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# Research in Developmental Disabilities

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## Subjective well-being and social inclusion at school for students with a disability, according to their parents, in France

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### ABSTRACT

**Background:** Providing inclusive, quality education for all children is one of the United Nations' sustainable development goals for 2030.

**Aims:** The aim of this study, carried out in France among 491 parents of children with a disability aged 3 to 18 and enrolled in ordinary schools, is to measure the well-being and social inclusion of children and to identify the factors that promote well-being and social inclusion at school.

**Methods and procedures:** The parents fill in various questionnaires relating to the well-being and social inclusion of their child, the quality of their relationship with the teacher and their satisfaction with the accommodations offered at school. They also provide information about their child and their socio-economic situation.

**Outcomes and results:** Regression analyses show that well-being and social inclusion depend on the nature of the child's disability and decrease with age but do not significantly depend on child's gender and academic level or social background. Furthermore, well-being and social inclusion can be significantly improved when the quality of the parent-teacher relationship and school accommodations are satisfying.

**Conclusions and implications:** The results of this study encourage the development of quality parent-teacher relationships to promote well-being at school.

#### What this paper adds?

This article attempts to analyse the factors that do or do not contribute to well-being and social inclusion at school of students with disabilities, something that has been little studied before through quantitative studies in France. It shows the differences in well-being and social inclusion at school depending on the type of disability the child has. According to their parents, children with intellectual or motor disabilities are the happiest at school, while those with autism, dys-disorders or attention disorders are the least happy. However, the study does not reveal any differences depending to the parents' socio-professional category or to the child's academic level. In addition, well-being and social inclusion are significantly improved when relations with teachers are good and adaptations judged to be satisfactory.

### 1. Introduction

Offering quality inclusive education to all children is the 4th sustainable development goal of the United Nations for 2030 ([United](https://www.un.org/sustainabledevelopment/)

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Nations, 2015). France has committed itself to this objective by ratifying the United Nations Convention on Rights of Persons with Disabilities (UNCRPD) in 2010 (United Nations, 2006). Article 24 states that “Persons with disabilities can access an inclusive, quality and free primary education”. For children with a disability, inclusive education consists in sharing school time with non-disabled peers but, as Pjil (2007) writes, this is the lowest level of inclusion. It is not enough to make inclusion a success and reach “the full development of human potential” cited in article 24 of the UNCRPD. Other variables such as well-being, school satisfaction, social inclusion, academic progress and post-school achievements must also be considered (European Agency for Development in Special Needs Education, 2015). This article will study emotional well-being and social inclusion as they are perceived by parents of children with a disability, then show how good parents-teachers relationships and satisfying school accommodations can improve inclusion at school.

### 1.1. Well-being and social inclusion of children with a disability at school

Numerous studies focus on children’s subjective well-being at school, assessed with the help of scales questioning their emotional and social well-being. For non-disabled children, the studies show that girls are slightly happier at school (Guillemot & Hessels, 2021; Knickenberg, Zurbriggen, & Schwab, 2022; Liu, Mei, Tian, & Huebner, 2016) and that subjective well-being decreases with age (Randolph et al., 2010), more particularly at the end of primary school or by the age of 11–12 (González-Carrasco et al., 2017). Regarding the influence of parents’ socio-economic status, Loft and Waldfogel (2021)’s study conducted in Denmark indicates that children whose parents have a higher economic status are more satisfied with school and have a higher level of psychological and social well-being. This result was obtained after controlling the effect of other variables such as having an immigrant background, the child’s age and the mother’s age at the birth of the child. Some studies suggest that the level of emotional well-being at school of children with special educational needs is lower than that of children without special educational needs (Goldan et al., 2022; McCoy & Banks, 2012; Skrzypiec, Askeel-Williams et al., 2016; Stiefel et al., 2018), others state that there is no difference, for example for children with learning disabilities (McCullough & Huebner, 2003) or special educational needs (Schwab et al., 2020; Venetz et al., 2019; Zurbriggen et al., 2018), including after controlling social and personal variables (Gaspar et al., 2016). Regarding social inclusion, some studies show that it is lower for children with special educational needs (Bossaert et al., 2013; Koster, Nakken et al., 2009; Schwab, 2015), others state that there is no difference (Avramidis et al., 2018). In a comparative study conducted in Germany and Saudi Arabia, no difference was found in the social and emotional domains between children with special educational needs and without. The only difference lies in the domain of academic self-concept, i.e. related to the students’ beliefs regarding their academic performance. It is lower for students with special educational needs in both countries (Alnahdi & Schwab, 2020), and the same result has been obtained in a study conducted in France (Guillemot & Hessels, 2021). The cited studies have been conducted directly in classrooms with students with or without special educational needs.

In other, less numerous research studies, parents have been interviewed about the well-being or social inclusion of their child at school, either to complement their child’s answers (Schwab et al., 2020) or by themselves (Paccaud et al., 2021). Parents and children’s answers are significantly and positively correlated (Schwab et al., 2020). Furthermore, for children with special educational needs, the parents’ answers are more negative than their children’s, especially for social relationships (Schwab et al., 2016). This result confirms those of studies examining interactions between students, which indicate that children with special educational needs have fewer friends and are less popular in class (Avramidis, 2013; Koster et al., 2009). Some authors infer from this that students with special educational needs tend to overestimate their social inclusion when answering questionnaires, for the sake of social desirability and to maintain their image (Koster et al., 2010; Schwab et al., 2016). Thus, the parents’ answers contribute important information, correlated with the children’s answers. They are complementary but not interchangeable.

### 1.2. Importance of parent-teacher relationships, teachers training and school accommodations

A good relationship between school and parents is associated with a greater academic success (Hampden-Thompson & Galindo, 2017) and less behavioural problems (Dawson & Wymbs, 2016). A Swiss study interviewed students’ parents (N = 1275) about their satisfaction with school. It shows that a high level of satisfaction with school is associated with a high level of subjective well-being in children and to a good collaboration between parents and teachers, for children with special educational needs as well as for children with no special needs (Paccaud et al., 2021). Collaboration implies good communication, mutual trust and the acknowledgement of each party’s expertise. In an international review of 18 studies conducted between 1980 and 2000, Cox (2005) highlights the positive impact of interventions that foster school-home collaboration on students’ academic performances and behaviour. In the case of children with a low academic level, a longitudinal study conducted by Hughes and Kwok (2007) with 443 American children over two years, draws the conclusion that the quality of parent-teacher relationships has an effect on children’s academic progress and on their involvement in class, i.e. their efforts, attention, perseverance and cooperation in the classroom. The quality of parent-teacher relationships is assessed by teachers with the help of a scale designed for this study, which uses items from the *Parent Teacher Involvement Questionnaire* (PTIQ) in its version intended for teachers (Kohl et al., 2000). For the parents of children with special educational needs interviewed in a focus group, efficient communication is essential, i.e. a true partnership, shared resources and mutual respect (West & Pirtle, 2014).

The importance of teacher training for the success of inclusive education has been highlighted several times, such as in the UNESCO (2020) report entitled “Inclusive teaching: Preparing all teachers to teach all students” asking for all teachers to be prepared to teach all students. This topic has also been mentioned in West et Pirtle’s study (2014). Parents of children with special educational needs participating in focus groups evoke the necessity for teachers to be adequately trained and in particular to be able to adapt the

curriculum and differentiate instructions. Lidström et al. (2020) point out the importance of recognizing the need for individual adaptations and for offering appropriate accommodations for each student. In a study conducted in Sweden, only 25 % of secondary school students are satisfied with the accommodations offered (Yngve et al., 2019). To support the schooling of students with special educational needs, it is possible to rely on teaching assistants. Some studies show that this practice has a rather negative effect on academic success, which can be partly explained by the assistants' insufficient training (Blatchford et al., 2012). Conversely, the presence of an assistant with proper training and supervision who can apply practices based on research has positive effects on academic performance as well as on social and behavioural problems (Sharma & Salend, 2016). From the students' point of view, teaching assistants can facilitate social interactions but a constant presence can isolate the student (Sharma & Salend, 2016). For students with severe cognitive disabilities, teaching assistants can play an important role in initiating or responding to interactions with non-disabled children (Haakma et al., 2021). The emotional well-being and social inclusion of children with a disability have already been studied in various countries using two different comparative approaches: either by comparing them with non-disabled children in ordinary schools, or by comparing children with a disability enrolled in ordinary schools with other children with a disability enrolled in non-inclusive schools. The studies we know about focus either on children with special educational needs without any more precisions (Paccaud et al., 2021), or on a certain type of special educational needs, for example children with autism (Arias et al., 2018) or learning disabilities (Skrzypiec et al., 2016).

### 1.3. The present study

The study focuses on children with a disability enrolled in an ordinary school. Since there are few of them in each class, it is difficult to interview them individually without stigmatizing them, and it is complicated to conduct a study in a very large number of classes in order to obtain an adequately sized sample. For these reasons, the study is based on interviews with parents of children with a disability. Given that the factors that influence the well-being and social inclusion of children with a disability have not been widely studied, the research will pay particular attention to those factors. The first phase, will assess the influence of different factors linked to the children, and the second phase, will examine what factors linked to school can improve those children's well-being and social inclusion. We will answer the following research questions:

- Do well-being and social inclusion depend on the type of disability, age, social background, gender or academic level? The studies that have been previously conducted with non-disabled children allow us to posit the hypotheses that the older the child grows, the more their subjective well-being decreases (Randolph et al., 2010), that girls are happier than boys at school (Guillemot & Hessels, 2021; Knickenberg, Zurbruggen, & Schwab, 2022; Liu, Mei, Tian, & Huebner, 2016) and that children who are more academically successful are more satisfied with their school life (Lyons & Huebner, 2016). Furthermore, children with a privileged socio-economic background appear to have a higher level of subjective well-being at school than students with a less privileged background (Loft & Waldfoegel, 2021). All those results have been obtained with non-disabled children and remain to be confirmed in children with a disability, while taking into account the effect of the nature of the disability.
- The second research question aims at understanding to what extent, after controlling the other variables, well-being and social inclusion can be improved thanks to good parents-teacher relationships, satisfying school accommodations, high-level teacher training and the implementation of inclusive practices or individual help. We suppose that with good parent-teacher relationships and satisfying accommodations, students' well-being and social inclusion will improve (Lidström et al., 2020; West & Pirtle, 2014). As for the effect of individual help, the results are sometimes contradictory, with positive effects (Haakma et al., 2021) or negative ones (Blatchford et al., 2012). Furthermore, to our knowledge, none of these results links teachers' level of training with the well-being of students with a disability.

## 2. Methods

### 2.1. Research design and Procedure

The study is both descriptive, to assess the well-being and social inclusion of pupils with disabilities, and predictive, to determine the factors that contribute to the well-being of pupils at school (Ato et al., 2013). The study focuses on the well-being and social inclusion of children with disabilities. Information about their schooling is obtained indirectly thanks to their parents, who are recruited via social media and organizations of parents of children with a disability. First, the parent volunteers are asked to register then they receive a link to access and fill out the online questionnaires. The first page of the questionnaire describes the study, provides information on data processing in accordance with the General Data Protection Regulation (European Parliament, 2016). Respondents give their explicit consent to the data collection, the purpose of the study is described to them, and they are guaranteed anonymity and the security of the data collected. When the data is published, no variables that could indirectly identify the respondents are disclosed. The data collection takes place in November 2020 and November 2021.

### 2.2. Participants

The link to the online questionnaire was sent to 504 parents who had registered to take part in the study, 491 parents complete the entire questionnaire. The study involves therefore 491 children with a disability enrolled in an ordinary school. The parents' mean age is 41.6 years (SD = 6.15) and the vast majority of them are mothers (97 %). The children are aged between 3 and 18 with a mean age of

10.25 years (SD = 3.35) and 74 % of them are boys. The mean age for girls is 10.04 (SD = 3.37), for boys 10.32 (SD = 3.35). All the children included in the study have been officially recognized as having a disability, it is an inclusion criterion mentioned at the time of enrolment in the study.

### 2.3. Measures

#### 2.3.1. Variables related to the parent and the child

The questions concerning the parent relate to their age, gender and socio-professional category. Socio-professional category is rated in four categories, from disadvantaged to highly advantaged, by asking parents about their occupation and following the classification used by the Ministry of Education (Merle, 2013). The questions concerning the child are demographic and related to their disability. We collect their age and gender, the nature of their main disability and the year of the official recognition of their disability. Twelve categories of disability are proposed; later on, the categories with the smallest numbers of children (vision and hearing impairments, psychic disorders, speech and language disorders and other disorders) are grouped together into a single category named "Others". Finally, the various types of disabilities are distributed into 7 categories: Intellectual disability (ID), autism spectrum disorders, motor disability, attention deficit hyperactivity disorder (ADHD), DYS- disorders (dyslexia, dysgraphia, dyscalculia and dyspraxia), multiple (several) disabilities and other disabilities. Additionally, the parents are asked to assess their child's academic level in French and Mathematics in comparison with children their age on a 5-point Likert scale ranging from "Far below" (1) to "Far above" (5). Since the academic levels in French and Mathematics are strongly correlated, ( $r = .50$ ,  $p < .001$ ), we decided to keep only the mean of the two scores for the remainder of the study.

#### 2.3.2. Variables related to subjective well-being, social inclusion and academic level

The parents fill out the *Perceptions of Inclusion Questionnaire* (PIQ; Venetz et al., 2015). This questionnaire comprises 12 statements distributed into three subscales. The first one concerns emotional well-being at school (e.g. "My child enjoys going to school"), the second one is related to social inclusion (e.g. "My child has a lot of friends in his/her class") and the third one to academic self-concept (e.g. "My child is a fast learner.") The parents choose their answer on a 4-point Likert scale from "Not at all true" (1) to "Completely true" (4). A mean score is calculated for each subscale; the higher the score, the better inclusion is in this domain. When parents fill out the questionnaire, it measures their perception of these three dimensions of inclusion. This questionnaire was originally designed for pupils aged 8 to 14. We use the version intended for parents and extended its use to all children of school age (in France, schooling is compulsory between the ages of 3 and 18) after checking that the wording of the questions were appropriate whatever the age of the child. The student version of the scale has been validated in French by Guillemot & Hessels, 2021 for students aged 10–11. The parent version has not yet been validated in French, but a study conducted with German-speaking parents highlights good psychometric properties and a convergent validity between the students' answers and their parents' (Schwab et al., 2020) for students aged 8–10. In this study conducted among parents of children aged 3 to 18, confirmatory factor analyses show a good adequacy of the three-factor structure ( $\chi^2(51) = 141.9$ ,  $p < .001$ ; RMSEA = .06, CI95 % = [.048, .072]; CFI = .97; TLI = .96). Internal consistency coefficients (Cronbach's alphas) are satisfying, ranging between .8 and .9.

#### 2.3.3. Variables related to school

**2.3.3.1. Parent-teacher relationships.** The Parent-Teacher Relationship subscale of the *Parent Teacher Involvement Questionnaire* (PTIQ; Kohl et al., 2000) is used for measuring the satisfaction of parents regarding their relationship with their child's teacher. This scale comprises 6 statements with which the parent indicates their degree of agreement on a 5-point Likert scale from "Completely disagree" (1) to "Completely agree" (5). For example, "My child's teacher pays attention to my suggestions". The mean score of the 6 items is calculated: the higher it is, the better the relationships between parents and teacher are. In our study, the internal consistency coefficient (Cronbach's  $\alpha$ ) is .94 which is very satisfying.

**2.3.3.2. Perception of accommodations.** The participants are asked three questions about school accommodations, the answers are given on a 5-point Likert scale ranging from "Not at all satisfied" (1) to "Completely satisfied" (5). The first question concerns material accommodations (accessibility, furniture, equipment, computer), the second one concerns human support (number of hours allocated, assistants' level of training), and the third one assesses educational accommodations (adapted examinations, differentiated learning). The parent can also answer that their child is not concerned by a certain type of accommodation. A mean score calculated for the items that had been answered. The higher the score, the more satisfied the parent is with the accommodations. The internal consistency coefficient (Cronbach's  $\alpha$ ) for this scale is 0.72, which is satisfying.

**2.3.3.3. School support: enrolment in an inclusion class and presence of a special needs teaching assistant (AESH).** The parent indicates whether the child benefits from an enrolment in ULIS (Localized Unit for School Inclusion), a system that supports inclusion. In this case, the child spends part of their class hours in an ordinary classroom and the other part in a small group in an inclusion class with a specialized teacher and a Special Needs Teaching Assistant (AESH) working collectively with the group. If the child does not benefit from an enrolment in ULIS, they are schooled full-time in an ordinary classroom. In this case, the parent specifies whether they benefit from the help of an AESH. In the French education system, AESH are teaching assistants who support the child in addition to the teacher in the classroom. These support services are available throughout the school years from 3 to 18 years of age, they are proposed

by a committee following an assessment of the child's support needs by a multi-disciplinary team. The "support" variable therefore has three modalities: either the child receives no additional support (No), or the child is in an inclusion class (inclusion class) or the child receives help from a teacher assistant in an ordinary class (teacher assistant).

**2.3.3.4. Estimated level of training of the teacher with regard to the child's disability.** The parent indicates what they think of the teacher's (or teachers when the child has several) level of training with regard to the child's specific type of disability. The answers are given on a 5-point Likert scale ranging from "Not at all satisfying" (1) to "Completely satisfying" (5).

## 2.4. Statistical treatments

Power and sample size calculations are carried out using G\*Power software (Faul, Erdfelder, Buchner, & Lang, 2009), regressions analyses are performed using R software (R Core Team, 2023), graphics are produced using the "ggplot2" package (Wickham, 2016). In order to carry out multiple regressions, an a priori power analysis is conducted to estimate the necessary sample size to detect an effect greater than  $R^2 = 10\%$  with 95% power and an  $\alpha$  risk of 5%, knowing that the number of degrees of freedom equals 18 (5 quantitative predictors and 13 degrees for the 6 qualitative predictors). The G\*Power software calculates a minimum number of 133 participants, which is easily reached in our study (Faul et al., 2009). Then, multiple linear regressions are conducted for the 3 subscales of the PIQ questionnaire by successively adding two blocks of variables, and a Fisher's test for nested models is used to test the significance of the addition of the second block, an alpha risk of less than 5% is considered significant. In the regressions, the significance of each predictor is tested individually by controlling for the others using Student's t tests. Finally, the model is validated by looking for outliers and leverage points and observing the quantile-quantile plot to verify the normality of residuals (Aguinis, Gottfredson, & Joo, 2013). Potential multicollinearity problems are examined by calculating the variance inflation factor for each variable (Fox & Monette, 1992).

## 3. Results

### 3.1. Descriptive Statistics

The anonymised raw data and the description of the variables are available at the following address: <https://osf.io/avnsf/>. Information likely to identify participants has been removed (age of child, age of parent). Descriptive statistics for participants and PIQ variables are presented in Table 1.

### 3.2. PIQ subscales according to the variables related to children and the variables related to teachers

The same linear regressions are conducted for the three subscales. A first block of variables, including the year of data collection, the age of the child, the gender of the child, the socio-professional category of the parents, the child's type of disability, and their

**Table 1**  
Descriptive statistics of the sample and PIQ subscales means according to the modalities of the variables (n = 491).

Variable	n (%)	PIQ emotional: m (sd)	PIQ social: m (sd)	PIQ academic: m (sd)
<b>Year</b>				
2020	346 (70 %)	2.83 (0.83)	2.67 (0.69)	2.17 (0.73)
2021	145 (30 %)	2.62 (0.84)	2.45 (0.77)	2.23 (0.75)
<b>Child Gender</b>				
Girl	128 (26 %)	2.94 (0.86)	2.74 (0.75)	2.05 (0.76)
Boy	363 (74 %)	2.71 (0.83)	2.56 (0.71)	2.24 (0.72)
<b>SPC</b>				
H. advantaged	121 (25 %)	2.76 (0.83)	2.59 (0.71)	2.23 (0.75)
Advantaged	122 (25 %)	2.86 (0.84)	2.73 (0.70)	2.23 (0.79)
Middle	103 (21 %)	2.71 (0.85)	2.55 (0.76)	2.19 (0.64)
Disadvantaged	145 (30 %)	2.74 (0.85)	2.55 (0.73)	2.13 (0.73)
<b>Disability Type</b>				
ID	46 (9 %)	3.49 (0.56)	3.00 (0.66)	1.79 (0.57)
Other	51 (10 %)	2.90 (0.81)	2.65 (0.77)	2.09 (0.71)
Autism	165 (34 %)	2.66 (0.86)	2.40 (0.67)	2.27 (0.74)
Several	88 (18 %)	2.86 (0.75)	2.69 (0.68)	2.04 (0.74)
Motor	22 (4 %)	3.20 (0.85)	3.10 (0.59)	2.92 (0.82)
ADHD	49 (10 %)	2.42 (0.75)	2.43 (0.72)	2.27 (0.64)
DYS	70 (14 %)	2.44 (0.77)	2.66 (0.76)	2.25 (0.65)
<b>Support</b>				
No	68 (14 %)	2.44 (0.80)	2.47 (0.67)	2.47 (0.72)
Teacher Assistant	294 (60 %)	2.78 (0.85)	2.64 (0.73)	2.22 (0.76)
Inclusion Class	129 (26 %)	2.91 (0.79)	2.58 (0.73)	1.97 (0.62)
<b>Total</b>	491 (100 %)	2.77 (0.84)	2.60 (0.72)	2.19 (0.73)

academic level, is started with. This first model (M0) is significant for the three PIQ subscales and explains 18.9 % of the variations for PIQ-emotional, 13 % for PIQ-social and 47.9 % for PIQ-academic (see Table 3). As a second step, four variables related to school are added: quality of teacher-parent relationships, satisfaction with school accommodations, estimated level of teacher training and human support provided (either in an inclusion class with a specialized teacher and the mutualized help of an AESH, an AESH only, or no additional kind of human support). The three new M1 models are significantly better than the M0 models. The gain for explaining the PIQ subscales differs according to the scale: it is of 9.2 % for PIQ-emotional, 6.6 % for PIQ-social and only 2.3 % for PIQ-academic (see Table 2).

Table 3 presents the coefficients of the three regressions with Model 1. Regarding the year of data collection, no significant difference can be found for the emotional and academic subscales, but a slight significant decrease can be observed for the social subscale. The various PIQ subscales show a significant decrease as the children grow older, in particular the emotional subscale with a decrease of 0.05 points per year. The various subscales' scores do not depend on the gender of the child or the parents' socio-professional category. The subscales' scores are significantly linked to the child's type of disability, particularly in the emotional domain in which the children with ID or motor disabilities have a significantly higher level of well-being than those with autism, ADHD or DYS-disorders. In the social domain, the children with autism or ADHD have a lower level of social inclusion. For the academic subscale, the students with motor disabilities have higher scores than the others. The differences depending on the type of disability are confirmed by the post-hoc Tukey tests and the two-by-two comparison of the types of disability. The results can be seen on Fig. 1. The children's emotional well-being and social inclusion do not depend on their academic level, whereas the academic subscale is closely linked to the parents' assessment of their children's academic level in French and Mathematics.

For the variables related to school, the regression indicates that the presence of human support (specialised teacher or AESH) is not linked to a difference in well-being or social inclusion. However, the presence of an AESH is associated a lower academic level. The quality of the parents-teacher relationships and the satisfaction with school accommodations are positively linked to the emotional well-being score and the social inclusion score. The "satisfaction with school accommodations" variable is significantly linked to the academic subscale score, whereas the "quality of parents-teacher relationships" variable is not significantly linked to this score. The teacher's level of training estimated by parents is not significantly linked to any of the three scores.

To validate the models, we look for outliers and leverage points (Aguinis et al., 2013). Two outliers are found for the emotional subscale, none are found for the social subscale, and three are found for the academic subscale. These outliers do not correspond to the same individuals and the observation of the data indicates that they are not the result of a data-capture error, they are thus kept in. To identify leverage points, Cook's Distance is calculated. There are no points for which it is superior to 5, thus there are no leverage points. Finally, the Global Variance Inflation Factor (GVIF) is estimated in order to detect multicollinearity problems in the regression. None of the variables in each of the three regressions has a GVIF superior to 3, thus there are no multicollinearity problems (Fox & Monette, 1992). The observation of the quantile-quantile plot and the histogram of residuals show a good adequacy with the standard model.

For qualitative variables, the second modality indicated corresponds to the reference modality. For example, for the type of disability, the reference modality is the ID modality.

#### 4. Discussion

The first goal of this study is to measure the well-being, social inclusion and academic inclusion of students with a disability. The second goal is to understand the variation of these measures according to different factors linked to the children: their gender, age, disability, their parents' socio-professional category and some factors linked to their schooling: the support they benefit from, the educational accommodations, the teacher's training and the quality of parent-teacher relationships.

##### 4.1. Well-being, social inclusion, academic inclusion

The average emotional well-being and social inclusion of children with a disability assessed by their parents are globally above the midpoint of the scale, meaning that the parents think their children are rather happy at school and well socially included. However, the average academic inclusion level is below the midpoint of the scale, indicating that the parents perceive their children as being academically challenged. These results are consistent with those obtained by Rotsika et al. (2011) with parents of children with specific learning disabilities. The authors mention high scores for the questionnaire about emotional well-being and social inclusion and a lower score for the "school" part of the questionnaire. These results are based on the means obtained for all the participants in our

**Table 2**  
R<sup>2</sup> and ΔR<sup>2</sup> for the M0 and M1models.

—	PIQ-emotional		PIQ-social		PIQ-academic	
	R <sup>2</sup>	ΔR <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>	R <sup>2</sup>	ΔR <sup>2</sup>
M0:	.189 ***		.130 ***		.479 ***	
M1:	.281 ***	.092 ***	.196 ***	.066 ***	.502 ***	.023 **

Note \*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.

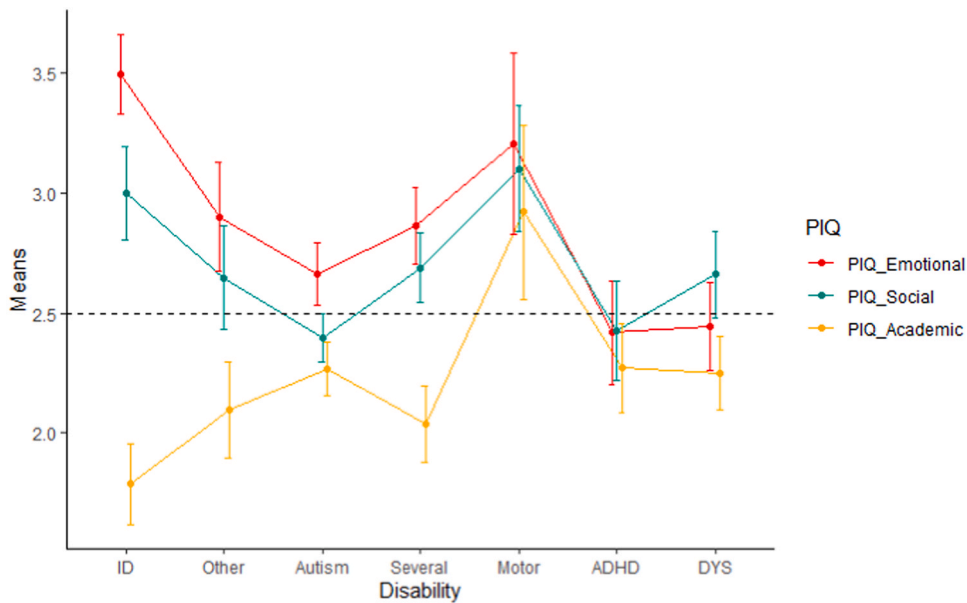
M0: model with year, age, child gender, SPC, disability type, academic level

M1: model with M0 variables and parent-teacher relationships, accommodation, teacher training and support.

**Table 3**  
Regression results for PIQ subscales (detailed tables are in the supplementary material).

	PIQ-Emotional	PIQ-Social	PIQ-Academic
(Intercept)	<b>3.01 ***</b>	<b>2.43 ***</b>	<b>1.21 ***</b>
Year 2021	-0.08	-0.15 *	-0.03
Child Age	-0.05 ***	-0.02 *	-0.03 **
<i>Child Gender</i>			
Boy-Girl	-0.04	-0.07	0.07
<i>SPC</i>			
Advantaged-H Advantaged	0.01	0.06	0.02
Middle-H Advantaged	-0.08	-0.03	-0.02
Disadvantaged-H Advantaged	-0.03	-0.00	-0.09
<i>Disability</i>			
Other-ID	-0.37 *	-0.17	0.01
Autism-ID	-0.62 ***	-0.44 ***	0.11
Several-ID	-0.49 ***	-0.20	0.03
Motor-ID	-0.17	0.17	<b>0.43 **</b>
ADHD-ID	-0.76 ***	-0.36 *	0.07
DYS-ID	-0.64 ***	-0.07	0.14
Academic Level	-0.02	-0.01	<b>0.42 ***</b>
<i>Support</i>			
Teacher Assistant-No	0.04	0.10	-0.19 *
Inclusion Class-No	0.18	0.08	-0.12
PT Relationships	<b>0.10 *</b>	<b>0.13 ***</b>	0.00
Teacher Training	0.01	-0.05	0.02
Accommodations	<b>0.16 ***</b>	<b>0.10 **</b>	<b>0.08 ***</b>
R squared	0.28	0.20	0.50
F(18,472)	10.27	6.41	26.44
P value	< .001	< .001	< .001

\*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05.



**Fig. 1.** Means and 95 % CI for PIQ subscales by disability, in dashes the midpoint of the scale.

study; the levels of well-being, social inclusion, and academic inclusion differ a lot from one child to another. The children’s individual characteristics are a factor that can explain a large part of those differences. For children with the same characteristics, well-being and social inclusion also depend on the quality of relationships with school, the teachers’ level of training and the level of satisfaction with school accommodations.

**4.1.1.1. Importance of the variables related to the child**

No difference of well-being, social or academic inclusion can be observed depending on the child’s gender, which contradicts the results obtained with the same questionnaire with non-disabled children, where girls are shown to have a higher level of emotional



well-being at school (Guillemot & Hessels, 2021; Knickenberg, Zurbriggen, & Schwab, 2022), or with other questionnaires (Liu et al., 2016). This lack of effect could be explained by the fact that in this study, it is the parents who make the assessments, not the children themselves. The effect of the child's gender in measures provided by parents (proxy report) has been little studied. Paccaud et al. (2021) do not take this variable into account in their analysis, and in earlier studies, e.g. Papadopoulou et al. (2017)'s study about children's quality of life assessed by their parents, no difference depending on gender had been observed. Similarly, in the study by Vicente-Sánchez et al. (2018) which questioned young people with an intellectual disability aged between 11 and 17 about their self-determination, no gender differences were found.

Well-being, social inclusion and academic inclusion are significantly linked to age: the older children grow, the more their emotional well-being and, to a lesser extent, their social and academic inclusion decreases. Regarding emotional well-being, this link had already been shown by Liu et al. (2016) for non-disabled primary school students, whose quality of life deteriorated by the end of primary school, or González-Carrasco et al. (2017) in a study both cross-sectional and longitudinal conducted with non-disabled adolescents aged 10 to 15. Identical results can thus be obtained for children with a disability when their well-being at school is assessed by their parents. Another explanation, more specific to students with disabilities, is the increase in expectations as the student grows older, and the mismatch between the support received and the student's needs (Amor et al., 2021). The third subscale, academic inclusion, perceived by parents, also shows a decline with increasing age. This subscale is supposed to measure the child's academic self-concept, but when assessed by the parents, it primarily reflects the student's academic level (one question is for example, "my child is a fast learner.") The decline in perceived academic level may stem from the children's cognitive challenges becoming more pronounced as they age, widening the gap between them and their peers.

No significant difference is found in emotional well-being, social inclusion and academic inclusion according to the parents' socio-professional category. This observation is in contradiction with Loft and Waldfogel (2021)'s results obtained with non-disabled children: their study showed an influence of parental socio-economic status on the children's psychological well-being, satisfaction with school and social well-being: children with more a advantaged socio-economic background are happier at school and better socially included. This difference in results can have two origins: the fact that the present study is conducted with children with a disability and/or the fact that the assessments are made by parents and not children themselves.

The levels of well-being depend on the type of disability; children with ID and motor disabilities have a higher level of well-being whereas children with DYS-disorders, autism or ADHD have lower levels of well-being. These differences are consistent with the results found with children with autism, who have a lower quality of life than children without autism; the differences are accentuated when the autistic traits are more pronounced and executive functions are poor (de Vries & Geurts, 2015). The major differences found between children with ID and children with autism can seem to partially contradict the results obtained in the study conducted in Spain by Arias et al. (2018), concluding that there is no difference between children with ID and children with ID plus autism on the scale of emotional well-being, after controlling the level of severity of the disability. In this study the children attended special schools, whereas in our study the children attend ordinary schools, which could explain the differences found. The low level of well-being of children with learning disabilities is also mentioned in Skrzypiec et al. (2016)'s study, in which children self-report their disability and assess their well-being. The students with special educational needs – mainly students with learning disabilities – feel less fulfilled than students without special needs. The results are consistent with those of Tiikkaja and Tindberg (2021) in Sweden, showing that children with attention deficit hyperactivity disorder (ADHD) have a lower level of well-being compared with other types of disabilities. These differences are not easy to analyze; children with motor disabilities or ID seem to be the happiest; their disability is more visible than those of children with DYS- or attention disorders, so they receive more help at school (inclusive structures, human support). The low results on the well-being scale for pupils with DYS- or attention disorders can be explained by the fact that their needs are not being met. In fact, because these pupils have a less severe disability, they benefit from fewer facilities and the gap between their needs and the accommodations offered may be greater. For children with an intellectual disability, we can posit the hypothesis that the pressure to reach the academic level of non-disabled students is less strong than for children with DYS-disorders or ADHD and that these children are less aware of the mismatches experienced. Social inclusion also differs depending on the type of disability, the levels are lower for children with autism and ADHD, which can be explained by the very nature of their disability which makes social interaction more difficult for them. Concerning children with autism, the results are consistent with those of Arias et al. (2018), comparing children with autism and ID to children with ID only: when autism is present, social inclusion is less successful. Regarding children with ADHD, Tiikkaja and Tindberg (2021) note that adolescents with this type of disability state that they have fewer friends at school than non-disabled adolescents. Impulsivity and hyperactivity make fitting into a group of peers more difficult during adolescence. Finally, academic inclusion also differs according to the type of disability: children with an intellectual disability are those who have the lowest level of academic success according to parents, whereas children with motor disability, DYS-disorders or attention disorders have higher levels. These differences are expected and as they reflect the fact that these disorders have different cognitive impacts.

Lastly, the analyses suggest that emotional well-being and social inclusion are not linked to the academic level in French and Mathematics assessed by parents in comparison with children of the same age. This is in contradiction with the results usually obtained with non-disabled children that point to an interdependent relationship between well-being at school and academic performance (Ben-Aryeh et al., 2014). However, they align with Vicente-Sánchez et al. (2018) findings which showed that the level of self-determination does not depend on the level of intellectual disability. This result confirms the idea that for parents of children with a disability, the academic level and the well-being of their child at school are two different dimensions that are not necessarily linked. The child can have a very high level of well-being even with a low academic level in comparison with children his age.

#### 4.1.2. Importance of the variables related to school

In the second part of the study, we analyzed the importance of the variables related to school, these variables enable us to explain

another major and significant part of emotional well-being at school, social inclusion and, to a lesser extent, academic inclusion. A good parent-teacher relationship significantly improves the well-being and social inclusion of the child as perceived by the parents. This is consistent with Dawson and Wymbs (2016)'s study showing the link between good parent-teacher relationships and a decrease in behavioral problems, as well as that of Hughes and Kwok (2007) about the importance of the parent-teacher relationship for the involvement of students with a low academic level in class. However, no significant link can be found between the quality of the parent-teacher relationship and academic inclusion. Here, as mentioned previously, the academic inclusion scale measures the student's academic level at the time of the study. This level is not linked to good or bad parent-teacher relationships. This result does not contradict Hughes and Kwok (2007)'s longitudinal study that associates greater academic progress with a good parent-teacher relationship. It would be necessary to ask parents about their children's progress in order to more precisely examine the link between the quality of relationships and academic progress.

Satisfaction with school accommodations is linked to a higher level of well-being, social inclusion and academic inclusion, as shown in Paccaud et al. (2021)'s study, which suggests the existence of a link between parents' satisfaction, collaboration and well-being at school for students with and without special educational needs.

The type of support received is not linked to a higher level of well-being or a better social inclusion. Children who are enrolled in an inclusion class or benefit from the help of an AESH are not estimated to be more or less happy or socially included. However, the presence of an AESH is associated with a lower academic inclusion, conveying the fact that children who have an AESH have a lower academic level. Finally, the teacher's level of training with regard to the child's disability estimated by the parents surprisingly does not appear to be a significant explanatory variable. Although earlier studies conclude that parents expect teachers to have a high level of training (West & Pirtle, 2014), levels of well-being and social inclusion do not seem to be linked to the teacher's level of training with regard to the child's disability as perceived by the parents. In this study, the level of teacher training assessed by parents are not globally considered satisfying (which does not necessarily reflect the actual level of teacher training, only the parents' perception of it), but that does not seem to be an obstacle to a good inclusion. Beyond the level of training, it is the teacher's ability to offer appropriate accommodation that is linked to well-being and social inclusion.

#### 4.2. Limits

One of the limits of the PIQ questionnaire concerns the academic inclusion subscale. When used by children, this subscale measures their academic self-concept. When parents are asked to use it, it does no longer measure children's academic self-concept but only the way parents perceive their child's academic level. When a psychological assessment is made by a third party, there are two possible types of answers, according to Pickard and Knight (2005): either the parent gives their own opinion about a statement, for instance "My child is a good student" (proxy-proxy perspective) or the parent tries to convey what their child thinks: "My child thinks he/she is a good student" (proxy-patient perspective). Here, to measure the children's academic self-concept, the items would have to be formulated from the second perspective, for instance, item n° 12 of the PIQ, "At school, a lot of things are too difficult for my child" could be formulated as follows: "My child thinks that a lot of things are too difficult for him/her at school". A second limit is that the support needs and need fulfilment were not measured precisely. In our study, the need for support is measured by a multi-disciplinary team, and appears in the variable "support". Satisfaction with the support provided appears in the variable satisfaction with accommodations. More specific scales have been developed to measure the intensity of the support required and could be used in future yresearch (Verdugo et al., 2020). Another limit is that this study specifically interviews parents, which is a relevant methodological choice since previous studies have shown significant correlations between parents' perceptions and children's (De Los Reyes et al., 2015; Schwab et al., 2016; Schwab et al. 2020). But due to its recruitment via associations and social networks, the sample is not representative of the population concerned. It includes families who are more socially advantaged than the usual proportion. It therefore seems essential to conduct a study directly with children to complete these results, even though it seems to be complicated to implement. Indeed, the targeted children are schooled in an ordinary class, and are often the only children with a disability in their classroom. In France, children with a disability who benefit from inclusive education represent 2 % of the population of schooled children (European Agency for Development in Special Needs Education, 2020). To avoid stigmatizing them in studies, it is advised to interview entire classes. It would thus be necessary to interview over 25,000 children in order to obtain a sample of 500 children with a disability. Furthermore, it can be difficult for children with a disability to answer a questionnaire without appropriate support within a school setting.

A last limitation of this study is that we have only shown links between the variables studied, and the analyses carried out do not allow us to deduce a causal link, which only a longitudinal study could show.

#### 4.3. Conclusion and perspectives

In conclusion, this study provides important results concerning the well-being and social inclusion at school of students with a disability. As Schwab (2019) writes, it is not enough for those children to go to school with their non-disabled peers, it is also necessary to ensure the quality of inclusive education. Examining those children's well-being, social inclusion and academic progress is paramount. This study suggests that children with a disability in France are relatively happy and well-integrated socially, that this does not depend on the family socio-economic status but that differences exist according to the type of disability, to the disadvantage of children with ADHD or DYS- disorders. Emotional well-being and social inclusion can be noticeably improved thanks to good relationships between parents and teachers and to the implementation of appropriate accommodations, even when the teacher does not seem, according to the parents' perception, to be specifically trained to handle their child's disability. These results should encourage

teachers to step up communication with families with a view to promoting the well-being of children with disabilities at school. A general framework for enhancing well-being of children and adolescents with intellectual or closely related developmental disabilities has been proposed by [Schalock et al. \(2018\)](#), it is also suitable for all children with disabilities. New qualitative and quantitative studies should be conducted directly with children to complement those conducted with parents, if possible including adapted measures of academic progress. It might be interesting to consider the concept of disability not from a purely administrative point of view, but from a socio-ecological approach. This would involve asking parents about their children's support needs and how these needs are met ([Thompson et al., 2009](#)). Additionally, examining how environmental adaptations for students with disabilities can serve as predictive factors for their well-being, beyond just disability categories, would be valuable. It is also important to understand how awareness of mismatches experienced can be linked to reduced well-being. Finally, launching longitudinal studies would enable researchers to understand the evolution of well-being throughout the school years of children with a disability and causal relationships.

### CRedit authorship contribution statement

**Françoise Guillemot:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Florence Lacroix:** Writing – review & editing, Validation, Supervision. **Isabelle Nocus:** Writing – review & editing, Validation, Supervision.

### Declaration of Competing Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

### Data Availability

The raw data are available by following the link mentioned in the article.

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