grade 3 is recommended.

Taking into consideration the outcomes of this study, it can be concluded that the Social Participation Questionnaire is partly proven to be a tool of good quality for teachers. The Questionnaire seems to have the potential to become valuable for them. Since the Questionnaire consists of concrete statements focusing on daily practice, this is expected to foster the accuracy of teachers' judgments. Besides, by filling in the Questionnaire for a pupil, the teacher is forced to think critically about the pupil's situation in the class, which might lead to renewed and refined insights. As shown in this study and in a former study (Koster et al., 2008), the Questionnaire as a whole is reliable and valid. In addition, the distinction into

four subscales was proven to be correct, indicating that, although overlapping to a reasonable extent, within social participation four key themes can be distinguished. Aside from the total score, it seems important to take into consideration the scores on the four subscales in order to gain further insight into the different themes of social participation. Such a perspective is expected to result in a more appropriate and balanced view of the social participation of pupils, offering starting points for differentiated interventions.

6.5 References

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