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Modelling inclusive special needs education: insights from Dutch secondary schools

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ABSTRACT


Inclusive special needs education is prominent on the international education agenda. Research on the characteristics of inclusive education for students with special needs and schools providing this is scarce, however. Our aim in the present study was therefore to further theory-building with regard to inclusive special needs education. On the basis of the relevant literature, we identified three core aspects of inclusivity: the learning environment, the guidance provided by teachers and the general care structure. With the help of exploratory and confirmatory factor analyses conducted on data obtained from school professionals in 79 secondary schools in the Netherlands, we were able to identify 12 underlying characteristics for a conceptual framework to further research on the inclusive nature of schools and education. Multilevel structural equation modelling of the judgments of school professionals at the level of the school also showed that the inclusive special needs education in at least secondary schools can be characterised by two main factors: (1) learning environment and (2) guidance and care. The analyses showed considerable agreement on the important aspects of inclusivity for schools and thus how differences between schools can be explained. The results further showed the work of the care coordinator – which includes cooperation with external partners and teachers with mentoring roles – to be the clearest indicator of the extent of the inclusive special needs education within schools. This finding is interpreted as suggesting that the recommended teaching practices and student care for adequate included special needs education have not yet been integrated into teachers' thinking and acting. Follow-up research drawing upon the developed framework is therefore called for to not only more generally validate the framework but also determine if the situation in school has changed, now that the policy and practices for inclusive education have become more familiar.


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1. Introduction

Since the Salamanca Statement to help promote inclusive education (UNESCO 1994), discussion has continued on the best ways of organising education to promote the learning and development of all children, including those with special needs (Florian 2012; Tomlinson 2015). National education policies, political considerations, socio-economic conditions and cultural-historical factors obviously influence the design and development of inclusive education systems (Hansen 2012; Hardy and Woodcock 2015; OECD 2015). In many countries, students with 'special educational needs' are still taught in separate schools or separate groups sometimes with and sometimes without special guidance (Agalianos 2012). More and more, however, schools are taking up the challenge of teaching students with special needs as much as possible within the regular classroom context.

Unfortunately, schools are finding themselves not completely able to realise the conditions needed for inclusive education. First, a widely shared, unequivocal interpretation of what constitutes 'inclusive special needs education' is not yet available. A marked discrepancy also exists between the ideological and practical commitment to inclusive education in schools due to a lack of cooperation between scientists, politicians and school professionals (Göransson, Nilholm, and Karlsson 2011; Jahnukainen 2015). Furthermore, the principles put forth for educational practice greatly vary; they can range from simply calling for the integration of students with disabilities and learning disorders to stipulating what constitutes 'good education for all children' (Ainscow and César 2006; Armstrong, Armstrong, and Spandagou 2011). An important step in the realisation of inclusive special needs education thus consists of achieving clarity on what inclusive special needs education requires of teachers and schools and therefore 'how to look for and recognize inclusion in schools' (Nind et al. 2004, 259).

In the Netherlands, educational policy has targeted inclusive education for many years now. However, the process of formalising inclusive educational policy into law and shaping school practices is still underway. In fact, observations of insufficient government attention to the Salamanca Statement of 1994 and the 'convention on the rights of persons with disabilities' (UNESCO 2006) are increasingly being heard.

The purpose of the present study was therefore to help stimulate the empirical study and realisation of inclusive special needs education with the development of a conceptual model for evaluation and testing. We do not take a stand on the ongoing policy discussion but offer, instead, a theoretically and empirically grounded model for better understanding the characteristics of the inclusive special needs education which schools are increasingly wanting to provide.

2. Inclusive special needs education

We define inclusive special needs education as accepting all students in regular education, if necessary in collaboration with schools of special education and/or external partners or agencies (e.g. social workers, youth care professionals, school attendance officers, police) (see also Hansen 2012; Mitchell 2014). Such a definition implies that students need not be diagnosed and labelled. Inclusive school policy and teaching practices are shaped by the different educational needs of students, not by the deficiencies of certain students compared to others. As such, the design of inclusive special needs education can be undertaken from

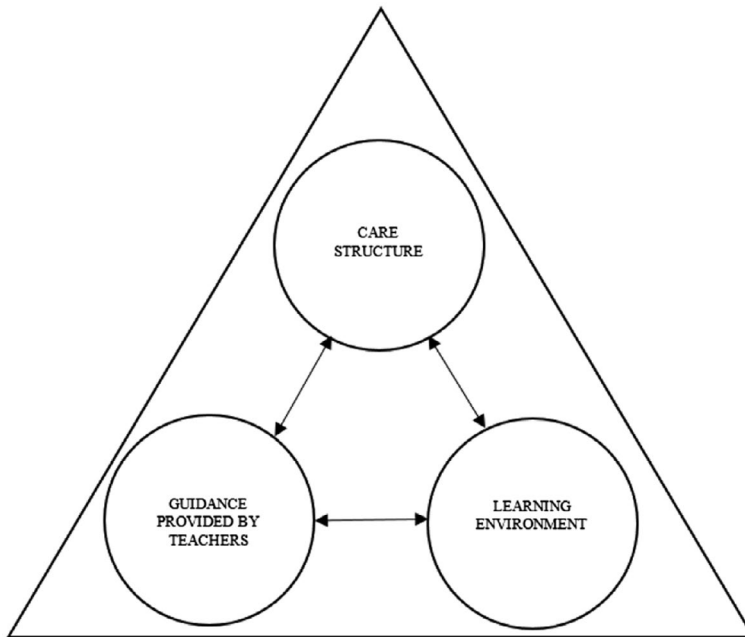


Figure 1. Conceptual framework of inclusive education.

the general perspective of school development, with attention to the educational views of school management and the professionalism of teachers (Ainscow and Sandill 2010).

For the conduct of research and understanding the required characteristics of inclusive special needs education, characteristics at both the school and classroom levels must be taken into consideration. The results of a review study by the European Agency for Development in Special Needs Education (Meijer 2004) on the implementation of inclusive education in secondary schools drawn from 14 European countries, for example, highlighted the importance of an environment in which the learning of *all* students is promoted by such pedagogical characteristics as cooperative learning, effective instructional methods, feedback, frequent assessment, flexible assessment and high expectations for what students can achieve. Sufficient expertise and contact within the school to provide specific guidance with regard to school practices were also found to be important as well as the organisational conditions needed to realise such guidance.

In order to gain a clearer understanding of the relevant characteristics of inclusive special needs education and their interrelations at the level of the school but also the level of the classroom, we examined three domains of school functioning which could be expected to influence inclusive special needs education and have been shown to do so in the relevant literature: the learning environment, the guidance provided by teachers and the general care structure.

Among the characteristics of an inclusive *learning environment* are high expectations, positive feedback from teachers, frequent feedback with regard to learning goals, sufficient learning time, a supportive atmosphere, orderly surroundings, promotion of cooperation, promotion of reciprocity (i.e. mutual help) and student participation in lessons (Booth and Ainscow 2011; Meijer 2004). These characteristics largely correspond to the characteristics of the learning environment

shown to be of importance in school effectiveness research (see, e.g. Muijs et al. 2014). In terms of 'the basic psychological needs' identified by Ryan and Deci (2000), an inclusive learning environment should offer students autonomy (i.e. encourage them to make their own choices), promote competence (i.e. allow students to experience learning as meaningful and teaching as attuned to their abilities) and attend to relationships (i.e. help students feel connected to teachers and other students). Teachers can encourage all of this with the use of such teaching methods as cooperative learning, peer tutoring and team teaching (Florian 2008; Mosen, Ewing, and Kwoka 2014; Nevin, Thousand, and Villa 2009).

The realisation of an inclusive learning environment for students greatly depends on the *guidance provided by teachers* which can take the form of 'adaptive' teaching, a differentiated curriculum and socio-emotional support. Teachers must be able to customise their teaching, irrespective of whether the students are 'normal' or 'special'; they should be able to clearly recognise and acknowledge the potential of each student and they should be able to stimulate the individual development of each and every student. Doing all this requires not only well-developed classroom management and guidance skills (Mitchell 2014) but also presupposes a positive teacher–student relationship (Watkins 2012). The quality of the teacher–student relationship has been found to be particularly important for the school success of students with special educational needs (Roorda et al. 2011). And optimisation of the teacher–student relationship has been found to call for cooperation between those teachers working with the same students or classes, particularly in secondary education where different subjects are taught by different teachers (Florian 2008). Social-emotional support and guidance in the sense of 'mentoring' has also been found to promote the well-being and school success of particularly students with special educational needs (Colley 2003; Kyriacou 2015). And either the teachers, special personnel or both can give students the social-emotional support which they need and are entitled to.

From the moment that fewer students began to be referred for special education, schools have paid *increased* attention to their internal *care (i.e. support) structures*. Although this care is primarily for students with special educational needs, the care expertise is no longer supposed to focus on deficiencies but instead on the educational and developmental needs of *all* students. As such, the support provided by available care structures in schools now should be more concerned with preventive than with curative needs (Meijer 2009). Usually, for example, the internal care team discusses which students appear to need additional support. The intention of the external care team is to harmonise the guidance provided by teachers and other at the school, family, and health and human service professionals (Muijs, West, and Ainscow 2010; Soresi, Nota, and Wehmeyer 2011). Among the health and human service professionals involved in the care structure are social workers, youth care professionals, school attendance officers from the community and police. This multi-professional collaboration requires shared knowledge, goals and views (Thornberg 2012). Often the care coordinator is the central figure in the school's care structure. Together with 'mentors' (teachers with an additional mentoring role for a group of students), the care coordinator usually maintains contact with the parents of students. And taking parents' expertise seriously and involving them in the guidance of their child increases the chances of a successful intervention (Jeynes 2012). Finally, the individual education plan (IEP) occupies a special place within the school's care structure. An IEP has been shown to be particularly effective when not only the student but also the parents are involved in the creation and evaluation of the plan (Wagner et al. 2012).

Table 1. Overview of the sample.

School type	Number of schools	Total number of respondents	Range of number of respondents per school	Average number of respondents per school *
Preparatory secondary vocational education*	29	754	4–103	26.0
General secondary education**	35	1151	6–109	32.9
Practical education***	15	311	9–32	23.0
Total	79	2216	4–109	27.3

*These schools offer four streams of pre-vocational education, differing for cognitive ability, 12–16 years.

**These schools combine several streams for different cognitive levels, 12–18 years.

***These schools provide vocational training for students with cognitive impediments and is aimed at allowing students to enter the job market directly, 12–18 years.

In Figure 1, the characteristics of inclusive special needs education are summarised in the form of a conceptual framework for further testing. Important are the design of the learning environment, the guidance provided by teachers and the general care structure. The arrows in the figure indicate the interdependence which we have assumed to occur between these three characteristics.

As yet, no research has been conducted on the interrelations between the important characteristics of inclusive special needs education at the level of the school. With the present study, we hope to remedy this situation and therefore formulated the following question: *What are the core characteristics of inclusive special needs education according to the perceptions of school professionals in secondary schools in the Netherlands?*

3. Method

3.1. Research population

Our proposed conceptual framework for inclusive special needs education was tested using the data from self-evaluations coming from 79 schools for secondary education in the Netherlands (2216 respondents). The schools were widely distributed throughout the Netherlands with a variance in school size that is regular given the general population of Dutch schools. The data was collected as part of a national self-evaluation project entitled 'Quality of student care'. And a two-step data collection procedure was followed. First, the schools registered voluntarily. Then, the school managers (top- and middle-management levels) teachers and guidance personnel (e.g. care coordinators, remedial teachers and mentoring teacher) were administered a questionnaire. Depending on the size of the school, the contact person for the school decided – with the approval of the external research consultant – to include all relevant individuals or a sample of relevant individuals, according to the following guideline: schools with less than 500 students all individuals; with more than 500 students a sample.

The self-evaluations were collected during the course of the school years 2005–2006 and 2006–2007. Table 1 presents an overview of the number of respondents per type of school.

Table 2. Overview of scale scores, reliabilities and standard deviations (N = 2216).

	Scale	Items (n)	α	Min	Max	Mean	SD
1	Stimulating learning environment	5	.75	1	4	3.02	.44
2	Secure learning environment	5	.72	2	4	3.04	.42
3	Participatory learning environment	4	.71	1	4	2.78	.46
4	Guidance mentor/regularly assigned teacher	6	.84	1	4	3.00	.49
5	Individual guidance in lessons	4	.65	1	4	2.89	.50
6	Customised program	7	.84	1	4	2.58	.59
7	Individual education plan	4	.81	1	4	2.68	.69
8	Parents as partners in guidance	4	.82	1	4	3.06	.57
9	Functioning of care coordinator	6	.92	1	4	3.07	.62
10	Functioning of care team	4	.89	1	4	2.93	.71
11	Interagency collaboration	6	.89	1	4	2.96	.55
12	Harmonisation of internal and external care	4	.85	1	4	2.85	.59

3.2. Measures

As part of the national self-evaluation project, a questionnaire was anonymously distributed via a web unit linked to a central program, which was administered by a contact person from the school. The questionnaire was developed by a project team, which included the first author of this article on the basis of a literature study, the practice experiences of consultant personnel and the legal assessment framework from the Dutch Inspectorate of Education. The questionnaire consisted of 222 items addressing issues concerning educational quality such as the teaching and learning process, guidance, care structure and trajectories. Respondents were asked to indicate their opinions by scoring the items along a four-point scale, supplemented with the option 'don't know'.

To operationalise the conceptual framework for purposes of the present study, we first selected the relevant topics from the questionnaire with items referring to (1) learning environment, (2) guidance provided by teachers or (3) care structure. Those items meeting the basic criteria for item formulation were then selected from the initial selection of items. Exploratory factor analyses and reliability analyses were then conducted to construct scales (all decisions were based on the theoretical framework as described earlier). This resulted in 12 scales concerned with the learning environment, guidance provided by teachers or general care structure with each scale showing a unidimensional factor structure and sufficient reliability.¹

The length of the questionnaire led to a relatively large amount of missing data towards the end of the questionnaire. The schools had also been instructed that they could disregard any questions or topics judged to be irrelevant for them. The percentage of missing data varied from 3.3 to 69.7%, with an average of 33.4%. In order to find out if the missing data reflected a systematic pattern of omission, the separate scales were tested at the school level to see if the scale scores correlated with the response completeness for the scale in question. None of these correlations proved significant, and no support was obtained for a systematic pattern of missing data. Further analyses were therefore based upon the assumption 'missing at random' for all missing data.²

On the basis of individual scores obtained for the school professionals completing the self-evaluation questionnaire ($n = 2216$), we computed the reliabilities, average scale scores and associated standard deviations (see Table 2).

The reliability of the scales was good and varied from .71 to .92 with the exception of the scale for *individual guidance during lessons*, which qualified as only fairly reliable ($\alpha = .65$). The

Table 3. Intraclass correlations (ICC), design effects and interrater reliability scores for scales at school level (N = 79).

	Scale	Items (<i>n</i>)	ICC	Design effect	$r_{WG(I)}$
1	Stimulating learning environment	5	.15	5.1	.93
2	Secure learning environment	5	.10	3.8	.93
3	Participatory learning environment	4	.15	5.0	.88
4	Guidance mentor/regularly assigned teacher	6	.14	4.7	.91
5	Individual guidance in lessons	4	.18	5.8	.88
6	Customized program	7	.17	5.7	.89
7	Individual education plan	4	.15	5.0	.78
8	Parents as partners in guidance	4	.14	4.8	.85
9	Functioning of care coordinator	6	.15	4.9	.86
10	Functioning of care team	4	.24	7.5	.82
11	Interagency collaboration	6	.09	3.4	.89
12	Harmonisation of internal and external care	4	.19	3.7	.84

means for the scales did not vary greatly. The standard deviations for the 12 scales varied from .42 to .71. The data of the scales were normally distributed; there was no indication of ceiling effects or extreme skewness.

3.3. Analyses

First, the descriptive data and reliabilities (Cronbach's alphas) for each of the scales were determined. We then examined the extent to which data dependency in schools had to be taken into account. For this purpose, the intraclass correlations, design effects and interrater agreement were inspected. Thereafter, the unidimensionality and reliability of the scales were determined at the level of the school and the relations between the factors examined in confirmatory factor analyses.

To determine the extent of data dependency in schools, the design effect was computed and interpreted for all separate items and the average scale scores using the following rule of thumb: the design effects had to be at least equal to the value of 2 (see Table 3) (Muthén and Satorra 1995).

The design effects for the scales varied from 3.42 to 5.8 with an average effect of 4.02, which is considerably higher than the established criterion of 2. The size of the design effects could be seen to depend on not only the high intraclass correlations ($M = .12$; $SD = .06$; range = .03–.31) but also the high average of respondents within schools (across all scales 28.5).

We used multilevel structural equation models (SEM) with the help of Mplus to first test factor models at the level of the items for each scale separately and then at the level of the scale (see Online Appendix). Given that the research question concerned the distinguishable characteristics of inclusive education at the school level and as the formulation of the items concerned the characteristics of particular schools, only the external covariance matrix was used for the multilevel analyses. The internal covariance matrix was left free – no restrictions were imposed on the within models (Hox and Maas 2001). The following criteria were applied to evaluate the fit of the models: values equal to or below .06 for the Root Mean Square Error of Approximation (RMSEA) and values equal to or below .95 for the Comparative Fit Index (CFI) were taken to indicate a proper fit (Hu and Bentler 1999).

Table 4. Model estimates per characteristic of inclusive education with WLSMV estimates (analyses of interschool variance; $N = 79$).

	Factor	χ^2	df	p	RMSEA	CFI
1	Stimulating learning environment	12.967	7	.073	.020	.999
2	Secure learning environment	11.864	5	.037	.025	.998
3	Participatory learning environment	5.993	2	.050	.030	.998
4	Guidance mentor/regularly assigned teacher	7.419	10	.000	.053	.990
5	Individual guidance in lessons	5.224	3	.156	.019	.998
6	Customized program	21.200	14	.097	.016	.998
7	Individual education plan	2.213	3	.529	.000	1.000
8	Parents as partners in guidance	6.041	2	.049	.034	.999
9	Functioning of care coordinator	32.305	10	.000	.039	.998
10	Functioning of care team	3.839	3	.279	.014	1.000
11	Interagency collaboration	8.040	9	.530	.000	1.000
12	Harmonisation of internal and external care	.377	2	.828	.000	1.000

Note: See Online Appendix for items and factor loadings.

The reliabilities of the scale scores at the school level were estimated with multilevel SEM following the method described by Raykov (2001). With the help of correlation analyses at the school level, the pattern of connections between the characteristics of inclusive special needs education were examined. In order to verify the unidimensionality of the separate scales, we first tested all of the one-factor models at the level of the school. Considering the limited size of the sample of schools ($N = 79$), estimation of restrictive factor models was next used to examine the discriminant validity of the scales. This means that apart from specific scale items, the score of another scale is included as an observed variable in order to identify possible violators of the trait type (Oort 1998) (with Bonferroni correction to adapt to the level of significance on account of the large number of models being estimated). The modification indices were then inspected for double loadings.

The construction of a characteristic at the level of an organisation on the basis of individual responses only makes sense when there is sufficient agreement on the characteristic within the organisation (Chan 1998). For this reason, we also calculated the within-group rater reliability statistic (r_{WGJ} ; James, Demaree, and Wolf 1993). This agreement had to be at least equal to .70 (Le Breton and Senter 2008). The r_{WGJ} measure for all scales considerably exceeded the threshold of .70 (see Table 3). And once again, inspection of the distributions of the scale scores provided no indications of a ceiling effect. Last, it was examined to what extent the factors in the final model correlated with each other.

4. Results

As our research question was formulated at the school level and as the questionnaire asked for the opinions of respondents with regard to their own school practices, only the intervariance for the multilevel constructed model of inclusive special needs education was analyzed. The results are presented in Table 4.

The measures of fit for all of the models were good (see Table 4). In general, a RMSEA value of .06 or less is indicative of an acceptable fit. A CFI value of .90 or larger is generally taken to indicate an acceptable model fit.³ For our model testing, all RMSEA values were below .06 and all CFI values above .95.

On the basis of preceding results, the unweighted scale scores and correlations between the scales were computed at the level of the school (see Table 5).

Table 5. Correlation matrix and reliability of scale scores* for the 12 characteristics of inclusive special needs education (reliabilities along diagonal in italics, analyses at school level) (N = 79).

Scale	1	2	3	4	5	6	7	8	9	10	11	12
1 Stimulating learning environment	<i>.86</i>											
2 Secure learning environment	.54	<i>.90</i>										
3 Participatory learning environment	.41	.32	<i>.87</i>									
4 Guidance mentor/regularly assigned teacher	.51	.48	.41	<i>.91</i>								
5 Individual guidance in lessons	.44	.37	.44	.63	<i>.69</i>							
6 Customized program	.37	.29	.43	.52	.56	<i>.94</i>						
7 Individual education plan	.31	.26	.34	.48	.46	.53	<i>.84</i>					
8 Parents as partners in guidance	.41	.34	.33	.51	.50	.46	.50	<i>.90</i>				
9 Functioning of care coordinator	.34	.35	.31	.46	.38	.38	.48	.49	<i>.96</i>			
10 Functioning of care team	.28	.29	.31	.45	.39	.39	.47	.47	.59	<i>.96</i>		
11 Interagency collaboration	.36	.34	.29	.56	.41	.36	.52	.50	.54	.55	<i>.96</i>	
12 Harmonisation of internal and external care	.35	.36	.27	.54	.40	.46	.48	.47	.56	.60	.64	<i>.95</i>

*The reliabilities of the scale scores were estimated using the method described by Raykov (2001). The correlation between the latent factor and the unweighted sum-score for the items is computed per scale as part of the factor modelling (using LISREL version 9.1). All correlations are significant at the 0.01 level.

Table 6. Results of the second order, confirmatory factor models for inclusivity of schools (analyses of interschool variance; N = 79).

	χ^2	df	p	RMSEA	CFI
A Three-factor model	128.17	52	.00	.026	.995
B Two-factor model	126.34	54	.00	.025	.995
C Two-factor model with covariance of unique factors	113.93	54	.00	.022	.996
D Two-factor model with an additional factor	112.39	53	.00	.022	.996

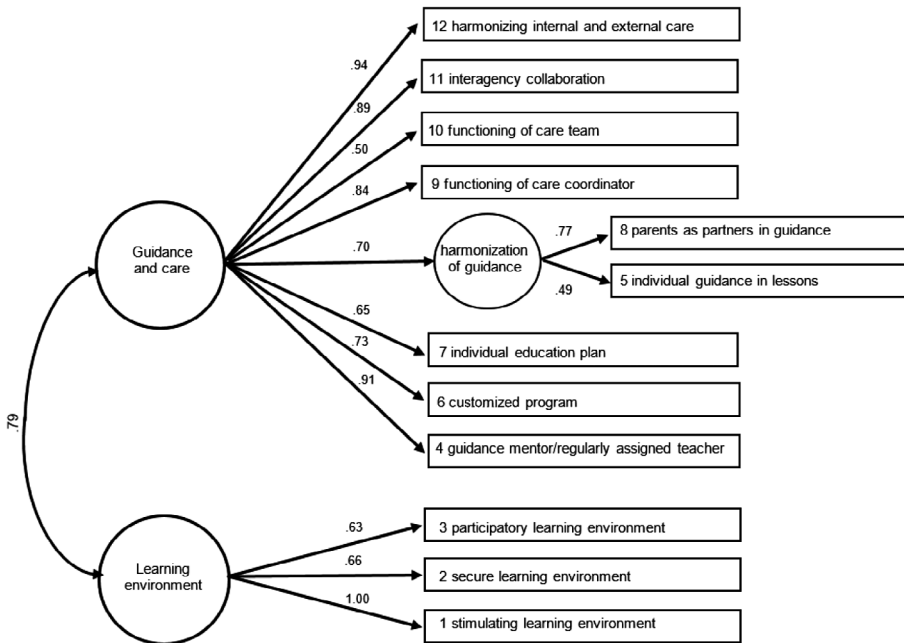


Figure 2. Confirmatory model for inclusive education factors at level of school.

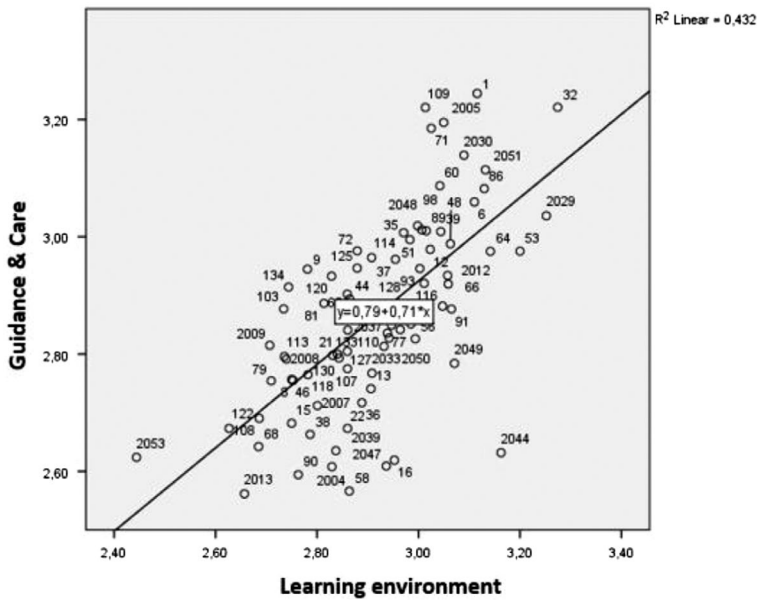


Figure 3. Correlation between factor Learning Environment and factor Guidance and Care.

The correlations varied from .26 to .64. Reliability was excellent with the exception of that for the scale *Individual guidance in lessons*, which was reasonable (Raykov .69; not presented in the Table). The high reliabilities could be attributed in part to the use of aggregated data, which tends to produce higher correlations than data calculated at the individual level (Robinson 2009).

We concluded that our 12 factors reliably capture the nature of the inclusive special needs education at the level of the school. The pattern of correlations nevertheless suggested that higher order factors might be at work. This possibility was then examined by comparing four models in a confirmatory factor analysis. The goodness of fit indices for these models are reported in Table 6.

Based upon the conceptual framework, a model containing the three second-order factors of *learning environment*, *guidance provided by teachers* and *care structure* was estimated (Figure 1; model A in Table 6). The correlation between the second-order factors of *guidance provided by teachers* and *care structure* proved very high for this model (.996), suggesting a single underlying factor. The two factors were thus combined and labelled *guidance and care*. A modified model with the two second-order factors of *learning environment* and *guidance and care* was next constructed and tested (model B). The correlation between the two second-order factors was .78.

The discriminant validity of this model was next tested using a model containing the two second-order factors with the covariance of the unique factors (model C). However, two first-order factors – namely, *individual guidance in lessons* and *parents as partners in guidance* – gave rise to violations of unidimensionality.

On the basis of the information gained from the testing of the three previous models, it was decided to create a new second-order factor to explain the variance in the *individual guidance in lessons* and *parents as partners in guidance*. A fourth model including this new

second-order factor was then created and tested (model D in Table 6). This last model provided a good fit for the data (RMSEA < .60 and CFI > .95).

In Figure 2, the fourth and final model containing the two second-order factors reflecting the inclusivity of schools is depicted (model D). As can be seen, the additional second-order factor encompassing *individual guidance in lessons* and *parents as partners in guidance* is included in the model and labelled *harmonization of guidance*. This factor reflects the collaboration of parents and school/teachers for the guidance of a child.

The loading of *stimulating learning environment* on the factor *learning environment* was fixed at 1.000 to enable testing of the fourth model (see Figure 2). Furthermore, the second-order factor *guidance and care* appeared to largely build on *harmonization of guidance*, *guidance by mentor*, *consultation with partners in the environment* and *functioning of the care coordinator* with factor loadings of .94, .91, .89 and .84, respectively. This pattern of loadings shows the coordination and harmonisation of the different 'care stakeholders' (e.g. parents, internal experts, external experts) by the mentor and care coordinator to be indicative of the inclusivity of a school. The actual care itself as provided by teachers in their lessons or the internal care team appears to be perceived as somewhat less indicative of the inclusivity at the level of the school with the lowest factor loadings for *individual guidance in lessons* and *functioning of the care team* (.49 and .50, respectively).

In additional analyses, the extent to which the scores of a school on the factors *learning environment* and *guidance and care* correlate with each other was examined. A scatter plot with points representing the scores of the schools ($N = 79$) on *learning environment* (horizontal axis) and *guidance and care* (vertical axis) was created (see Figure 3).

The correlation formula for the two main factors proved to be $y = .79 + .71 \times x$. When the Pearson correlation between the two factors was calculated, it was found to be strong (.66; $p < .01$). The more a school was characterised as having an inclusive learning environment, the more it was characterised as having inclusive guidance and care.

4.1. Convergent validity

In order to ascertain the convergent validity, the results of our analyses were compared to those provided by the Dutch Inspectorate of Education during the same period. For 14 of the 79 schools, this information was available. Comparison of the schools' self-evaluation results with the judgments of the Inspectorate showed considerable correspondence: to the extent that the schools produced higher scores on the 12 characteristics of inclusive education, their appreciation by the Inspectorate was also higher. Only one school showed a divergent pattern of results. These outcomes are based on a small number of schools but nevertheless suggest a reasonable measure of correspondence between the final model evaluated in our study and the assessment results reported by the Inspectorate.

5. Conclusions and discussion

Research into inclusive special needs education shows diverging theoretical perspectives (Ainscow and César 2006; Armstrong, Armstrong, and Spandagou 2011; Hansen 2012; Jahnukainen 2015), a lack of models to evaluate effectiveness (Erten and Savage 2012) and different opinions on the most suitable methodological approach (Nind et al. 2004). All of this has been found to impede a better understanding of the characteristics of inclusive

special needs education. On the basis of the available literature, we developed a conceptual framework encompassing three domains of a school's functioning with respect to inclusive special needs education: the *learning environment*, *guidance provided by teachers* and *care structure*. An operational model was tested using self-evaluation data collected from school professionals in 79 schools for secondary education in the Netherlands. The results showed the school professionals to distinguish a multitude of characteristics of inclusive special needs education and be in a position to use these characteristics to evaluate the inclusivity of their schools. The school variation on the 12 identified characteristics, moreover, could be largely explained by two main characteristics, namely *learning environment* and *guidance and care*.

As to the *learning environment*, the importance of a stimulating and secure learning environment in addition to student participation was pointed by Meijer in 2004. The average scale scores for the school professionals in the present study, however, showed student participation to be less present than a stimulating and secure learning environment. This suggests that the possibilities for autonomy and encouragement of student ownership (Ryan and Deci 2000) may need to be more fully exploited within the context of inclusive special needs education.

The conceptual distinction between *guidance provided by teachers* and *care structure* at the level of the school did not stand up to empirical testing in the present study. The strong correlations between the two factors/domains therefore led to the construction of a combined factor, namely *guidance and care*, with eight characteristics.

The results of the newly formulated model including *guidance and care* at the school level as a joint factor showed the clearest indicators for inclusive special needs education within schools, according to the school professionals themselves, to be the work of the care coordinators and those teachers serving as mentors in addition to the harmonisation of the care provided internally and externally along with the quality of the interagency collaboration. Harmonisation of the individual guidance provided during lessons and the involvement of parents in this, however, were found to be less clear indicators just as individualised education plans, customised programming and the functioning of the care team. This outcome suggests that – from the perspective of school professionals – the inclusive special needs education provided by schools is primarily characterised in terms of activities *outside* the class. The roles of the care coordinators and mentors are important, but factors beyond the teachers and the classroom appear to be critical determinants of sufficiently inclusive education in the eyes of school professionals. An alternative explanation for this outcome is that inclusive instructional practices and student care have not yet been sufficiently integrated into the thinking and acting of teachers.

The characteristics of individual guidance during lessons and the involvement of parent partners turned out to be very important and strongly interconnected in the judgements of the school professionals in our study. For this reason, a *new* factor was constructed, namely *harmonization of guidance*. This highlights the importance of suitable guidance for students with special needs; the sufficient and direct contact between parents and teachers; and the requirement of sufficient harmonisation of the guidance provided for the student not only at the school but also at home.

A potential limitation on the present study is that the database which it drew upon stems from 2006. Assuming that educational policy has progressed since 2006, it is possible that the picture of inclusive special needs education provided by this data is outdated.

Unfortunately, recent studies still show inclusive special needs education to be a more formal procedural arrangement than at the heart of current teaching practices. In 2014, for instance, the Educational Inspectorate in the Netherlands reported that IEPs played little or no role in the actual teaching process. In most IEPs, moreover, the goals and a concrete action plan were found to be missing. And for a great part of the schools, no periodic assessment was conducted (Inspectorate 2014). Similar findings have been reported elsewhere in the world. In Sweden, the IEP has been found to be employed as primarily an administrative tool and little or no involvement of parents and students in the development of such plans is reported (see Andreasson, Asp-Onsjö, and Isaksson 2013).

A second possible limitation on the present study is that the data comes from schools which *volunteered* to participate in the original self-evaluation project. The geographic distribution of the schools in the sample was representative of the distribution of schools in the Netherlands, just as the variation in the size of the schools was representative. Nevertheless, generalisation should be done with caution simply because schools which value self-evaluation have been shown to constitute a special group of schools (Vanhoof and Van Petegem 2010). Given that the intention of the present study was not to evaluate the level of inclusive education characterising the school but, rather, to build and test a framework for future school comparison, this self-selection is not problematic.

In the present study, the correlation of *learning environment* with *guidance and care* as the chief characteristics of inclusive special needs education proved to be quite high. This suggests that, within separate schools, considerable consensus exists on the aspects of inclusivity which are important even though the schools may differ from each other on their inclusive special needs education. The framework for inclusive special needs education presented here with its clearly documented school-level reliability allows for not only comparison of schools but also determination of the shared perspectives of those schools which appear to particularly excel. And in such a manner, those characteristics which are of eminent importance for school improvement and the more widespread realisation of inclusive special needs education can be identified (Ainscow and Sandill 2010). The question of whether the next step drawing upon a shared perspective on what are best practices should be taken cannot be answered on the basis of the present results. Dutch legislation for 'Education that fits all' (Staatsblad 2012) is nevertheless obliging schools to outline their philosophies in a so-called 'support profile', and a relevant follow-up study will be to determine how these support profiles/philosophies relate – or not – to the shared views of school professionals reported here on the critical characteristics of inclusive special needs education.

Effectiveness studies to date have insufficiently highlighted the role of the care structure for inclusive special needs education. The model and empirically derived characteristics of inclusive special needs education identified in the present study make it possible to examine the extent to which the relevant characteristics are recognised and implemented by schools, teachers and other stakeholders in the education process including the students themselves, parents, external professionals and inspectors. The degree of convergence among their opinions can then be examined. And the results of such study can provide valuable starting points for the further realisation of inclusive education with a broad support base.

The reliability of the developed model at the level of the school also makes it possible to compare schools for the degree of inclusive special needs education. The characteristics of inclusivity in the *learning environment* and the *guidance and care* which in our study were

distinguished at the school level, can be included as explanatory factors in effectiveness models allowing to thoroughly evaluate the success of inclusive education.

Notes

1. A separate technical report can be obtained from the authors.
2. The missing data analyses were carried out both on the assumption 'missing completely at random' (MCAR, pairwise deletion) and on the assumption of 'missing at random' (MAR, with the help of the EM algorithm). Also, in connection with the incidence of outliers, the Spearman rank correlation coefficients with Bonferroni correction between the average scale scores for a school and the proportion of valid data for the same school were computed. None of these correlations proved significant. A technical report on the missing data analyses can be obtained from the authors.
3. In a few cases, the estimation of the unique residual variance produced a negative value ('Heywood case'). In order to prevent this, the value of the relevant residual variance was fixed to zero (see Online Appendix for the results per scale at the item level). The estimations were also carried out with 'robust weighted least squares' (MLI) for ordinal data. This led to the same conclusions, which implies that the test level of the item scores can be interpreted both at interval and ordinal level.

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No potential conflict of interest was reported by the authors.

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