



**HAL**  
open science

## Amount of instructional and inclusion time for children with disabilities in France

Françoise Guillemot, Florence Lacroix, Isabelle Nocus

► **To cite this version:**

Françoise Guillemot, Florence Lacroix, Isabelle Nocus. Amount of instructional and inclusion time for children with disabilities in France. 2024. hal-04504000

**HAL Id: hal-04504000**

**<https://hal.science/hal-04504000>**

Preprint submitted on 14 Mar 2024

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

# **Amount of instructional and inclusion time for children with disabilities in France**

Françoise Guillemot<sup>a\*</sup>, Florence Lacroix<sup>b</sup>, and Isabelle Nocus<sup>a</sup>

*<sup>a</sup>Centre for Educational Research Nantes, Faculty of Psychology, Nantes University, France;*

*<sup>b</sup>Centre for Educational Research Nantes, Teaching Institute, Nantes University, France;*

Corresponding author:

[\\*francoise.guillemot@univ-nantes.fr](mailto:francoise.guillemot@univ-nantes.fr); <https://orcid.org/0000-0001-8528-4142>

Françoise GUILLEMOT /Tél. : 02.53.52.26.09

Chemin de la Censive du Tertre - BP 81227

UFR de Psychologie

44035 Nantes CEDEX 1

# **Amount of instructional and inclusion time for children with disabilities in France**

In 2010, France ratified the Convention on the Rights of Persons with Disabilities, Article 24 of which promotes access to an inclusive quality education. The aim of this research is to study the actual situation of the inclusion of children with disabilities in France. The parents of 552 children with disabilities, aged between 3 and 18, were interviewed about the amount of instructional and inclusion time of their child. Inclusion time refers to instructional time spent with non-disabled peers. The parents also specified the nature and severity of their child's disability, the potential difficulties linked to the child's behaviour using the Strengths and Difficulties Questionnaire (SDQ; Goodman 2001), the child's academic level and various socio-demographic variables. The study shows that the amount of instructional time of children with a disability is significantly lower than that of non-disabled children. Children with an intellectual disability or with ASD (Autism Spectrum Disorder) have significantly less instructional time than children with a motor disability, dys-disorder or ADHD (Attention Deficit/Hyperactivity Disorder). An important number of hours of inclusion is associated with a high academic level, particularly in mathematics. The higher the total score of emotional difficulties is, the lesser the child is schooled and included; conversely, a high score of pro-social behaviour is associated with more hours of instruction, after controlling the other variables. Finally, the parents' socio-professional category has an impact on instructional time and even more so on inclusion time, in favour of children with an advantaged background.

Keywords: inclusive education, instructional time, inclusion time, SDQ (Strengths and Difficulties Questionnaire), students with a disability

## **Introduction**

International treaties and in particular the Convention on the Rights of Persons with Disabilities adopted in 2006 by the UN support the idea of a right to inclusive education. Inclusion consists in schooling children with a disability in the same classroom as their non-disabled peers. The signatory states are gradually trying, to develop inclusive

education and adapt their educational system to the needs of every child. Around the world, however, children with disabilities do not have equal access to school: their total number of hours of presence at school is lower than that of non-disabled children and they are only partially included. This difference increases as children advance through their school years (UNESCO 2020). And yet, research shows that inclusion has a positive effect on social and academic skills (Hehir et al. 2016; Oh-Young and Filler 2015), including for children with a severe disability (Agran et al. 2020). Other research shows that it has no negative effects on the non-disabled children who share the same classrooms (Szumski, Smogorzewska, and Karwowski 2017). Spending at least 80% of school time with non-disabled peers is a criterion used to define inclusive schooling. In France, 3.4% of primary and secondary school children are officially recognised as disabled, and among those children, 59% benefit from inclusive schooling (European Agency for Development in Special Needs Education 2020). By comparison, in Belgium, only 19% of students with special educational needs benefit from it, while in Italy, 99% of them do. Those percentages were published in 2020 based on the figures of the school year 2016-2017. To our knowledge, there are not any more recent European indicators. Furthermore, those data do not precisely account for the actual instructional and inclusion time of each child, but are calculated based on the number of children with a disability enrolled in the various schooling systems (regular classes, inclusive units in regular schools, teaching units in medico-social establishments). For instance, in the French data, a child enrolled in an inclusive unit in a regular school will be considered as being schooled in a separate class within that regular school, no matter the number of hours of inclusion with non-disabled peers, which is variable and thus unrecorded.

This study aims at estimating the actual instructional and inclusion times of children with disabilities in France by relying on their parents' answers, then studying the various factors linked to the instructional and inclusion times.

### ***Education and Inclusion Depending on the Type of Disability***

In international studies, it appears that children with disabilities do not all have access to education and inclusion. For instance, in the United States, Morningstar et al. (2017) analysed federal data from 2000 to 2014 regarding the schooling of pupils and students with disabilities aged between 3 and 21. They show that children with disabilities such as ASD (Autism Spectrum Disorder), intellectual disabilities, multiple disabilities and deaf-blindness spend less time at school than non-disabled children or children with less severe conditions such as learning disabilities, speech disorders or hearing impairments. They noticed very slight evolution between 2000 and 2014. Kurth et al. (2019) analysed the personalised schooling schedules of 88 children with severe disabilities aged 5 to 18, in order to determine the time they spent in a regular class. In this sample, the children spent on average 26% of their time in a regular class, mainly for non-academic courses such as sports or music. In France, Rattaz et al (2020) indicate that 88% of children with ASD (aged between 2 and 16, mean age = 6.6 years) are enrolled in a regular school (61% with human support and 28% without support) on an average of 17.7 hours per week out of the 24h a week in primary school and the 26h a week in middle and high school provided in the regular school curriculum in France. Children with severe adaptive and cognitive deficiencies spend less time at school. Children who present behavioural and sensory difficulties are partially schooled. In a longitudinal study conducted with autistic children in the United States, Towle et al. (2018) show that the level of segregation gets higher with age for most children, and more noticeably for those with the most severe disabilities. They also point out the lack of studies on the various modes of schooling,

whatever the children's abilities. These studies rely on school attendance data and figures; to what extent do these findings reflect the perceptions of teachers and parents?

### ***Perceptions of Teachers and Parents***

The perceptions of teachers depend on the nature and severity of the disability (Alghazo and Naggari 2004; Malinen and Savolainen 2008; Yada et al. 2019). Most of the time, they are favourable to the inclusion of children with motor disabilities, vision impairments, and moderate speech disorders or learning disabilities. For those children, they consider that a regular class is the best schooling solution. For children with an intellectual disability, the preferred solution is the separate class in a regular school, and when the disorders are severe, a separate school or specialised establishment (Malinen and Savolainen 2008). Cook (2001) notices more reactions of rejection and indifference towards students with moderate or severe disabilities. Teachers are sometimes globally more favourable in one country compared to another, e.g. in Finland compared to Japan (Yada and Savolainen 2019). Emotional and behavioural disorders are considered more of a problem than cognitive disabilities (Hastings and Oakford 2003); they further hinder inclusion from the point of view of teachers, who consider that they do not get sufficient training (Hind, Larkin, and Dunn 2019). In France, Jury, Perrin, Rohmer, et al. (2021) notice that teachers are less favourable to the inclusion of children with ASD (Autism Spectrum Disorder) compared to children with an intellectual or motor disability. They associate autism with behavioural difficulties and are thus not very favourable to inclusion. However, when it is specified that the child does not present behavioural disorders, their attitude is much more positive (Jury, Perrin, Desombre, et al. 2021). Additionally, kindergarten and primary school teachers seem to be more favourable to inclusion than secondary school teachers (Gigante and Gilmore 2018).

The attitude of parents is similar to that of teachers. The majority of parents of non-disabled children are favourable to the inclusion of children with a physical or learning disability, less favourable or not favourable to that of children with a behavioural disorder, an intellectual disability (Paseka and Schwab 2019) or with severe or multiple disabilities (de Boer and Munde 2015). They fear that their child will develop inappropriate behaviours from spending time around children with severe disabilities (de Boer, Pijl, and Minnaert 2010). Parents of children with a disability seem to be rather less favourable to inclusion. They worry about social isolation, rejection, bullying or the lack of training, resources and support of teachers (de Boer, Pijl, and Minnaert 2010). Furthermore, parents of children with a disability grow less and less favourable to inclusion as the children get older (Lui et al. 2015).

### ***Impact of the Family's Socio-economic Status***

Children with a low socio-economic status are more often directed towards specialised education establishments: in Norway, for instance, in a study conducted with 1250 children, Kvande, Belsky, and Wichstrøm (2018) show that these children get more specialised education services. Parents with a medium or high socio-economic status are significantly more favourable to inclusion (Balboni and Pedrabissi 2000). Parents' attitudes also depend on the level of education: those with a high level of education (university level) are more favourable to inclusion than those who stopped studying after secondary school (Leyser and Kirk 2004). Differences in attitude towards inclusion lead to different schooling choices depending on the children's socio-economic background. Szumski and Karwowski's study (2012), conducted in Poland with 429 children with a disability and their parents, shows that a high socio-economic status is associated with schooling in inclusive classes, as well as more parental involvement. The authors point out that educational teams are more likely to direct students with an advantaged socio-

economic background towards inclusive schooling, and that parents with an advantaged background choose inclusive schooling more often and have more resources to ensure that their preferences will be taken into account. Finally, Lui et al. (2015) highlight the fact that Chinese parents with a better knowledge of the laws and existing services are more favourable to inclusion.

### ***Inclusive education in France***

In France, there have historically been two ways of educating students with disabilities (Puig 2015). Students are either cared for in a medical-social establishment (under the supervision of the Ministry of Health) or educated in a mainstream school (under the supervision of the Ministry of Education). Specialised teachers from the national education system may be present in medical-social establishments, but there are few of them and as the students are in small groups, each student has only a few hours with the specialised teacher (Wickers et al. 2014). These establishments are not located in mainstream schools, but in separate buildings, so there are few opportunities for inclusion with peers without disabilities. In recent years, teaching units have emerged, classes run by medical-social establishments within ordinary schools or colleges. In these classes, pupils are taught by a specialised teacher assisted by educators, and can benefit from inclusion time (Voiseux, Plumet, and Cappe 2019). The amount of time spent in school with a teacher and the amount of time spent in inclusion (if this is possible in the establishment) are set each year, when the student's personalised project is drawn up, depending on the resources available and the student's needs.

In mainstream schools, there are several ways of educating students with disabilities: firstly, in a mainstream class with or without the help of a teacher assistant (Maguet and Panissal 2019), secondly, schooling in an ordinary class with the support of a ULIS (Local units for school inclusion). In the past, these were specialised classes integrated into

mainstream schools, but now they are not classes but inclusion facilities that enable students with disabilities to benefit from the support of a specialised teacher (Masse and Thomazet 2019). Depending on their abilities, students spend a greater or lesser amount of time in their inclusion class with their peers or in a separate class with the specialised teacher. In mainstream schools, the time spent in school and in the inclusion class is decided by the educational teams and reviewed during the year if necessary.

### ***The Present Study***

The national and international data do not give much information about the actual instructional and inclusion times of children with a disability. The previous studies inform us about teachers' attitudes towards inclusion depending on the child's type of disability or cognitive level, but they do not indicate to what extent children are included depending on each disability, or how psychological difficulties have an influence on instructional and inclusion. Furthermore, the effect of families' socio-economic status, highlighted in several studies, remains an important factor to control.

Thus, this study aims at reaching three objectives:

- Showing that children with disabilities in France benefit from fewer hours of instructional time than their non-disabled peers. In reference to the works of Rattaz et al. (2020) on children with ASD (Autism Spectrum Disorder), it is expected that, in comparison with the planned number of hours of the French school curriculums (24 hours in primary school and 26 hours in secondary school per week), children with a disability benefit from fewer hours of teaching than their non-disabled peers, but it remains to be specified depending on the various disabilities.
- Quantifying the number of hours of inclusion of children with disabilities in the classroom with their non-disabled peers. Although the studies cited above show

that this time is limited for the children with the most severe disabilities, there is no currently available data about the time spent in inclusion in France.

- Explaining the differences between children with disabilities using factors identified in previous studies such as age, gender, number of years since the diagnosis, type and severity of the disability, socio-emotional factors, academic level of the child and socio-professional category of the parents, as well as analysing their joint influence on the amount of instructional and inclusion times.

## **Methodology**

### ***Participants and Recruitment***

The participants are the parents of 552 children with a disability. These children are aged between 3 and 18, which corresponds to the compulsory education and training period in France. It was necessary for those children to have been officially recognised as disabled; children waiting to get diagnosed or formally recognised have not been taken into account in the study.

The parents were contacted via social media and associations of parents of children with a disability, for example a group of parents of children with dyspraxia on a social network or a national association of parents of children with Down syndrome. First, they had to register to participate in the study; they later received an email to fill out the questionnaires after giving their consent. Out of 736 parents, only 552 provided complete answers that were used in the study; the other answers were either incomplete or did not meet the required age or official diagnosis criteria. The respondents are distributed throughout France (91% of the French departments are represented). The data collection was conducted over two sessions in November 2020 and November 2021. The analyses take into account the year of response in order to control a potential bias.

The respondents' mean age is 41.6 years (SD = 6.22). 97% of them are the children's mothers. The distribution according to the socio-professional categories is shown in Table 1. There are 19% of single-parent families. By comparison with the national figures (Insee 2020; French Ministry of National Education 2020), these data suggest that the sample is comprised of significantly more advantaged families and less single-parent families.

The children with a disability (N=552) that constitute the sample have a mean age of 10.3 years (SD = 3.42), and 73% of them are boys. Over a half of the children (57.4%) are aged between 3 and 11 (in primary school), and 42.6% are aged between 11 and 18 (in secondary school). On average, they have been officially recognised as having a disability at the age of 4.8 (SD = 3.50). Their distribution according to the various disabilities is indicated in Table 1. The disability categories with small numbers of children (vision impairments: 1 child; hearing impairments: 5 children; mental disorders: 1 child; behavioural disorders: 7 children and other disorders: 16 children) have been grouped into a single category labelled "Others".

### ***Measures***

The questions concerning the parents are related to their age, gender, socio-professional category and whether or not they live with a partner. The socio-professional categories are grouped together according to the 4 categories usually used in the National Education statistics. The first questions concerning the children enquire about their age and gender, the nature of their main disability and their official degree (percentage) of disability. In France, a percentage inferior to 50% indicates a mild disability; between 50 and 80%, a moderate disability, and superior to 80%, a severe disability. In the second part of the questionnaire, the parents state whether their child is in an ordinary school or not and whether is schooled full-time. If not, the parents specify whether or not this partial or total lack of schooling is a choice, then indicate the number of hours of instructional at school

or in the medical-social establishment per week. For the children who are enrolled in different types of inclusive education units, the parents specify the number of hours of instructional with a teacher and spent in inclusion, i.e. in a classroom with non-disabled peers.

In the third part, the parents fill out the Strengths and Difficulties Questionnaire (SDQ; Goodman 2001). Designed for children aged 3 to 16, it focuses on the children's mental health. The parents version (Shojaei et al. 2009) was validated in French and comprises 25 items distributed in 5 sub-scales: behavioural difficulties, hyperactivity and inattentiveness, emotional symptoms, difficulties with peers and prosocial behaviour. The subscales scores range between 0 and 10. The scores of the first four subscales add up to a total score of difficulties ranging between 0 and 40. The higher the first 4 subscales scores and total score, the more important the difficulties are. Conversely, a high score on the fifth subscale, related to prosocial behaviour, reveals strengths. In this study the Cronbach's alpha coefficients for internal consistency are very satisfactory (.82 and .79). Finally, the parents assess their child's academic level in French and mathematics in comparison with children of the same age. The answers range from "Far below" to "Far above" on a five-point scale for each of the two subjects. A last non-mandatory "comments" part allows the parents to add remarks if they want to do so.

### ***Methods***

The objective is to predict to the best of our abilities the dependent variables: instructional time and inclusion time. In order to control all the factors simultaneously, we conducted a multiple linear regression for each of the variables we wanted to predict. Eleven independent variables were used as inputs for the regression model. Five variables are qualitative (year of study, socio-professional category of the respondent parent, gender of the child, nature and severity of their disability) and six are quantitative (age of

the child, number of years since the diagnosis, SDQ score on the prosocial behaviour subscale, total score of difficulties, level in French and mathematics assessed by the parents). The correlations between the quantitative independent variables were calculated beforehand: none of them is greater than 0.9, which makes it possible to envisage a multiple regression. The strongest correlation is between the estimated levels in mathematics and in French  $r = .52, p < .001$ .

We calculated the sample size necessary to ensure a power of 95% for an alpha risk of 5% using the G\*Power 3.1 software (Faul et al. 2009). Out of the 11 predictors, 5 are qualitative with several modalities, amounting to a total of 19 degrees of freedom. The a priori power analysis, considering that we wanted to detect an effect size of at least  $R^2 = 15\%$ , gave us a minimum sample size of 217 individuals; the size of the sample used in this study ( $N = 552$ ) is much larger than this threshold.

The regression models we used imply the normality of residuals, which is not the case here. This problem frequently arises with samples of this size (superior to 500). Schmidt and Finan (2018) state that it does not have a considerable impact on the results, provided that at least 10 observations are available per each variable and that attention is paid to extreme values as well as the homoscedasticity and independence of residuals.

## **Findings**

### ***Descriptive Statistics for Instructional Time and Inclusion Time***

The descriptive statistics (Table 1) show that the children of our sample spend an average of 20.8h at school per week ( $SD = 7.11$ ), which is significantly lower than for non-disabled children, who spend 24h per week at school in primary school and 26h in secondary school,  $t(551) = -10.5, p < .001, d = -.47$ . On average, they are included with their non-disabled peers for 17.1h ( $SD = 9.74$ ). More than a quarter of the children (27%, 150 children), are partially unschooled, and for 43% of them this is not the parents'

choice. 72% of the children (397 children out of 552) are included with their non-disabled peers for more than 80% of their school time.

	N(%)	Instructional in hours per week: M(SD)	Inclusion in hours per week: M(SD)
<b>Year</b>			
2020	386 (69.9%)	21.0 (6.78)	16.9 (9.61)
2021	166 (30.1%)	20.4 (7.83)	17.7 (10.04)
<b>Child gender</b>			
Girl	150 (27.2%)	20.7 (7.51)	15.1 (9.98)
Boy	402 (72.8%)	20.9 (6.96)	17.88 (9.55)
<b>Type of disability</b>			
ID (Intellectual disability)	65 (11.8%)	17.9 (8.24)	11.3 (9.77)
Other	62 (11.2%)	21.5 (7.01)	15.8 (10.31)
ASD (Autism Spectrum Disorder)	181 (32.8%)	19.4 (7.27)	16.1 (9.55)
Several	97 (17.6%)	20.3 (7.23)	16.5 (9.50)
Motor	25 (4.5%)	21.4 (7.15)	20.6 (7.71)
ADHD (Attention Deficit/Hyperactivity Disorder)	50 (9.1%)	23.3 (5.31)	21.8 (7.35)
Dys	72 (13.0%)	25.1 (3.10)	22.5 (7.92)
<b>Severity of the disability</b>			
< 50%	54 (9.8%)	24.0 (4.74)	22.7 (7.00)
From 50% to 80%	348 (63.0%)	21.9 (6.32)	18.1 (9.5)
> 80%	150 (27.2%)	17.1 (8.09)	12.8 (9.60)
<b>Socio-professional category</b>			
Disadvantaged	166 (30.1%)	18.7 (8.22)	14.7 (10.24)
Middle	115 (20.3%)	21.4 (6.62)	17.2 (9.64)
Advantaged	135 (24.5%)	22.0 (5.81)	17.5 (9.46)
Highly advantaged	139 (25.2%)	21.7 (6.72)	19.5 (8.88)
<b>Overall</b>	<b>552 (100%)</b>	<b>20.8 (7.11)</b>	<b>17.1 (9.74)</b>

Table1. Descriptive statistics: instructional and inclusion times according to the year, gender of the child, type of disability, severity of the disability and socio-professional category of the parent.

***Multiple Regressions for Instructional and Inclusion Times***

To model the time dedicated to instruction and the time dedicated to inclusion, two multiple regressions were conducted in the same way with the same variables (Table 2).

Predictor	Model Coefficients Instructional time (in hours per week)					Model Coefficients Inclusion time (in hours per week)				
	Estimate	SE	t	p		Estimate	SE	t	p	
Intercept	21.49	1.99	10.82	<.001	***	19.85	2.65	7.5	<.001	***
Year:										
2021 – 2020	-1.06	0.6	-1.77	0.077	.	-0.18	0.79	-0.23	0.819	
Socio-professional category:										
Disadvantaged – H.advantaged	-2.62	0.74	-3.54	<.001	***	-4.32	0.99	-4.38	<.001	***
Middle – H. advantaged	-0.46	0.8	-0.58	0.563		-2.57	1.07	-2.4	0.017	*
Advantaged – H. advantaged	0.25	0.77	0.33	0.744		-1.8	1.03	-1.74	0.082	.
Child gender:										
girl – boy	0.27	0.65	0.42	0.676		-1.81	0.86	-2.1	0.036	*
Child age (years)	0.15	0.12	1.32	0.188		0.01	0.15	0.03	0.973	
Time since the diagnosis (years)	-0.02	0.12	-0.14	0.889		-0.43	0.15	-2.8	0.005	**
Type of disability										
Other – ID	2.41	1.2	2.01	0.045	*	2.05	1.59	1.28	0.2	
ASD – ID	0.41	1.09	0.38	0.705		1.58	1.46	1.09	0.278	
Several – ID	1.45	1.1	1.32	0.188		3.1	1.46	2.11	0.035	*
Motor – ID	1.95	1.53	1.28	0.201		5.49	2.03	2.7	0.007	**
ADHD – ID	3	1.4	2.14	0.033	*	6.19	1.87	3.31	<.001	***
Dys – ID	3.56	1.3	2.75	0.006	**	6.12	1.73	3.55	<.001	***
Severity of the disability:										
from 50 to 80 – less than 50	-0.88	0.97	-0.91	0.364		-2.57	1.29	-1.99	0.047	*
more than 80 – less than 50	-5.62	1.2	-4.7	<.001	***	-5.28	1.59	-3.32	<.001	***
SDQ Prosocial behaviour	0.25	0.11	2.28	0.023	*	0.24	0.15	1.66	0.097	.
SDQ Total difficulties	-0.18	0.05	-3.88	<.001	***	-0.22	0.06	-3.45	<.001	***
French level	-0.13	0.26	-0.5	0.618		0.62	0.35	1.78	0.076	.
Maths level	0.59	0.24	2.42	0.016	*	1.41	0.32	4.34	<.001	***

*Signif. codes:* 0 <= '\*\*\*' < 0.001 < '\*\*' < 0.01 < '\*' < 0.05 < '.' < 0.1

Table 2. Multiple linear regressions for instructional and inclusion times.

The two models are globally significant  $F(19,532) = 9.74, p < .001$  and  $F(19,532) = 11.91, p < .001$ , they respectively explain  $R^2 = 25.8\%$  of the variance (Adjusted  $R^2 = 23.2\%$ ) and  $29.8\%$  of the variance (Adjusted  $R^2 = 27.3\%$ ). According to these results, the number of hours of instruction and inclusion is not linked to the age of the child. There is no

significant difference either according to the year of data collection. The child's gender does not contribute to explaining the hours of instruction, but predicts the hours of inclusion: girls are less included than boys: 1.8h less on average.

The socio-professional category is a significant predictor. A child with a disadvantaged background will be schooled 2.6 fewer hours than one with a highly advantaged background, after controlling the other factors (Figure 1). For the hours of inclusion, the contribution is even more important. A child with a highly advantaged background will spend 4.2h more in inclusion than a child with a disadvantaged background and 2.7 hours more than a middle-class child.

The number of years since the diagnosis only predicts the hours of inclusion. The longest it has been since the disability was officially diagnosed, the less included the child is, with a loss of 0.43h per year. The type of disability also contributes significantly: children with an intellectual disability (ID) or with ASD (Autism Spectrum Disorder) are less schooled and less included, children with dys-disorders, ADHD (Attention Deficit/Hyperactivity Disorder) or motor disabilities are included 4 to 6h per week more (Figure 2). The severity of the disability appears to be a significant predictor that translates into a difference of 5.6 fewer hours per week of instruction for a child with a severe disability in comparison with one with a milder disability (Figure 3).

The two SDQ scores significantly contribute to explaining the number of hours of instruction. When the prosocial behaviour score increases by one point, it translates into an increase of 0.25h of the time of instruction, while a one-point increase of the total score of difficulties brings about a decrease of 0.18h of the time of instruction, after controlling the other factors. For the time of inclusion, the total score of difficulties is the only significant predictor: a one-point increase of the score of difficulties brings about a decrease of 0.22h of the time of inclusion.

As for the factors linked to the children's academic level, the level in French assessed by the parents is not significantly linked to the number of hours of instruction and inclusion, contrary to that in mathematics. The significance of the latter is more important for the hours of inclusion. A one-point increase of the level in mathematics (noted on a scale from 1 to 5) is associated to 1.4h more of inclusion, with no presumption as to the meaning of this causal relationship.

In order to identify potential multicollinearity problems, we used the GVIF (General Variance Inflation Factor, Fox and Monette 1992): The maximum is equal to 2.8, which is satisfactory. We studied the outliers of the models; they correspond to children whose number of hours of instruction and inclusion is equal to 0, even though the model predicts a much more important time of instruction. The detailed analysis of these children's data and the comments reveals administratively complex situations or important conflicts with National Education (absence of human support for instance). The regression models stay the same with or without the outliers; we thus decided to keep them. Finally, the models do not present any leverage points. The independence of residuals was verified and the graphics do not show any heteroscedasticity problems. The validity of the two models is satisfactory.

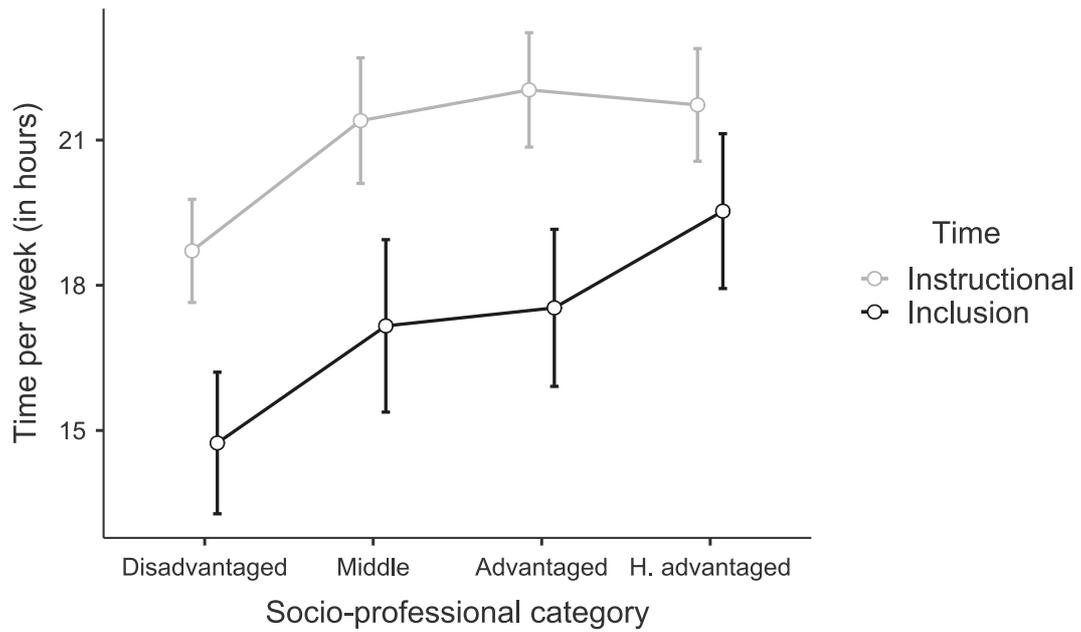


Figure 1. Instructional time and inclusion time per week by socio-professional category with a 95% confidence interval.

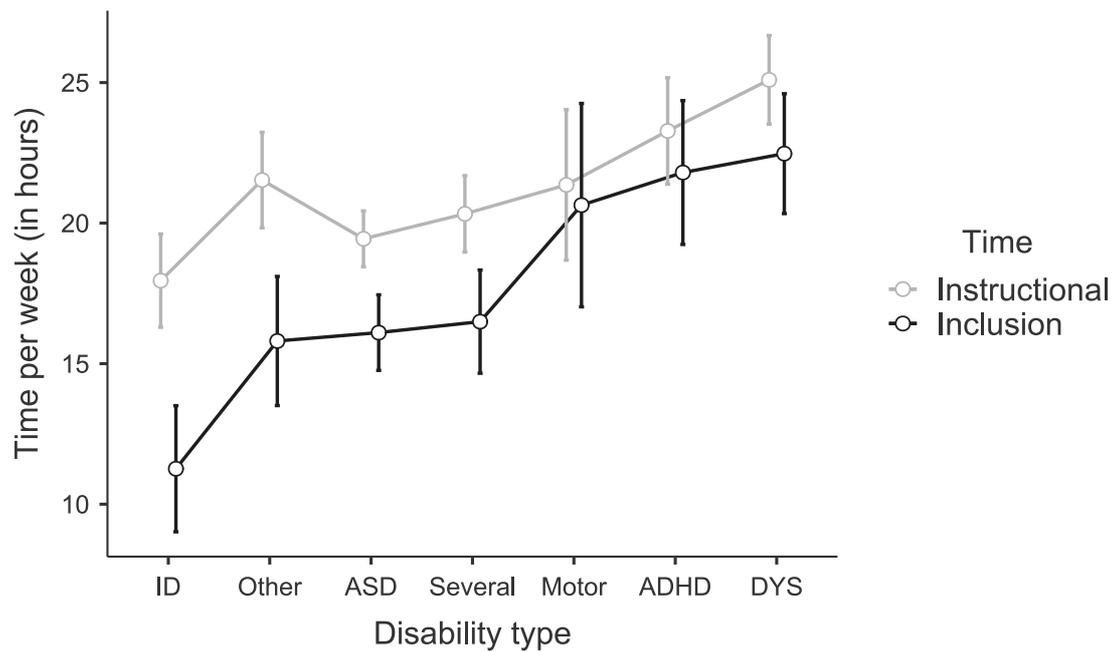


Figure 2. Instructional time and inclusion time per week by type of disability with a 95% confidence interval (ID: Intellectual Disability, ASD: Autism Spectrum Disorder, ADHD: Attention Deficit/Hyperactivity Disorder, DYS: Dys-disorders)

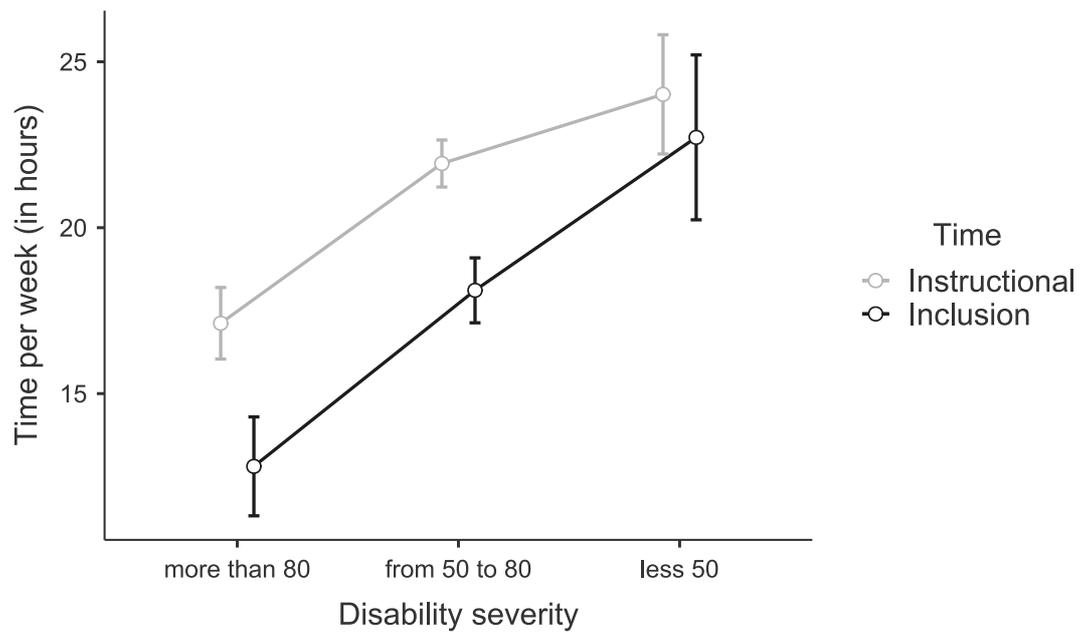


Figure 3. Instructional time and inclusion time per week according to the severity of the disability with a 95% confidence interval.

### Discussion

The first key finding, beyond the issue of inclusion, concerns instructional time. On average, children with a disability have fewer instructional time than their non-disabled peers. The children who have the less instructional time are those with the most severe disabilities and those with an intellectual disability. The presence of hours dedicated to therapies only accounts for a small part of the lacking hours of instruction of children with a disability. It would be interesting to precisely quantify this number of hours in future studies. Moreover, in almost half of the situations, this partial schooling is not the parents' wish. This is consistent with Wickers et al. (2014)'s report, which indicates that, in medico-social establishments, some children sometimes only benefit from a few hours of instructional time per week, or even none.

One of the criteria used in the reports of the European Union or the UN to speak about inclusion is the percentage of children with a disability who spend more than 80% of their

time among their non-disabled peers. This percentage amounts to 72% in our sample. This is higher than the 59% figure provided by the European Agency (2020). Three observations can explain this discrepancy. Firstly, these data date back from the school year 2016-2017, and the figures may have evolved positively since then with the implementation of measures in favour of inclusive schooling. Secondly, regarding children enrolled in inclusive units in a regular school, none of the data provided by France to the European Agency gives any information about their number of hours of inclusion. These children are thus considered as being in a separate class. The Circular of August 21 2015 changed the Classes for Inclusive Education (CLIS) into Localised Units for Inclusive Education (ULIS). Progressively, those classes, originally separated from the others in regular schools, are transforming into inclusive systems. The children spend part of their time in inclusion with their peers. The third explanation is the bias of our sample, which groups together parents of rather advantaged socio-professional categories.

The various analyses show that the instructional and inclusion times depend on the type and severity of the disability; the children with an intellectual disability or pervasive developmental disorders spend the less time at school and in inclusion, while those with a motor disability, dys-disorders or ADHD (Attention Deficit/Hyperactivity Disorder) are the most included. This result is in line with teachers' and parents' perceptions, who are less in favour of including students with severe disabilities (Malinen and Savolainen 2008) or students with ASD (Autism Spectrum Disorder) compared to students with an intellectual or motor disability (Jury, Perrin, Rohmer, et al. 2021). The analyses do not show a gender effect, however girls are much less included than boys. A possible explanation is the difference in sex-ratio depending on the severity of the disability. For moderate disabilities, girls make up 22% of the sample, and 38% for severe disabilities.

Furthermore, age does not contribute to explaining the number of hours of instructional and inclusion, contrary to the findings of Lui et al (2015) which indicate that attitudes are less favourable to inclusion when the children are older. In our sample, the distribution according to the type of disability differs considerably depending on the age: before 6 years old, no child is officially recognised as having dys-disorders or ADHD (Attention Deficit/Hyperactivity Disorder), since these disabilities cannot be diagnosed before that age; then the proportion of these disorders increases. Most of the time, the children suffering from these disorders are getting a full time education. This evolution of the distribution according to the type of disability explains the absence of age effect, and incited us to study another variable, the number of years since the diagnosis. The regressions show that the older the diagnosis, the less included the child is. This is consistent with the conclusions of the studies on parents and teachers' attitudes, which grow less favourable to inclusion as the child gets older (Lui et al. 2015; Gigante and Gilmore 2018) and confirms the findings of Towle et al. (2018)'s longitudinal study showing that the children with the most severe disorders are less and less included over the years.

The SDQ results, introduced in order to understand to what extent the difficulties faced by the child and their prosocial behaviour fostered or impeded inclusion, indicate that, after controlling the type of disability and its severity, the number of instruction hours depends on the total score of difficulties. Indeed, for the same disability with the same degree of severity, having more or fewer socio-emotional difficulties has an effect on the time of instruction. Likewise, having a high prosocial behaviour score is associated with a higher number of hours of instructional. This is consistent with the results obtained with children with ASD (Autism Spectrum Disorder) in France, for whom behavioural difficulties are associated with partial schooling (Rattaz et al. 2020). This finding is also

in agreement with the perceptions of teachers and parents, who have a more negative attitude to the inclusion of pupils with behavioural problems (Hastings and Oakford 2003; Paseka and Schwab 2019). The meaning of this causal relationship can be questioned: Do children who spend a lot of time at school get better at developing prosocial behaviours or is it the lack of appropriate prosocial behaviours that results in partial unschooling? These two variables are probably interdependent.

Surprisingly, there is no significant link between the level of French assessed by the parents and the number of hours of instruction and inclusion. This seems to contradict the findings of Engevik, Næss, and Berntsen (2018) showing that the level of expressive language predicts a good inclusion. Conversely, the level in mathematics is linked to the number of hours of instruction and more strongly so to the number of hours of inclusion. Both are indirect measures, since the child's level is assessed by the parents in comparison with the average level of children of the same age. The meaning of the causal relationship is not clear: access to more hours of inclusion enables children to have a better level in mathematics and, conversely, a very low level in mathematics does not allow children to be included in a regular class. To explain the difference between French and mathematics, two hypotheses can be posited. The first one has to do with methodology: the two variables indicating the academic levels are correlated with a relatively high correlation. Adding the two variables simultaneously to the regression means that only the dominant variable will remain significant. The second hypothesis is that it is easier to include a child with a low level in French than it is to include one with a low level in mathematics; to verify this hypothesis, it will be necessary, in future studies, to ask parents what subjects their children are included for. These results show that although inclusive education is theoretically for all students regardless of their academic level, in practice, in France, students with disabilities with a low academic level benefit from fewer hours

of inclusion than students with a high academic level. Ordinary teachers lack the training and resources to adapt the curriculum to the specific educational needs of their students, and prefer to resort to specialised teaching. According to Puig (2015), all teachers need to be trained in the inclusive education approach, in all subjects.

Finally, the parents' socio-professional category plays an important part in the instructional and inclusion times of children with a disability, in favour of the children of advantaged parents. Currently, inclusion is not at all a given and is sometimes only obtained after an uphill battle that more educated and better informed people are in a better position to win (Szumski and Karwowski 2012). This finding is in line with those of Lui et al. (2015) showing that parents' favourable attitudes towards inclusion increase with their socio-professional category, and is also consistent with the studies conducted on autistic children in France (Rattaz et al. 2020) or in the United States (Kurth, Mastergeorge, and Paschall 2016) and in Poland on children with an intellectual disability (Szumski and Karwowski 2012).

### ***Limitations and Perspectives***

The non-representative nature of the sample, socially more advantaged and comprising less single-parent families than the proportion usually observed, constitutes the first limitation to this study. We can also assume that parents who respond to this study are more concerned and favourable to inclusive education than parents who do not respond. To remedy this, studies should be conducted directly in schools by asking teachers to provide information about the amount of instructional and inclusion times, which has never been done so far. Additionally, the analyses we carried out do not inform us about the meaning of the causal relationships, and it would be necessary to conduct longitudinal analyses studying the educational and inclusion pathways over several years. Furthermore, this article only deals with inclusion times and does not look at the quality

of the inclusive education. It seems important in future research to add to the measurement of inclusion times an estimate of academic progress, children's well-being at school and their social inclusion.

Beyond these limitations, this article reveals that the inclusion times observed are in line to what teachers and parents express in surveys on their attitudes towards inclusive education. It also confirms with brand-new data that access to school and inclusion is too partial for French children with disabilities, an issue already pointed out in the report of the Special Rapporteur to the UN (United Nations 2019). It is important that France respect its international commitments and make sure that all children with a disability have access to school, and that their education is as inclusive as possible.

### **Acknowledgements**

The authors thank the families who participated in the study.

### **References**

- Agran, Martin, Lewis Jackson, Jennifer A. Kurth, Diane Ryndak, Kristin Burnette, Matt Jameson, Alison Zagona, Heather Fitzpatrick, and Michael Wehmeyer. 2020. 'Why Aren't Students with Severe Disabilities Being Placed in General Education Classrooms: Examining the Relations Among Classroom Placement, Learner Outcomes, and Other Factors'. *Research and Practice for Persons with Severe Disabilities* 45 (1): 4–13. doi:10.1177/1540796919878134.
- Alghazo, Emad M., and Eman El. Nagggar Gaad. 2004. 'General Education Teachers in the United Arab Emirates and Their Acceptance of the Inclusion of Students with Disabilities'. *British Journal of Special Education* 31 (2): 94–99. doi:10.1111/j.0952-3383.2004.00335.x.
- Balboni, Giulia, and Luigi Pedrabissi. 2000. 'Attitudes of Italian Teachers and Parents toward School Inclusion of Students with Mental Retardation: The Role of Experience'. *Education and Training in Mental Retardation and Developmental Disabilities* 35 (2): 148–159.
- Cook, Bryan G. 2001. 'A Comparison of Teachers' Attitudes Toward Their Included Students with Mild and Severe Disabilities'. *The Journal of Special Education* 34 (4): 203–213. doi:10.1177/002246690103400403.
- de Boer, Anke, and Vera S. Munde. 2015. 'Parental Attitudes Toward the Inclusion of Children With Profound Intellectual and Multiple Disabilities in General Primary Education in the Netherlands'. *The Journal of Special Education* 49 (3): 179–187. doi:10.1177/0022466914554297.

- de Boer, Anke, Sip Jan Pijl, and Alexander Minnaert. 2010. 'Attitudes of Parents towards Inclusive Education: A Review of the Literature'. *European Journal of Special Needs Education* 25 (2): 165–181. doi:10.1080/08856251003658694.
- Engevik, L.I., K-A.B. Næss, and L. Berntsen. 2018. 'Quality of Inclusion and Related Predictors: Teachers' Reports of Educational Provisions Offered to Students with Down Syndrome'. *Scandinavian Journal of Educational Research* 62 (1): 34–51. doi:10.1080/00313831.2016.1212252.
- European Agency for Development in Special Needs Education. 2020. *European Agency Statistics on Inclusive Education: 2018 Dataset Cross-Country Report*. J. Ramberg, A. Lénárt and A. Watkins. Odense, Denmark.
- French Ministry of National Education, ed. 2020. *Repères et références statistiques sur les enseignements, la formation et la recherche 2020 [Benchmarks and statistical references on education, training and research 2020]*. Paris: DEPP.
- Gigante, Julia, and Linda Gilmore. 2018. 'Australian Preservice Teachers' Attitudes and Perceived Efficacy for Teaching in Inclusive Classrooms'. *International Journal of Inclusive Education*, November, 1–10. doi:10.1080/13603116.2018.1545875.
- Goodman, Robert. 2001. 'Psychometric Properties of the Strengths and Difficulties Questionnaire'. *Journal of the American Academy of Child & Adolescent Psychiatry* 40 (11): 1337–1345. doi:10.1097/00004583-200111000-00015.
- Hastings, Richard P., and Suzanna Oakford. 2003. 'Student Teachers' Attitudes Towards the Inclusion of Children with Special Needs'. *Educational Psychology* 23 (1): 87–94. doi:10.1080/01443410303223.
- Hehir, Thomas, Todd Grindal, Brian Freeman, Renée Lamoreau, Yolanda Borquaye, and Samantha Burke. 2016. *A Summary of the Evidence on Inclusive Education*. Abt Associates. <https://eric.ed.gov/?id=ED596134>.
- Hind, Kristie, Rebecca Larkin, and Andrew K. Dunn. 2019. 'Assessing Teacher Opinion on the Inclusion of Children with Social, Emotional and Behavioural Difficulties into Mainstream School Classes'. *International Journal of Disability, Development and Education* 66 (4). Routledge: 424–437. doi:10.1080/1034912X.2018.1460462.
- Insee. 2020. 'Les Familles En 2020 [Families in 2020]'. [https://www.insee.fr/fr/statistiques/5422681#figure1\\_radio2](https://www.insee.fr/fr/statistiques/5422681#figure1_radio2).
- Jury, Mickaël, Anne-Laure Perrin, Caroline Desombre, and Odile Rohmer. 2021. 'Teachers' Attitudes toward the Inclusion of Students with Autism Spectrum Disorder: Impact of Students' Difficulties'. *Research in Autism Spectrum Disorders* 83 (May): 101746. doi:10.1016/j.rasd.2021.101746.
- Jury, Mickaël, Anne-Laure Perrin, Odile Rohmer, and Caroline Desombre. 2021. 'Attitudes Toward Inclusive Education: An Exploration of the Interaction Between Teachers' Status and Students' Type of Disability Within the French Context'. *Frontiers in Education* 6 (May): 655356. doi:10.3389/educ.2021.655356.
- Kurth, Jennifer A., Andrea L. Ruppert, Samantha Gross Toews, Katie M. McCabe, Jessica A. McQueston, and Russell Johnston. 2019. 'Considerations in Placement Decisions for Students With Extensive Support Needs: An Analysis of LRE Statements'. *Research and Practice for Persons with Severe Disabilities*, February, 154079691882547. doi:10.1177/1540796918825479.
- Kvande, Marianne Nilsen, Jay Belsky, and Lars Wichstrøm. 2018. 'Selection for Special Education Services: The Role of Gender and Socio-Economic Status'. *European Journal of Special Needs Education* 33 (4): 510–524. doi:10.1080/08856257.2017.1373493.

- Leyser, Yona, and Rea Kirk. 2004. 'Evaluating Inclusion: An Examination of Parent Views and Factors Influencing Their Perspectives'. *International Journal of Disability, Development and Education* 51 (3): 271–285. doi:10.1080/1034912042000259233.
- Lui, Ming, Kenneth Sin, Lan Yang, Chris Forlin, and Fuk-chuen Ho. 2015. 'Knowledge and Perceived Social Norm Predict Parents' Attitudes towards Inclusive Education'. *International Journal of Inclusive Education* 19 (April): 1–16. doi:10.1080/13603116.2015.1037866.
- Maguet, Ulla, and Nathalie Panissal. 2019. 'AESH au service d'une école inclusive et bienveillante : quelles compétences éthiques ? [Teaching assistants at the service of an inclusive and caring school: what ethical skills?]'. *Pensee plurielle* n° 49 (1): 49–59.
- Malinen, O.-P., and H. Savolainen. 2008. 'Inclusion in the East: Chinese Students' Attitudes towards Inclusive Education'. *International Journal of Special Education* 23 (3): 102–110.
- Masse, Florence, and Serge Thomazet. 2019. 'Coordonnateur d'Ulis école : exercer dans l'école inclusive comme personne ressource. Quelles réalités ? Quelle évolution de l'identité professionnelle pour cet enseignant spécialisé ? [Ulis school coordinator: how to practice in the inclusive school as a resource person. What realities? What evolution of professional identity for specialized teacher?]'. *La nouvelle revue - Éducation et société inclusives* 86 (2): 225–240. doi:10.3917/nresi.086.0225.
- Morningstar, Mary E., Jennifer A. Kurth, and Paul E. Johnson. 2017. 'Examining National Trends in Educational Placements for Students With Significant Disabilities'. *Remedial and Special Education* 38 (1). SAGE Publications Inc: 3–12. doi:10.1177/0741932516678327.
- Oh-Young, Conrad, and John Filler. 2015. 'A Meta-Analysis of the Effects of Placement on Academic and Social Skill Outcome Measures of Students with Disabilities'. *Research in Developmental Disabilities* 47 (December): 80–92. doi:10.1016/j.ridd.2015.08.014.
- Paseka, Angelika, and Susanne Schwab. 2019. 'Parents' Attitudes towards Inclusive Education and Their Perceptions of Inclusive Teaching Practices and Resources'. *European Journal of Special Needs Education* 0 (0): 1–19. doi:10.1080/08856257.2019.1665232.
- Puig, José. 2015. 'Pour devenir inclusive, l'école a-t-elle encore besoin de spécialiser des enseignants ? [To become inclusive, do schools still need to specialise teachers?]'. *Contraste* 42 (2): 41. doi:10.3917/cont.042.0041.
- Rattaz, Cécile, Kerim Munir, Cécile Michelon, Marie-Christine Picot, and Amaria Baghdadli. 2020. 'School Inclusion in Children and Adolescents with Autism Spectrum Disorders in France: Report from the ELENA French Cohort Study'. *Journal of Autism and Developmental Disorders* 50 (2): 455–466. doi:10.1007/s10803-019-04273-w.
- Schmidt, Amand F., and Chris Finan. 2018. 'Linear Regression and the Normality Assumption'. *Journal of Clinical Epidemiology* 98 (June). Elsevier: 146–151. doi:10.1016/j.jclinepi.2017.12.006.
- Shojaei, Taraneh, Ashley Wazana, Isabelle Pitrou, and Viviane Kovess. 2009. 'The Strengths and Difficulties Questionnaire: Validation Study in French School-Aged Children and Cross-Cultural Comparisons'. *Social Psychiatry and Psychiatric Epidemiology* 44 (9): 740–747. doi:10.1007/s00127-008-0489-8.

- Szumski, Grzegorz, and Maciej Karwowski. 2012. 'School Achievement of Children with Intellectual Disability: The Role of Socioeconomic Status, Placement, and Parents' Engagement'. *Research in Developmental Disabilities* 33 (5): 1615–1625. doi:10.1016/j.ridd.2012.03.030.
- Szumski, Grzegorz, Joanna Smogorzewska, and Maciej Karwowski. 2017. 'Academic Achievement of Students without Special Educational Needs in Inclusive Classrooms: A Meta-Analysis'. *Educational Research Review* 21 (June): 33–54. doi:10.1016/j.edurev.2017.02.004.
- Towle, Patricia O., Karyn Vacanti-Shova, Ann Higgins-D'Alessandro, Ashley Ausikaitis, and Caitlyn Reynolds. 2018. 'A Longitudinal Study of Children Diagnosed with Autism Spectrum Disorder Before Age Three: School Services at Three Points Time for Three Levels of Outcome Disability'. *Journal of Autism and Developmental Disorders* 48 (11): 3747–3760. doi:10.1007/s10803-018-3606-x.
- UNESCO. 2020. *Global Education Monitoring Report: Inclusion and Education : All Means All*. Paris: UNESCO.
- United Nations. 2019. 'Visit to France : Report of the Special Rapporteur on the Rights of Persons with Disabilities'. <https://digitallibrary.un.org/record/1663797>.
- Voiseux, Céline, Marie-Hélène Plumet, and Émilie Cappe. 2019. 'Attentes, besoins et perceptions des parents et des professionnels [Expectations, needs and perceptions of parents and professionals]'. *La nouvelle revue - Education et société inclusives* N° 86 (2): 241–261.
- Wickers, Olivier, François Chieze, Jean-Louis Daumas, Jean-Pierre Delaubier, Gilles Pétreault, and Martine Caraglio. 2014. *Les Unités d'enseignement Dans Les Établissements Médico-Sociaux et de Santé [Teaching Units in Medical and Health Establishments]*. Paris: Education nationale.
- Yada, Akie, and Hannu Savolainen. 2019. 'Japanese and Finnish Teachers' Perceptions and Self-Efficacy in Inclusive Education'. *Journal of Research in Special Educational Needs* 19 (S1): 60–72. doi:10.1111/1471-3802.12478.
- Yada, Akie, Asko Tolvanen, Olli-Pekka Malinen, Kyoko Imai-Matsumura, Hiroshi Shimada, Rihei Koike, and Hannu Savolainen. 2019. 'Teachers' Self-Efficacy and the Sources of Efficacy: A Cross-Cultural Investigation in Japan and Finland'. *Teaching and Teacher Education* 81 (May): 13–24. doi:10.1016/j.tate.2019.01.014.