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ORIGINAL ARTICLE

Teachers' non-response bias in questionnaires about their attitude towards inclusive education

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Abstract

The attitude of teachers towards inclusive education is a key issue for the success of inclusive education. Many studies have been designed to assess teachers' attitudes, but none have looked at the bias caused by teachers' non-response to questionnaires on their attitudes. Non-response biases are difficult to identify because it is impossible to access the responses of individuals who do not wish to reply. It is therefore necessary to use other data. This article examines the non-response biases of teachers in questionnaires about their attitude towards inclusive education by cross-checking the responses of parents of children with a disability ($N=382$) regarding the quality of their child's inclusion and the responses or non-responses of teachers to questionnaires about their attitude ($N=48$ responses). This study shows that the non-responses of teachers are not random and are associated with poorer well-being and social inclusion at school, a lower sense of belonging and higher levels of bullying. This significant non-response bias of teachers leads us to question the existence of a potential positivity bias in previous studies.

KEYWORDS

attitude, inclusive education, non-response bias, teacher

Key points

- Non-response bias in teacher attitude questionnaires is very high.
- Studying non-response bias is difficult and requires indirect measures.
- The study shows that teacher non-responses are associated with a lower quality of inclusion perceived by parents.
- The results of this study raise the question of possible positivity bias in previously published studies.

INTRODUCTION

Numerous recent research studies have taken an interest in the attitude of teachers towards inclusive education. Those studies are relevant due to the link that has been brought to light by researchers between a positive attitude of teachers and the success of inclusive education (Hobbs & Westling, 1998; Leatherman & Niemeyer, 2005; Mieghem et al., 2020). As early as 2011, the European Agency for Development in Special Needs Education

suggested in its recommendations for the promotion of inclusive education that 'All teachers should have positive attitudes towards all learners' (European Agency for Development in Special Needs Education, 2011). UNESCO also supported this idea in 2020, specifying that 'Inclusive teaching requires teachers to recognize the experiences and abilities of every student and to be open to diversity' (UNESCO, 2020). When teachers have positive attitudes towards inclusive education, it fosters the practices that guarantee the successful inclusion of all pupils

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(Ben-Yehuda et al., 2010; Monsen et al., 2014; Sharma et al., 2006). A majority of studies are based on questionnaires (on paper or on the computer) asking teachers about various aspects of their attitude (cognitive, affective and/or behavioural aspect) (Ewing et al., 2018). Our study was initially designed to explore the link between the attitude of teachers and the quality of inclusion assessed by parents. Since the initial sample comprised 382 parents, the expected size of the teachers sample was 382, but only 48 answered the questionnaires. Thus, a lot of data is missing. This is either due to the parents' refusal to transmit the questionnaire to the teacher, or to the teacher's lack of response. However, the data relating to the quality of inclusion assessed by the parents is available for all the children, whether or not the parent(s) agreed to transmit the questionnaire and whether or not the teacher agreed to answer. The low number of responses from teachers suggests that the results might be biased. The available data allows us to study two biases, one related to the non-transmission of the questionnaire by the parents to the teacher, the other due to the teachers' non-responses.

Few published studies mention the biases that can exist in surveys. These biases can be of various natures: the social desirability bias has been brought to light in some studies; however the non-response bias, that is, the fact that the individuals who answer the questionnaires are not representative of the targeted population, has not been studied. Concerning the social desirability bias in questionnaires about attitudes, a study conducted with parents of children with special educational needs has shown that their attitude was influenced by the perceived social norm (Lui et al., 2015). When parents think that teachers generally support inclusive education, their own responses are in favour of inclusive education. Lüke and Grosche (2018b) experimentally highlighted that people's responses (not necessarily teachers') are influenced by the organisation that conducts the study. In particular, when the study is conducted by a university, the responses are more positive than when it is conducted by an association presented as supportive of specialised education. In order to limit the social desirability bias, the authors offer new ways to implicitly measure attitude with association tests (Lüke & Grosche, 2018a). When the participants took these tests on the computer, the time it took for them to automatically associate some concepts was measured and an evaluation of attitude was inferred from it. Another research study has brought to light important non-response and social desirability biases in a personality questionnaire for future teachers. The authors have stated that those biases clearly diminished the validity of this questionnaire (Mundia, 2011).

Non-responses to a questionnaire

When a study is designed, it is sometimes difficult to reach all the concerned population. The way the

survey is transmitted (via email for instance) can lead to favouring individuals who have greater access to digital resources. A survey by phone will favour people who have time to dedicate to a phone call. Then once the questionnaire reaches the people concerned, there can be an important rate of non-response due to the characteristics of the respondents themselves, such as their age, gender or level of education. A survey conducted with doctors has shown that older doctors responded less than younger ones (Barclay et al., 2002). In a study about teenagers' health in the Netherlands, Cheung et al. (2017) noticed that women, older people and people with a higher level of education were overrepresented in the sample of people willing to answer the survey. The response rate can also depend on how interested the respondents are in the topic: in a study conducted with graduate students about their response or non-response to questionnaires relating to education, the first reason stated for not answering a questionnaire was the respondent's interest in the topic (Saleh & Bista, 2017). A meta-analysis conducted by Wu et al. (2022) examined over 1000 online surveys related to education and shows that the average response rate in the studies published since 2007 was around 44% with major disparities, the lowest response rate being 0.4% and the highest 100%.

In recent studies about teachers' attitude towards inclusive education, the response rates vary widely. When the study is conducted during a training course, the response rates are close to 100%. For instance, in a study conducted in Luxemburg with teachers and future teachers, all of the training session participants also participated in the study (Krischler et al., 2019). In other studies, the participation rate is not mentioned, but can be inferred to be of the same order of magnitude since the questionnaires were proposed to future students after their training course (Ahsan et al., 2013; Uusimaki et al., 2018) or during class (Bohndick et al., 2022). When the studies are conducted with teachers at the schools they work at, the rates are much lower: the way the questionnaires are distributed influences the response rate. For instance, in a study conducted in Australia, school directors were contacted and only 12 out of 613 gave their consent to contact the teachers of their establishment, which only allowed the researchers to reach less than 2% of the targeted schools (Sahli Lozano, Sharma, et Wüthrich 2021). Then, once the teachers have actually been contacted, the response rate varies. Saloviita (2020) indicates a response rate of 32%, Gregory and Noto (2017), a rate of 23% and Memisevic et al. (2021), of 70%. The study can also be transmitted via labour unions or teachers' associations; in this case the response rate cannot be calculated, for example in Switzerland in Sahli Lozano et al.'s study (2021). In a study conducted in Germany, the invitation to answer the questionnaire was sent to all the teachers of a particular region. The total number

of teachers who got the questionnaire was not specified but can be estimated to be over 10,000 according to the federal statistics that can be consulted on government websites. The number of responses was 450, which correspond to a response rate of less than 5%. The authors indicate that the respondents are representative of German teachers in terms of socio-demography (Letzel-Alt et al., 2022). These various results show how difficult it is to estimate the rates of response to questionnaires relating to inclusive education.

Non-response biases

Non-responses do not necessarily produce a non-response bias. In order for a bias to appear, it is necessary for the people who answer the survey to answer systematically differently than how the considered population may have done. In the 2018 TALIS (Teaching And Learning International Survey), the non-response rate of Australian teachers is high, but does not induce a bias in the results, since the responding sample was representative of the population according to the authors (Dix et al., 2018). To our knowledge, no study of the non-response bias of teachers in questionnaires relating to inclusive education has been conducted before. In other fields, several findings have been highlighted. For instance, in a study conducted with dentists and concerning the use of a specific technological device, it has been shown that the higher the number of necessary reminders is, the more negative the responses are (Parashos et al., 2005). Conversely, a study about Covid has shown that there was not any non-response bias depending on the number of reminders required (Duszynski et al., 2022). A non-response bias is inherently difficult to highlight: in order to identify it, it is necessary to obtain information about the non-respondents through another mean. For instance, in a study conducted by Barclay et al. (2002) with doctors, the non-respondents' socio-demographical data is available. Another form of contact can also be established with the non-respondents, for example, by phone (Parashos et al., 2005). Offering two modes of administration for questionnaires allows researchers to explore biases: Cheung et al. (2017) transmitted a health-related questionnaire to teenagers, sending it to their homes by mail and asking for answers on a voluntary basis, and proposed the same questionnaire to teenagers during school time. This study revealed a positivity bias for voluntary survey respondents (by mail): they consume less tobacco and alcohol, have a better mental health, a better subjective health and a more positive school experience than respondents who answered during school time. In another study conducted with parents regarding their children's mental health, the researchers were able to highlight

a bias by analysing the teachers' responses: parents of children with mental health issues answered the questionnaire less often than parents whose children did not have this kind of issues (Stormark et al., 2008).

Thus, studying the literature shows that teachers' non-response rates in attitude-related questionnaires can sometimes be very high. Non-responses do not necessarily produce a bias, but it is necessary to have other measures in order to assess the presence or absence of a non-response bias. In other fields of research, important biases have been highlighted by studying additional variables collected in another way. To our knowledge, no study about the non-response bias of teachers in questionnaires related to their attitude has been published so far. In our study, we are using the variables relating to the quality of inclusion assessed by parents: well-being, social inclusion, bullying, sense of membership, quality of the parents-teachers relationship. The objective of this study is to use these variables to explore two biases:

- The bias due to the non-transmission of questionnaires by parents: do the parents who agree to transmit the questionnaires to their child's teacher assess the quality of inclusion in the same way as those who refuse?
- The non-response bias of teachers who received the questionnaire: is the non-response random or is it linked to the quality of inclusion as perceived by parents? We will study the link between the variables related to well-being, social inclusion, bullying, sense of membership, and the quality of the parents-teachers relationship.

We hypothesise that in both cases the results may be biased and we will try to identify whether this bias concerns all the variables relating to the quality of inclusion or only some of them.

METHODOLOGY

Design of the study and participants

The study focuses on students with disabilities through a triangulation process, interviewing their parents and teachers. The participants are parents of children with a disability from all over France. They were contacted via social media (Facebook) and organisations of parents dedicated to one type of disability (Down's syndrome, autism, 'dys'-type disorders). Dys disorders refer to specific cognitive disorders: dyslexia, dyspraxia, dysphasia, dyscalculia, dysorthographia, as well as attention deficit disorders, with or without hyperactivity (ADHD). Compared with the national data, this sample is more socially privileged, with less single-parent families (DREES-CPS, 2020). To be included in the study, the child must be officially recognised as having a disability (in France, this recognition

must come from the MDPH—Maison Départementale des Personnes Handicapées/Departmental Home for People with Disabilities), be schooled in a regular school and be between 3 and 18 years old. The mean age of the children included in the full sample ($N=382$) is $M=10.8$ years ($SD=3.34$). The full sample comprises 74.3% of boys. The mean age for the sample of parents ($N=382$) is 41.7 years ($SD=6.2$) and 97% of them are mother. The mean age for the sample of teachers ($N=48$) is 41.3 years ($SD=8.9$) and 83% of them are women. They have been teaching for 16.2 years ($SD=8.69$) on average. A quarter of them (24.4%) are specialised teachers.

Questionnaires

For parents

The parents filled out a socio-demographic questionnaire in which they specified the nature and severity of their child's disability then filled out various other questionnaires regarding the quality of their child's inclusion. Furthermore, if they did not wish to transmit the study to their child's teacher, they could explain why by answering an open-ended question.

Perceived well-being, social inclusion and academic level

The 'parents' version of the *Perception of Inclusion Questionnaire* (PIQ; Venetz et al., 2015) was used. This questionnaire measures the parents' perception of their child's emotional well-being, their level of social inclusion and their academic level. It comprises 12 statements, such as 'He/she has very good relationships with his/her classmates'. The parents express their agreement on a 4-point scale ranging from 'not at all true' (1) to 'certainly true' (4). For each dimension of the questionnaire, one statement is worded negatively, such as 'He/she has no desire to go to school'. The scores are calculated using the mean of the items in each dimension after reversing the items that were worded negatively; they vary between 1 and 4. The higher the scores, the higher the well-being, social inclusion and academic levels are. The 'students' version of the questionnaire has been validated in French (Guillemot & Hessels, 2021). The 'parents' version has only been validated in German (Schwab et al., 2020).

Perception of bullying

Six questions taken from the *California Bullying Victimisation Scale* (CBVS; Felix et al., 2011) were asked. They concern physical, moral and social bullying. A question was added about cyberbullying. The parents indicate the frequency of various types of bullying from 'never' (1) to 'every week' (4). The higher the score, the higher the level of bullying is.

Sense of membership

The parents filled out the *Psychological Sense of School Membership* scale (PSSM; Goodenow, 1993). This scale comprises 18 statements, for example, 'I feel that my child is a real part of his/her school' for which the parent indicates the extent to which they agree on a scale ranging from 'Completely disagree' (1) to 'Completely agree' (5). The scale has been translated and validated in French for Canadian students (St-Amand et al., 2020). It comprises 4 subscales: relationships with peers, students-teachers relationships, feeling of being accepted and feeling of attachment. For each subscale, a score is obtained by calculating the mean of the items. A global score can also be calculated. The higher the score, the stronger the sense of membership is.

Satisfaction with the parents-teacher relationship

The parents-teachers' relationship quality subscale of the *Parent Teacher Involvement Questionnaire* was used (PTIQ; Kohl et al., 2000). The parents assess six statements, for example, 'My child's teacher pays attention to my suggestions' on a scale ranging from 'never' (1) to 'always' (5). The score is calculated using the mean of the six items, the higher the score, the better the quality of the relationship is.

For teachers

The teachers were offered two questionnaires to fill out, the first one about their attitudes towards inclusive education and the second one about their intentions to implement inclusive practices. Additionally, the teachers specified their age, number of years of experience and whether or not they were specialised teachers.

Attitude towards inclusion and intention to teach in an inclusive classroom

The *Attitudes towards Inclusion Scale* and *Intention to Teach in an Inclusive Classroom Scale* questionnaires (AIS and ITICS; Sharma & Jacobs, 2016) have been used in numerous recent studies in Portugal, Chile, Sweden, Switzerland, Canada, Australia, India or Hong Kong (Laranjeira et al., 2022; Miesera et al., 2019; Sahli Lozano, Sharma, et Wüthrich 2021; Sharma et al., 2015; Sharma et al., 2018, 2021; Uusimaki et al., 2018) (Laranjeira et al., 2022; Miesera et al., 2019; Sahli Lozano et al., 2021; Sharma et al., 2015, 2018, 2021; Uusimaki et al., 2018). The AIS comprises 8 questions about teachers' attitude towards inclusion and is divided into two subscales: the 'opinions' scale and the 'feelings' scale. One example of statement for the 'opinions' subscale is 'I believe that inclusion is beneficial to all students socially'. For the 'feelings' subscale, one example is 'I am happy to have students who need assistance with their daily activities included in my classrooms'. The answers are given on a 7-point Likert scale from 'Completely disagree' (1) to 'Completely agree' (7). The mean scores of the two subscales can be calculated, as well as the global mean score.

The higher the scores, the more supportive of inclusion the teacher's attitude is. The ITICS is comprised of 7 questions about teachers' intentions to teach in inclusive classes. The participants must determine to what extent they are willing to implement various inclusive practices. On example of suggested practice is: 'Undertake a professional development program so you can teach students with diverse learning needs.' The participants must say to what extent they are willing to implement this practice by answering on a 7-point Likert scale ranging from 'Extremely unlikely' (1) to 'Extremely likely' (7). The total score is obtained by calculating the mean of the 7 items. The higher the score, the more the teacher is willing to implement inclusive practices.

Protocol

After registering via a link provided by the various organisations and social media, the parents received an email at the end of the school year (April or May) inviting them to fill out an online questionnaire. After completing it, they indicated whether they wanted their child's teacher to participate in the study. The possibility of involving the child's teacher in the study was presented as optional and did not constitute the core of the study. In the second phase (in June), the parents who agreed to the participation of their child's teacher got another email to forward or print for the teacher, with a QR code that allowed them to access the online questionnaire. Finally, the teachers responded to the various questions if they wanted to. When the parent had given their agreement and no response from the teacher appeared in the database, an initial reminder e-mail was sent to the parent a week later, asking them to contact the teacher again, and a second e-mail 15 days later. We received replies from parents to these emails saying 'I did send the email to the teacher but I haven't heard from him since' or 'the teacher is too busy'. None of the parents indicated that they had changed their minds and no longer wished to forward the questionnaire. The study was conducted over two successive school years (2021 and 2022) and the data was aggregated. The participating parents and teachers are all distinct individuals.

Statistical analysis

The internal consistency of the various scales was calculated. To compare the means of independent groups, Welch's *t*-tests were used in order to take into account the heterogeneousness of the variances between the compared groups. Given the large size of the samples, superior to 30, and the absence of outliers, the asymptotical distribution of the means can be considered normal. To assess whether the compared groups had the same distribution in terms of types and severity of disability and social background, χ^2 tests were used.

An a priori power analysis indicates that to detect an effect superior to 0.5 in a Welch's *t* test between two means with 95% power, a total number higher than 176 is required in the sample.

RESULTS

The data is available at the following address: https://osf.io/6uph7/?view_only=f53142e6801b401e9c09f32f9949c2b3. The initial sample comprised 382 parents. Among them, 45.5%, that is, 174 parents (group A) responded positively to the question 'I wish to transmit the rest of the study to my child's teacher'. The non-response rate due to the non-transmission of the questionnaire is thus of 54.5%. Furthermore, the teachers who received the study did not all answer; only 48 out of 174 fully filled out the questionnaire (we assume that the parents who had wanted their child's teacher to take part and who had explicitly indicated this in the first part of the study did indeed forward the questionnaire. However, it is possible that some parents forgot to send the questionnaire despite our reminders, and we have no way of assessing this bias). Thus, the non-response rate is of 72.4%. The complete data is only available for 48 parents-teacher pairs (group A1), which represents 12.5% of the initial sample, and a global non-response rate of 87.5% (see Figure 1). Among the parents who did not want to transmit the questionnaire to their child's teacher, 75 gave an explanation by answering an optional open-ended question (group B1).

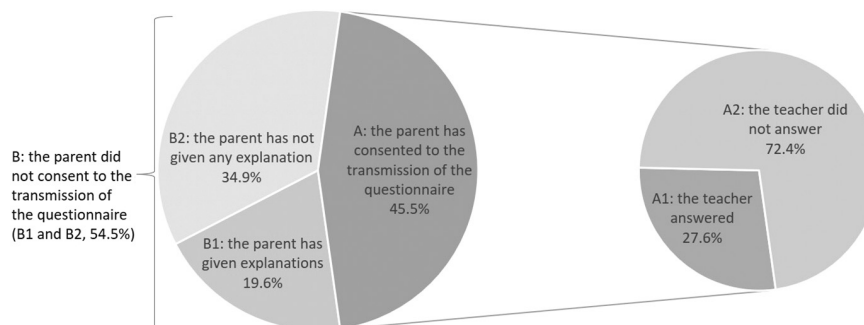


FIGURE 1 Transmission of the questionnaire by parents and teachers' answers.

First, the means and standard deviations of the various variables were calculated, for the variables measured with parents ($N=382$) and for the variables regarding teachers ($N=48$), (see Table 1). For the measures obtained with parents, the average results are slightly above the midpoint of the scale for the PIQ emotional and social subscales, the sense of membership and the quality of communication between parents and teachers. They are below the midpoint of the scale for the academic subscale and bullying level. As for the measures obtained with teachers, the results are well above the midpoint of the scale, which denotes a positive attitude towards inclusive education and teachers who are willing to implement numerous inclusive practices. The internal consistency coefficients of the various scales were estimated. They were all acceptable or good, except for the ITICS scale where the alpha coefficient was inferior to 0.7 and the McDonald's omega was superior to 0.7 which can be considered as correct (Lance et al., 2006).

In this article, we study two biases. The first one comes from the non-transmission of the questionnaire by the parents to the teachers: only 174 parents consented to transmit the questionnaire to the teachers. The second bias is the teachers' non-response bias: out of

the 174 teachers who are supposed to have received the questionnaire, 48 completed it, which represents a non-response rate of 72.4%.

Bias due to the non-transmission of the questionnaire by parents to teachers

First, we studied the bias due to the non-transmission of the questionnaire by parents. To this end, we tested the mean differences for the measured variables between the parents who agreed for their child's teacher to take part in the survey (group A) and those who did not agree (group B) see Figure 1. The Welch's t -tests show that there is no significant difference between group A and group B, except for the PTIQ variable that measures the quality of the parents-teacher relationship (Table 2). The quality of the relationship assessed by parents is significantly better in the group of parents who transmitted the questionnaire to the teachers, $t(397.8)=3.212$, $p<0.01$, $d=0.328$, the effect is relatively small.

The parents who did not agree to transmit the questionnaires to the teachers (group B) could specify the reason if they wanted to 75 parents, that is, 36% of the

TABLE 1 Means, standard deviations, midpoint of the scale, Cronbach's alpha and McDonald's omega for the 382 parents (PA) and the 48 teachers (TE).

Scale (number of items)	Mean	Midpoint of the scale	SD	Cronbach's α	McDonald's ω
PA_PIQ Emotional (4 items)	2.73	2.5	0.85	0.90	0.91
PA_PIQ Social (4 items)	2.66	2.5	0.74	0.87	0.88
PA_PIQ Academic (4 items)	2.22	2.5	0.77	0.84	0.84
PA_CBVS (6 items)	1.72	2.5	0.66	0.83	0.85
PA_PSSM (18 items)	3.52	3	0.83	0.94	0.94
PA_PTIQ (6 items)	3.48	3	1.17	0.95	0.95
TE_AIS (8 items)	5.18	4	1.28	0.90	0.91
TE_ITICS (7 items)	6.42	4	0.66	0.66	0.75

Note: NB: PA: variables measured by parents; PIQ_Emotionnal, PIQ_Social and PIQ_Academic are the three subscales of the perception of inclusion questionnaire. CBVS measures the level of bullying, PSSM, the sense of membership and PTIQ the quality of the parents-teacher relationship; TE: variables measured by teachers; AIS measures teachers' attitude towards inclusive education and ITICS measures teachers' intentions.

TABLE 2 Means (standard deviations) and comparative Welch's t test for the variables measured by parents in the group that consented to transmit the questionnaires to the teachers (group A) and in the group that not consent to it (group B)).

Variable	Group A ($N=174$) M (SD)	Group B ($N=208$) M (SD)	Welch's t	Df	p	Effect size
PA_PIQ_Emotionnal	2.75 (0.86)	2.72 (0.85)	0.445	366.9	0.656	0.046
PA_PIQ_Social	2.69 (0.76)	2.64 (0.73)	0.634	363.2	0.526	0.065
PA_PIQ_Academic	2.21 (0.78)	2.23 (0.76)	-0.238	365.6	0.812	-0.024
PA_CBVS	1.69 (0.69)	1.74 (0.63)	-0.763	356.1	0.446	-0.079
PA_PSSM	3.58 (0.84)	3.45 (0.83)	1.521	367.5	0.129	0.156
PA_PTIQ	3.68 (1.05)	3.31 (1.23)	3.212	379.8	0.001	0.328

Note: In bold, the variables for which the Welch's t test is significant. $**p<0.01$; NB: PA_PIQ_Emotionnal, PA_PIQ_Social and PA_PIQ_Academic are the three subscales of the perception of inclusion questionnaire. PA_CBVS measures the level of bullying, PA_PSSM, the sense of membership and PA_PTIQ the quality of the parents-teacher relationship (variables measured by parents).

parents gave an explanation. The reason that is mentioned most often is the lack of proper communication with the teachers: 'Very little communication with them', 'No harmonious communication with these professionals', 'They usually do not speak to me'. The lack of benevolence and motivation of the teachers is also underlined: 'The teacher is not benevolent', 'This year we get the impression that inclusion has been imposed to the teacher, so we won't ask for her help', 'The teacher refuses everything. She doesn't feel concerned and doesn't wish to get invested in my son's progress'. The parents are also worried about the potential lack of sincerity in the teachers' responses: 'Because I don't trust them, and I don't think the answers will be sincere'. Some parents express concerns at the thought of proposing this study to the teachers: 'I am afraid of their reaction'. Finally, a few of the parents do not wish to add to the teachers' workload and impose extra work on them: 'They don't have enough time.'

Bias due to the teachers' non-response

Secondly, we evaluated the bias caused by the teachers' non-response. We cannot distinguish whether the teacher did not respond despite receiving the questionnaire, or if the teacher did not respond because they did not receive the questionnaire. Based on the research protocol and reminder emails, we assume that the majority of teachers did receive the questionnaire. However, we cannot rule out a social desirability bias where parents may have agreed but did not send the questionnaire afterward. We tested the differences in the variables measuring the quality of inclusion between the group in which the teachers responded (A1) and the group in which the teachers received the questionnaires (or more precisely, the group where teachers are presumed to have received the questionnaire) but did not respond (A2). There is a significant difference for all the variables between groups A1 and A2, except for the academic level (Table 3). Effect sizes can be considered as medium (Cohen, 1988).

The students whose teachers answer the questionnaires are, according to their parents, significantly happier at school ($d=0.475$), better included socially ($d=0.432$) and less bullied ($d=-0.472$). The sense of membership is stronger ($d=0.468$) and the quality of the parents-teacher relationship is better ($d=0.338$).

Furthermore, the two groups, A1 and A2, do not differ with regard to the children's gender, the nature and severity of their disability, or the parents' socio-professional category (Table 4).

DISCUSSION

By focusing on a survey that presented a low rate of teachers' response to questionnaires relating to their attitude towards inclusive education, the objective of this article was to understand whether or not this low response rate produced a bias. The results bring to light two biases: the first one is due to the non-transmission of the questionnaire to teachers by parents and the second one due to the teachers' non-responses.

The non-transmission of questionnaires by parents to their child's teacher creates a bias in the results, but this bias is limited, because it only concerns one variable: the quality of the parents-teacher relationship. The statistical tests show that there is no difference for the other variables that measure the quality of inclusion between the parents who agreed to transmit the questionnaire and those who refused. Thus, the transmission or non-transmission of the survey to the teacher is not linked to the feeling of well-being at school, social inclusion, academic level, sense of membership or level of bullying. The only difference is the quality of the parents-teacher relationship with a small effect size ($d=0.33$). The parents who transmit the study are more satisfied with their relationship with the teachers than those who do not transmit it. The qualitative study of the reasons why parents do not want to transmit the questionnaire highlights a lack of communication, a lack of benevolence and trust as well as a will not to disturb teachers. This result is consistent with those found by Madsen and

TABLE 3 Means (standard deviations) and comparative Welch's t test for the variables measured by parents in the group where the teachers responded (A1) and in the group where the teachers did not respond (A2).

Variable	Group A1 (N=48) M (SD)	Group A2 (N=126) M (SD)	Welch's t	Df	p	Effect size	
PA_PIQ_Emo	3.04 (0.76)	2.65 (0.87)	2.889	**	96.5	0.005	0.475
PA_PIQ_Soc	2.91 (0.65)	2.6 (0.78)	2.655	**	100.9	0.009	0.432
PA_PIQ_Aca	2.38 (0.84)	2.14 (0.74)	1.714		76.5	0.091	0.299
PA_CBVS	1.47 (0.56)	1.78 (0.71)	-2.941	**	107.5	0.004	-0.472
PA_PSSM	3.85 (0.7)	3.48 (0.87)	2.898	**	103.8	0.005	0.468
PA_PTIQ	3.93 (0.86)	3.59 (1.1)	2.106	*	107.8	0.038	0.338

Note: In bold, the variables for which the Welch's t test is significant. * $p<0.05$, ** $p<0.01$; NB: PA_PIQ_Emo, PA_PIQ_Soc and PA_PIQ_Aca are the three subscales of the perception of inclusion questionnaire. PA_CBVS measures the level of bullying, PA_PSSM, the sense of membership and PA_PTIQ the quality of the parents-teacher relationship (variables measured by parents).

TABLE 4 Homogeneity of groups A1 and A2 regarding the children's gender, the parents' socio-professional category, the type of disability and the severity of the disability.

Variable	Khi	Df	N	<i>p</i>
Gender	0.255	1	174	0.6136
SPC	6.724	3	174	0.0812
Disability	3.252	6	174	0.7767
Severity	1.161	2	174	0.5595

Madsen (2022) when they analysed messages related to the communication between parents of children with special educational needs and teachers posted on a social network. The researchers found out that those parents and teachers had a rather negative view of their relationship. Mann and Gilmore (2021) Australian study conducted with parents of children with a disability and teachers through interviews, provides a more precise answer. The authors observed an imbalance in the parents-teacher relationship, indicating that teachers are less involved than parents. They value the partnership less, are less sensitive to their interlocutor's perspective and less invested in the relationship. Thus, the teachers who received the survey are teachers with whom the parents' relationship is better, but for whom the other variables related to the quality of inclusion assessed by the parents do not differ. It is thus more likely that the teachers in the teachers sample care about the quality of their relationship with parents. For the other variables, the sample of teachers who received the questionnaire can be considered as equivalent to the sample of teachers who did not receive it.

The second bias is the teachers' non-response bias. In our study, the non-response rate is high (72.4% of the teachers did not respond to the questionnaire transmitted by parents). In previous studies about teachers' attitude towards inclusive education, little information is given regarding non-responses. When the questionnaires are filled out during a training course, the non-response rates are very low. However, in other studies the non-response rates are of the same order of magnitude as in our study (between 70 and 80%) (Gregory & Noto, 2017; Saloviita, 2020), or even much higher when the study is very widely distributed (Letzel-Alt et al., 2022; Sahli Lozano, Sharma, et Wüthrich 2021). Our study shows that teachers' non-responses are not random. When the teachers do not respond to the questionnaire that is transmitted to them, the children's well-being is lower, their social inclusion is not as good, their sense of membership is lower, the level of bullying they face is higher and the quality of the parents-teacher relationship is not as good. The effect sizes range from 0.34 to 0.48, corresponding to small to medium effects according to Cohen's standard (Cohen, 1988). The only variable for which no significant difference is found is the academic level. This brings to light the existence of a significant non-response bias. The teachers who answered that survey are those for whom the inclusion of the child with a

disability is going well. To our knowledge, no previous study has brought forward the existence of such a non-response induced bias.

Another bias, the social desirability bias, is often discussed in the studies related to inclusion. It has been demonstrated that people answer differently depending on the organisation that proposes the study and more positively so when it is a university (Lüke & Grosche, 2018b), since they are most often perceived as being supportive of inclusive education. Thus, numerous studies conducted in universities could present a positivity bias due to social desirability. In our study, it is once again a positivity bias that can be observed: the teachers who respond, that is, about a quarter of the sample, are those for whom inclusion is going well, and it can be inferred that those teachers are rather supportive of inclusive education by looking at their scores on the attitude scales. Conversely, no measure of attitude is available for the remaining three-quarters of the teachers for whom inclusion is not going so well.

If the results of this study are to be generalised, it would be interesting to wonder to what extent, in the existing studies, only the teachers for whom inclusion is going well are answering the questionnaires. Those teachers are likely to have a more positive vision of inclusion and a more supportive attitude towards inclusive education. This positivity bias is added to the social desirability bias that has already been observed. Given that these two biases are positive, the positivity of teachers' attitude is most probably overestimated.

Limits and perspectives

Our research study has several limits. The first one is the recruiting of our initial sample, which is probably not representative of the whole population, since it is comprised of parents who are interested in research about inclusive education. However, the teachers sample corresponding to those parents' children can a priori be considered as random and thus representative of teachers. Indeed, teachers were not selected based on their participation in ongoing training, membership in a trade union, affiliation with a specific region, or involvement in a particular social network. The second limit comes from the mode of transmission of the questionnaire: it was transmitted by parents and concerned a specific child. It can be more difficult for a teacher to answer in this context, which is not exactly the usual context of research studies about teachers' attitude towards inclusive education. In most studies, teachers are contacted independently from the fact that they have students with a disability in their class, and their answers are not linked with those of students or parents. Furthermore, it is not possible to confirm that parents who agreed actually forwarded the questionnaire. The protocol was designed to minimise this potential bias, but it may still be present. The third limit is due to the fact that we do not have the results of

a control sample of French teachers at our disposal for this attitude questionnaire. This would have allowed us to quantify the bias due to the mode of transmission.

Recommendations for research policy

For future research, the first recommendation would be to publish the non-response rate, or evaluate it if it cannot be directly calculated, in particular in studies where the questionnaires are very widely distributed, for example via a teachers' association or a government organisation. In those cases, the response rate is very low and a positivity bias is likely to exist. The second recommendation would be to integrate the questionnaires regarding attitude towards inclusive education to a range of questionnaires related to the teaching career for example in a survey like the Teaching And Learning International Survey (TALIS; OECD, 2019). In this way, the non-response biases of the people who are not specifically interested in this topic could be reduced. If this suggestion seems unfeasible due to the length of the questionnaires, including a few of the most representative items would be appreciated and would allow for measuring biases specific to inclusive education questionnaires. It is also necessary to encourage teachers to respond to the questionnaires. Teachers could be rewarded financially for their efforts or raffled off non-cash prizes, as other types of study do. Finally, a third recommendation would be to precisely assess the biases associated to non-responses. This assessment would only be possible in some surveys, since it is necessary to have other data available (collected with parents or students). In this case, the quality of the parents-teacher relationship must be satisfying in order for the two parties to agree to answer, as evidenced in the results of our study about the non-transmission of the questionnaire by parents. These research studies are indispensable because they provide elements that help taking into account the biases in the numerous studies where those biases cannot be precisely evaluated.

Practice recommendations for the use of questionnaires on teachers' attitudes towards inclusive education

- In each study, indicate the number of teachers who received the information to take part in the questionnaires. If this information is not available, for example if the study was distributed via a large-scale mailing, try to estimate the approximate number of teachers who received the e-mail or read the information on the networks (number of people on the mailing list, number of participants in the social network group).

- Attempt to access non-respondents by other means (one-to-one interviews or triangulation) to analyse and reduce bias
- Include items questionnaires on teachers' attitudes to inclusive education in studies that are not specific to inclusive education (in studies on working conditions or job satisfaction, for example)
- When drawing conclusions, always indicate the various possible biases and their directions

CONCLUSION

Our study brings to light a significant non-response bias in teachers' responses to questionnaires related to attitude. The teachers who answer the attitude questionnaire are those for whom the various indicators of the quality of inclusion measured by parents are at the highest level. In future research studies, it will be important to publish the response rate and take into account potential non-response induced biases. In research studies about teachers' attitude, the non-response bias is added to the previously observed social desirability bias. The two biases are positivity biases that lead us to question the representativeness of the numerous studies related to inclusive education and a possible overestimation of the positive nature of teachers' attitude towards inclusive education in the published results. Despite these limitations, the examination of teachers' attitudes through questionnaires must be continued. Researchers have to be aware of existing biases and make efforts to assess and reduce them.

CONFLICT OF INTEREST STATEMENT

The authors report no conflict of interest.

DATA AVAILABILITY STATEMENT

Data is available at the following address: https://osf.io/6uph7/?view_only=f53142e6801b401e9c09f32f9949c2b3.

ETHICS STATEMENT

This study was carried out in accordance with the ethical rules valid in 2020 and 2021 in France when the questionnaires were administered. Data collection is in compliance with the European General Data Protection Regulation (GDPR).

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