Research paper

Teachers' experiences of school-based support in their work with shy students

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ABSTRACT

We report on the support from senior leaders, outside agents and parents, experienced by Norwegian elementary school teachers while working with shy students. A national sample completed a questionnaire based on teacher interviews. A descriptive analysis examined experienced support; while a person-centered analysis revealed different profiles of teachers in relation to support. The findings show that teachers perceived some support in this work. But there were two profiles of teachers, one experienced significantly more support than the other. Class size was the only background variable that showed an effect on the profiles. Implications for schools and senior leadership are discussed.

In this study we examined the degree to which teachers experienced support in their work with students who display shy behaviors (henceforth referred to as shy students). Shy behavior is frequently characterized as quiet, withdrawn, anxious and inhibited (Rubin, Coplan, & Bowker, 2009). Although these behaviors are not necessarily problematic, some shy students do struggle both academically and socially (Hughes & Coplan, 2010; Nilsen, 2018) and efforts therefore need to be made to ensure that they develop as learners in school settings (Mjelve, Nyborg, Edwards, & Crozier, 2019; Nyborg, Mjelve, Edwards, & Crozier, 2020). Korem (2016) similarly observes the efforts made by class teachers and also indicates the importance of raising shy students' difficulties in pedagogical meetings to access early assistance, a point confirmed in our previous analyses (Solberg, Edwards, Mjelve, & Nyborg, 2020). To continue the conversation started by Korem in this journal and build on our previous research we have examined how teachers are supported by schools and senior leaders in their endeavors to support these students.

Norwegian teachers have a responsibility for providing *all*

students with inclusive practices by meeting the needs of all students in accord with the Norwegian Educational Act (1998), §1.3 and adapting their teaching to every child. Variations with regards to all aspects of education are included; syllabus, working methods, organization and learning materials (Nilsen, 2018). Although some students have the right to special needs provision, teachers are generally expected to be able to cater for differences within the classroom community (Buli-Holmberg, Nilsen, & Skogen, 2014). However, adapted education is not just the work of individual teachers, but dependent on curriculum planning, professional collaboration and leadership (Buli-Holmberg et al., 2014). Therefore, supporting in their endeavors to create inclusive environments for shy students, including strategies for support, is a key argument and foundation in the present paper.

The study presented here is part of a larger sequential mixed method project where we examined the strategies elementary school teachers utilize to support shy students, and how teachers are supported in this endeavor. In Phase one of the larger project, teachers who were known to be successful with shy children were interviewed as were the leadership teams in three of their schools. In this phase, the leaders described teachers as first responders in identifying and meeting the needs of shy students (Solberg, Edwards, & Nyborg, 2020); but how teachers negotiate and access further support for these students within their schools differed

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(Solberg, Edwards, Mjelve, & Nyborg, 2020). These small-scale qualitative studies have therefore raised questions about the extent to which teachers are supported, whether teachers' experiences of support vary and why. The present study, therefore, draws on data gathered in a national questionnaire sent to a representative sample of teachers in Norwegian elementary schools in order to examine how a national sample of teachers experienced support in their work with shy children and capture any potential variation in these experiences.

1. Theoretical framework

1.1. Shy students as potentially vulnerable learners

Longitudinal studies have revealed that shyness can be related to children's internalizing problems (Coplan et al., 2013; Findlay, Coplan, & Bowker, 2009; Karevold, Coplan, Stoolmiller, & Mathiesen, 2011), as well as withdrawn behavior (Coplan, Prakash, O'Neil, & Armer, 2004; Rubin et al., 2009). We also know that shy behavior can impede student progress in the here-and-now of schooling (Nilsen, 2018), with lasting impact on later performance (Hughes & Coplan, 2010). This is in part because teachers can underestimate shy children's intelligence and academic competencies (Hughes & Coplan, 2010), leaving them at risk of diminished expectations.

Despite its potential relevance for children's well-being at school, shyness is a slippery concept, addressed in different ways by psychologists and sociologists. The former tend to regard it as a relatively stable temperamental trait (Rubin et al., 2009), characterized by individual differences that vary with regard to wariness and anxiety in the face of social novelty and perceived social evaluation. In sociological research, however, it is usually discussed as a fluid phenomenon; something a person can drift in and out of, depending on the situation (Scott, 2004). Lund (2016) usefully reconciles these two interpretations, arguing that the thresholds for when shyness is problematic and when it is not, and for whom, have to be seen in interaction between the subjective experiences of the individual, and the demands of the context. Her interactionist argument is that shyness can arise as a behavioral problem in a vicious circle where a student challenges the environment by violating expected school behavior, contributes to insecurity and reduces cooperation and open communication, with such behavior impeding learning and forming friendships. Such a view is also evident in the work of some psychologists (Coplan, Baldwin, & Wood, 2020; Crozier, 2020). Our view of shyness in school is to a large extent in line with Lund (2016), leading us to examine how teachers have been able to adjust classroom demands to reduce pressure on potentially shy children (Mjelve et al., 2019; Nyborg et al., 2020).

We consider this interactionist approach to be fruitful both for examining teachers' responses to children's shy behavior in school settings (Nyborg et al., 2020) and for reflecting on how teachers recognize and access school support for their responses to shyness (Solberg, Edwards, Mjelve, & Nyborg, 2020), as well as reflecting the heterogeneity of the concept. O'Connor, Cappella, McCormick, and McClowry (2014) have similarly emphasized that the needs of shy children should be recognized, adding that enhancing teachers' awareness of and responsiveness to children's temperaments is an important preventive intervention for them. Paulsen and Bru (2008) have also suggested that students with internalizing difficulties benefit from teachers' adaptation of different learning formats (e.g. whole class instruction, individual work). Teachers who support shy children and engage them in classroom activities are therefore crucial (Korem, 2016; Mjelve et al., 2019; Nyborg et al., 2020) and sensitive environments with high levels of

emotional support can prove fruitful for them (Gazelle, 2006).

Shy students have, however, been found to be at risk of being overlooked by teachers and peers (Gresham & Kern, 2004; Nilsen, 2018), or less likely to access help compared to children displaying disruptive externalizing behavior (Alter, Walker, & Landers, 2013; Splett et al., 2019). These children are also an example of students who lie beneath the threshold for statutory special needs intervention, but still be in need of teacher support and psychosocial adaptations (Mjelve et al., 2019).

In most systems teachers are key to inclusion, making pedagogic adaptations to meet the needs of all students (Florian & Black-Hawkins, 2011; Nind & Wearmouth, 2006), and as Paulsen, Bru, and Murberg (2006) point out "an inclusive school will enhance adjustment for all the pupils in general and the more passive children in particular" (p. 78). However, much depends on a teacher's ability to recognize whether a shy child needs help within the classroom or the wider school; while the subsequent support both offered and accessed by teachers appears to depend, at least in part, on how the teacher engages with available support, and what schools offer of support (Solberg, Edwards, Mjelve, & Nyborg, 2020). What little research there is on school features and experienced support suggests that it might be fruitful area for further development, with implications for how senior leaders offer support. Ortega, Thompson, and Daniels (2019), using social network analyses, found that advice-seeking patterns and patterns of collaborations among staff in their work with vulnerable students varied substantively, even among similar schools. Their conclusion was that school climates of collaboration made a difference. This suggestion has strong face validity, but in our study we are fixing our gaze in a slightly different direction, to consider whether specific features of the school environment have relevance for teachers' experiences of support.

1.2. Environmental features and experienced support

Considering the lack of research into school features and teachers experienced support, we turned to the research literature concerning successful pedagogy in relation to school structures. We were initially informed by Darling-Hammond and colleagues' (2020) synthesis of the conditions for successful pedagogy and their focus on school structures that potentially enable teachers to know their students well and develop strong relations. The potentiality of the support is important, as we argue that teachers are not a homogeneous group. Understanding that there are differences will help senior leaders in schools that aim at inclusive classrooms to ensure that the help that is available reaches vulnerable children.

In their synthesis, Darling-Hammond, Flook, Cook-Harvey, Barron, and Osher (2020) identified four areas of interrelated systems that enable learning. These systems chime with our view of the importance of school environments for enabling the inclusion of shy students and are: supportive environmental conditions; productive instructional strategies; social and emotional learning; and systems of support. Of these, supportive environmental conditions are the most complex component, and include supporting structures within schools and classrooms that create and sustain strong attachments and positive, long-term relationships between children and adults;

> In sum, schools can support student development by creating structures that enable teachers to know their students well and develop strong relationships, ranging from smaller classes and school units to advisory systems, looping, teaching teams, and longer grade spans. (Darling-Hammond et al., 2020, p. 109, p. 109)

We now look at three school features that relate to teacher support: school size, class size and teaching teams, in turn.

1.3. School features for teacher support

School Size. Most research on school size considers the effects on student outcomes (Lee & Loeb, 2000), rather than how it interacts with teachers' experienced support. The results on student outcomes vary, depending on the research location, as US studies often indicate better outcomes for small schools than do studies elsewhere (Scheerens, Hendriks, & Luyten, 2014). Lee and Loeb (2000) found that the success of smaller schools (fewer than 400 students) is because teachers assume more responsibility for student learning compared to teachers in larger schools. They suggest that school size influences teachers and students indirectly, e.g. by providing more personalized interactions among school members, allowing for teachers to know their students better. There is a dearth of Scandinavian studies examining school size and teachers' experienced support. However, in a Norwegian study of teachers' and school leaders' perceptions of schools' mental health work, Holen and Waagene (2014) found significant differences between teacher survey responses on whether their school had a good psychosocial environment. School size (measured by number of teachers) was the determining variable, with teachers in smaller schools reporting higher positive responses than teachers in moderate to large schools. The study does not suggest a causal relationship between school size and student outcomes or positive psychosocial environments, but the finding raises questions about the impact of school size on teacher perceptions, that warrant further study.

Class Size. Similarly, research into class size focuses on the effect on student performance, rarely examining classroom processes (Blatchford & Russell, 2019). Also, the results are varied, though tending to indicate little effect of smaller classes on student outcomes (Filges, Sonne-Schmidt, & Nielsen, 2018; Kim, 2007). While reducing class size could potentially help with more personalized instruction and better outcomes (Darling-Hammond et al., 2020), smaller classes may not produce closer interactions between students and teachers. Blatchford, Russell, Bassett, Brown, and Martin (2007) found that although there was more individualization of teaching in smaller classes, this individualization constituted a small part of pupils' experience of teaching, which for the most part was though whole-class teaching. Nonetheless, from a teacher perspective, reducing class size, by recruiting more staff, is currently the highest priority for interventions and spending on schools. A recent OECD report revealed that 65% of teachers in the OECD-countries rated this as highly important, with Norwegian teachers rating it above the OECD average (OECD, 2019).

Teaching Teams. In the interviews in phase one of the study of how teachers negotiate the within-school systems of support for shy students, we found that structures that enable practitioners to create common understandings of each other's motives in working with shy students was key to collaboration (Solberg, Edwards, Mjelve, & Nyborg, 2020). We argued that attention needs to be paid to how the knowledge that is distributed across potential networks of support is made visible and accessible, and how the expertise and intentions of class teachers and families are given appropriate status to enable relational responses to shy children. These are subtle features in the dynamics of school practices, but the outcome is a form of collective expertise that enriches the resources available to teachers.

At the same time good relations between teachers, teacher teams and school leaders give leaders access to knowledge about, for example, changes in student grouping or the resources taken up by teachers so that they can respond to new demands (Robinson, Hohepa, & Lloyd, 2009). However, there may be gaps between intentions, actions and the perceptions of others. Holen and Waagene (2014) found in a report on mental health work in Norwegian schools that teachers do not perceive schools to be offering them support, whether this is access to inter-disciplinary teams, supervision, courses, systematic interventions or the facilitation of teacher cooperation.

In summary, our intention is to examine both the degree of experienced support, and potential differences between teachers in their experienced support and to consider whether and how these perceptions interact with the features of school systems and structures that we have just discussed. Analyses addressed the following questions:

1) How do teachers experience support in their work with shy children?
2) Do different profiles of teachers in terms of experienced support exist, and if so, what characterizes them, and do demographic background variables have any effect on the potential profiles?

1.4. Design and method

1.4.1. Participants

Participants were 329 classroom teachers (269 females) in grades 1 to 7 across 302 Norwegian elementary schools. They were invited through advertisement in public teacher journals or recruited from public lists of schools during consecutive school years from 2017−19. The schools ranged in size, were located in both urban and rural districts, and included students from a variety of socio-economic backgrounds. Teachers also varied in age and teaching experience (see Table 1).

Given an expected normal distribution of the teachers' ratings, we calculated a representative sample size of 400 teachers in order to generalize the results to the population of elementary classroom teachers with a 95% confidence interval and with an acceptable level of error (5%). Based on previous research on online surveys, a lower response rate than for other data collection methods was expected (e.g., Baruch & Holtom, 2008). Therefore, the sample was subsequently invited in four waves until at least 400 teachers had agreed to complete the on-line questionnaire.

1.4.2. Procedures and data collection

The overall design of the larger research project that this paper reports from is sequential mixed method consisting of two phases. In phase one, we gathered qualitative data in order to gain rich descriptions and explanations from experienced and successful teachers to better understand how they and their shy students were supported. This first phase involved four sources of data from a purposive sample (Patton, 2002) of 19 classroom teachers who were recognized as having successful experience with shy students and therefore likely to be able to articulate their approaches. The first data set comprises *post-observation recall interviews* (Dempsey, 2010) (n = 8). In the recall interviews, videoed classroom observations of a specified shy child were used to stimulate the teacher to reflect upon the strategies used with the child (Mjelve et al., 2019). The second set are data from 11 similarly experienced elementary school teachers from different schools and in different elementary grades in three *focus group interviews*. As with the recall interviews, these interviews elicited strategies teachers deployed individually or with the support of others. Teachers were asked to elaborate on how they were supported in carrying out their strategies. The third data set from this sample involved three teachers from the pool of 19 who were selected to expand on the resources they needed and

Table 1
Demographic overview Teachers, Students and Schools.

Variable		n	%
Schools (Grade 1 − Grade 7)		302	19[c]
Community/municipalities		171	40.5
Teachers		329	1.5[a]
Teacher gender	Female	269	82[b]
	Male	60	18
Teacher age	≤29 years	37	12.8
	30−39 years	79	23.6
	40−49 years	125	35.4
	50−59 years	64	21
	≥60 years	24	7.2
Years worked as a teacher	<5 years	69	22.6
	5−10 years	54	17.7
	>10 years	182	59.7
Shy student gender	Female	242	74
	Male	87	26
School size (number of students)	Mean	330[d]	
	Min-Max	22−950	
	≤100	49	15
	101−300	90	27
	301−500	115	35
	≥501	73	22
	Missing	2	1
Class size (number of students)	Mean	23.8[e]	
	Min-Max	3−83	
	≤15	58	18
	≥16	256	78
	Missing	15	5

Note. [a] = % of total elementary teachers in Norway; [b] = gender distribution similar to the national percentage of teachers in Norwegian elementary schools; [c] = % of total elementary schools in Norway; [d] = average size of elementary schools in Norway is 225; [e] = average size of elementary classroom in Norway is 25. Size ≤15 is defined as a small class (Statistics Norway, 2019).

gathered in their work with shy students. The three teachers were selected because the previous data collection revealed that their school leadership teams were particularly involved in supporting teachers of shy students. In addition to the teacher interviews a purposive sample of the leadership teams from the three schools (n = 10 school leaders) was also interviewed and analyses of their responses are reported more extensively elsewhere (Solberg, Edwards, & Nyborg, 2020). The fourth set of data comprised *group feedback interviews* between the teachers and the leadership team within the three schools, where initial analyses of findings from the school were discussed. Combined, the interview data consists of 19 h of recorded material.

The second phase of the study was the quantitative phase, in which a national questionnaire was developed. Its aim was to elicit the extent to which the strategies, resources and support that were identified from the qualitative material were utilized by elementary school teachers in Norway. The questionnaire contained a total of 74 items grouped in five sections (a: child's characteristics, b: teacher's strategies, c: your classroom, d: change, e: support in your school), and one open-ended response question. Only the last section pertaining to 'support in our school' is reported on in the present paper. The part of the questionnaire reported on in the present paper, aimed at eliciting the extent to which the strategies, resources and support that were identified from phase one material were utilized by elementary school teachers in Norway.

Participating teachers also completed a demographic questionnaire about their gender, age, teaching experience in terms of years worked as a teacher, and the number of students enrolled in their class and school at the present time. Although we included all demographic variables in the analysis presented in the current paper, we were most interested in school features, as this paper is related to systemic factors and teachers experiences of support.

The phase one interviews revealed that senior leaders rely on teachers' identification of shy children and expect them to respond

with adapted education to ensure inclusive classrooms. None of the schools offered teachers guidance through school policies on shyness (Solberg, Edwards, & Nyborg, 2020). However, the school leaders stated that they were closely involved with the teachers, having open door policies and being available. At the same time, they encouraged teacher autonomy and flexibility in approaching shy students. Other studies suggest that school leadership is a resource for teachers, both directly through communication of a vision and goals for the school, recognizing teacher accomplishments and discussing and assisting teachers with pedagogy and resources (Prather-Jones, 2011; Singh & Billingsley, 1998), and indirectly by providing potentiating school conditions and structures (Darling-Hammond et al., 2020; Hallinger, Liu, & Piyaman, 2019; Leithwood, Harris, & Hopkins, 2019).

The interviews with the 19 teachers revealed how they negotiated support within their schools and with outside agencies such as the Educational Psychological Counseling Services (EPCS),[1] families, and school leadership (Solberg, Edwards, Mjelve, & Nyborg, 2020). These negotiations often entailed teachers being able to use their 'relational expertise' (Edwards, 2010) to reveal demands that shy students presented to them as teachers, such as students' anxiety, withdrawn behavior or academic difficulties. For these teachers, senior leadership and the schools' resource teams[2] could help them by recognizing the severity of problems, offering immediate help and indicating pathways for external support (Solberg, Edwards, Mjelve, & Nyborg, 2020). The shy children's families could also

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[1] Schools in Norway link with external agencies, in particular, the EPCS. Other external agencies include speech therapists, psychiatry services, and child welfare (social) services. All of these specialist support roles can be represented in a resource team.

[2] Resource teams consist of within school professionals (e.g. principals, deans, social teachers, class-room teachers) and external agencies. They have, among other things, the responsibility to identify and discuss students who might need special needs intervention, or other support, both pedagogical and social.

help by discussing their behaviors outside of school.

In summary, these findings informed the creation of nine items in one section of the questionnaire delivered to teachers participating in the present study to understand teachers experienced support in their work with shy students. The research team developed the items after identifying common patterns about how and why support was requested by teachers or provided by schools across the whole interview data set (e.g. I have helpful conversations with senior leadership about shy students; My school allocates additional resources to help teachers meet the needs of shy students). These items captured four aspects of teachers' experienced support; a) experiences of involving school leadership, b) reasons for involving school leadership in their efforts with shy students, c) experiences of outside agency involvement and parental involvement, and d) flexibility in meeting the needs of shy students including access to additional resources. For each item, teachers were asked to rate on a 3-point scale to what extent they experienced that their need for support was met. The rating options were: (a) "Usually", coded 2; (b) "Sometimes", coded 1; (c) "Never", coded 0. In addition, each item had a "Don't know" response option, coded -9. However, the "Don't know" responses were not included in the analyses of the rated experienced support, but treated as a separate response.

Survey validity and reliability. The purpose of the section of the questionnaire reported here was to present a national sample of teachers with statements reflecting the experiences of support among teachers who had recognized success with shy students. To best capture the experiences elicited in phase one, the questionnaire was developed by a team of experienced researchers with involvement in both Phases, ensuring familiarity with the qualitative material. The questionnaire was next assessed by ten experienced teachers, who evaluated whether the statements in the section reported on here were understandable and relevant to the target population. Then, the questionnaire was piloted with 54 randomly selected teachers in Norwegian elementary schools. No changes were made to the section relevant to the present paper after the initial face validity check and pilot, which could indicate that the statements made sense to these teachers.

Reliability in terms of replicability is challenging when attempting to assess perceptions of support. The statements address a fluid concept, and are capturing the many ways successful teachers experience support. We therefore recognized that we were accessing a snapshot, a point in time. Nonetheless we have attempted to gain confidence in the reliability of the responses. Cronbach α coefficient was calculated to 0.864 for the nine statements reported on in here using SPSS version 27, meaning that 86% of the variance in the scores is reliable variance. It seems that the teacher participants have responded consistently to the statements in the section regarding experienced support. Cronbach's α provides a useful foundation for assessing internal reliability, in addition the claims regarding internal consistency of teachers' responses are strengthened in the results from the latent profile analysis (LPA) discussed below. The LPA revealed a pattern in teachers' responses to the presented statements that were both significant and large between the two teacher profiles, indicating that teachers' responses were consistent and not random.

1.4.3. Data analyses

First, we computed descriptive statistics for teachers' ratings of experienced support and correlations between all variables in SPSS (version 26). Then, because teachers might vary in how they experience support we also sought a person-centered approach to identify unobservable (latent) groups (profiles) that takes into account intra-individual variation in the different responses to better represent multiple perceptions of a particular teacher (see Marsh,

Lüdtke, Trautwein, & Morin, 2009). Person-centered approaches like latent profile analyses (LPA) focusing on relations among individuals with the goal to sort individuals into groups of individuals who are similar to each other and different from those in other groups, allowed us to identify teachers with similar patterns of their experienced support (Lubke & Muthén, 2005; Muthén, 2001; Muthén & Muthén, 2000; Marsh et al., 2009). To examine the existence of latent profiles of teachers' experienced support, and the relations between profile membership and the demographic variables (i.e., student gender and grade, teacher gender, age and experiences in terms of years worked as a teacher, and school and class sizes), we used the statistical package M*plus* 8.2 (Muthén & Muthén, 1998-2017). We used a robust maximum-likelihood estimator (MLR) to correct for potential bias due to non-normality of variables. We conducted LPA based on the mean scores of the experienced support indicators on the 3-point scale (see Table 2). The approach constructed probabilities for a profile membership for individual teachers (Marsh et al., 2009; Scherer, Rohatgi, & Hatlevik, 2017).

The nine items of experienced support that teachers might receive and require to help shy students for various purposes in school, served as indicators of the LPA in the first step. In a second step, we examined how group (profile) membership for teachers' experienced support related to the demographic variables (covariates) as displayed in Fig. 1. The LPA groups individual teachers by establishing latent variable "c" which represents the unobservable probability of a profile membership (Fig. 1).

The LPA allows flexible and model-based approaches to group teachers in homogenous profiles, and uses fit indices to compare the different competing LPA models (Marsh et al., 2009, p. 194). Therefore, in the current study we specified series of models with several numbers of latent variables (i.e., five LPA profiles = c (4) based on the M*plus* "type = mixture", and subsequently examined changes in relative fit statistics such as information criteria (i.e., Akaike's Information Criterion [AIC], Bayesian Information Criterion [BIC], and sample-size adjusted BIC [aBIC]).

As a rule of thumb, the lowest information criteria are generally preferred (Marsh et al., 2009; Scherer et al., 2017). Furthermore, models with k profiles (the number of classifications or profiles) may fit better if the likelihood tests (LRT) of Vuong-Lo-Mendell-Rubin (VLMR) and Lo-Mendell-Rubin (LMR) indicate significant differences in the log-likelihood values when compared to models with k-1 profiles (Lo, Mendell, & Rubin, 2001; Nylund, Asparouhov, & Muthén, 2007). Moreover, fewer profiles are preferred (Marsh et al., 2009; Morin, Maïano, et al., 2011).

The information criteria that refers to the degree of classification certainty, namely the *entropy* of the model, is useful for examining the model fit in which higher relative entropy indicates better classification of teachers in the latent profiles and classes (Morin, Morizot, Boudrias, & Madore, 2011; Ramaswamy, Desarbo, Reibstein, & Robinson, 1993; Scherer et al., 2017). As Morin, Morizot, et al. (2011) have noticed, an entropy value closer to 1 indicate less classification errors in the model, but there is no agreement regarding an exact cutoff value (Morin, Morizot, et al., 2011, p. 66). There are arguments that entropy value larger than 0.70 indicates a good classification certainty (Flunger et al., 2015; Reinecke, 2006), and even an entropy value larger than 0.60 should be sufficient (Pastor, Barron, Miller, & Davis-Becker, 2007). However, as Scherer et al. (2017) notice, the described information criteria and tools to make decisions on the number of latent profiles have limitations. Consequently, the decision on the number of profiles should not solely be based on these criteria statistics, but also on their interpretability.

The set of seven covariates was regressed on the latent variables representing the nine variables for teachers' experience support

Table 2
Descriptive statistics, range, skewness, and kurtosis of the support variables.

Variables of Experienced Support	M	SD	Min	Max	Skewness	Kurtosis	n (%)	Don't know
1. I have helpful conversations with senior leadership about shy students	1.18	.65	0	2	-.19	-.66	322 (97,9)	7
2. I bring shy students to attention of senior leadership because of their high anxiety	1.37	.69	0	2	-.63	-.74	321 (97,6)	8
3. I bring shy students to attention of senior leadership because of academic difficulties	1.28	.75	0	2	-.51	−1.06	320 (97,2)	9
4. I bring shy students to attention of senior leadership because of withdrawn behavior	1.21	.70	0	2	-.31	-.96	321 (97,6)	8
5. I bring shy students to attention of senior leadership because of association with other problems	1.24	.76	0	2	-.44	−1.14	314 (95,4)	15
6. My school involves outside agencies (e.g., school psychologist) for help with shy students	1.24	.69	0	2	-.37	-.90	298 (90,6)	31
7. My school involves the shy students' parents more frequently than other students' parents	1.12	.77	0	2	-.22	−1.30	267 (81,1)	62
8. My school responds flexible to the needs of shy students' (e.g. allow to stay inside during break time)	1.28	.67	0	2	-.40	-.77	295 (90,0)	34
9. My school allocates additional resources to help teachers meet the needs of shy students (e.g., aid in classroom, courses, literature, more time)	.80	.74	0	2	.35	−1.13	283 (86,0)	46

Note. n = number of respondents, DK = numbers of "Don't know" responses treated as missing in the analyses. Total N across the nine variables = 20.

(see Fig. 1). The paths represent the multinomial logistic regression from each covariate to the latent variable. As Morin, Morizot, et al. (2011), Marsh et al. (2009), and Scherer et al. (2017) reported, incorporating covariates directly into the model through a multinomial logistic regression to predict group membership allows verifying the stability of the chosen model and avoiding biases in the estimation of the probability of the group membership.

2. Results

Results are presented for 329 teachers (269 females) who reported experience of teaching a shy student. Table 1 describes demographic information for school and teachers.

2.1. Descriptive statistics − teachers' experienced support

Descriptive statistics for the teachers' ratings of experienced support on the nine items are presented in Table 2. For every item at least seven to 62 of the 329 teachers indicated a "don't know" response. Except for the one item "School allocates additional resources to help teachers meet the needs of shy students", which was rated with a mean score of 0.80, the mean score on the other eight items ranged between 1.12 and 1.37. Thus, it is readily apparent that the teachers in general experienced sometimes that the support they received or requested from the school leadership or system was met. The standard deviations are similar and small, indicating a similar spread of scores and small individual differences across teachers. Skewness and kurtosis are within acceptable ranges in order to prove normal univariate distribution for further analyses.

Significant correlations were found among the nine variables of support (see Table 3). The strongest correlation was figured between the variable associated with teachers' experienced support when bringing shy students to the attention of the leadership because of the students' academic difficulties and their other problems ($r = .71$). Then, correlations were figured between variables of teachers request for support because of the students' (1) high anxiety and their withdrawn behavior ($r = 0.58$), (2) high anxiety and academic difficulties ($r = 0.54$), (3) high anxiety and teachers' helpful conversations with the leadership about shy students in general ($r = 0.52$), and (4) other problems and withdrawn behavior ($r = 0.52$). Moreover, significant associations were found

between schools' involvement of outside agencies and involvement of shy students' parents ($r = 0.53$), and schools' involvement of outside agencies and allocating additional resources to help teachers to make the needs of shy students ($r = 0.52$). Teachers' age and years of experienced are naturally associated, but not associated with any of the items. Class size and school size are significantly and negatively associated with having helpful conversations with school leadership (#1), and class size is also significantly and negatively related to approaching senior leadership due to a student's withdrawn behavior. This means that smaller class size and smaller school size are associated with more frequently having helpful conversations with senior leadership. There is an association between student gender and item #9 (additional resources), in which teachers experience receiving additional resources with male shy students to a greater extent than female shy students.

2.2. Teacher latent profiles

First, we examined whether there existed latent profiles for the teachers' experienced support. Fit indices of a varying numbers of profiles in the LPA models are reported in Table 4. The increase of numbers of profiles is associated with a consistent decrease in the log-likelihood value (LL) across the different types of information criteria (i.e., AIC, BIC, and aBIC) in the LPA models.

The changes in the information criteria with increasing numbers of profiles of teachers experienced support are demonstrated in the elbow plot (see Fig. 2). In accordance with Morin and Marsh (2015), the point where the changes flatten indicates the number of groups (profiles) in the data. We selected the one LPA model that makes most sense in terms of nature of the groups and interpretability, which was a two-group solution, as best representing our data. Moreover, the entropy for the two-group solution in the LPA model was good (.874). Also, the average classification probabilities were high for both Profile 1 (94.8%) and Profile 2 (97.7%). In addition, the likelihood ratio tests for the LPA showed that a two-group solution did significantly better than a one group solution, but no significant improvements were made when adding a third group to the two-group solutions (see Table 4). Based on this, we confirmed two latent profiles of how the teachers experienced the support they experienced to address shy students' need for support in school. We could therefore conclude that teachers in profile 1 are similar to one another in how they responded to questionnaire items when
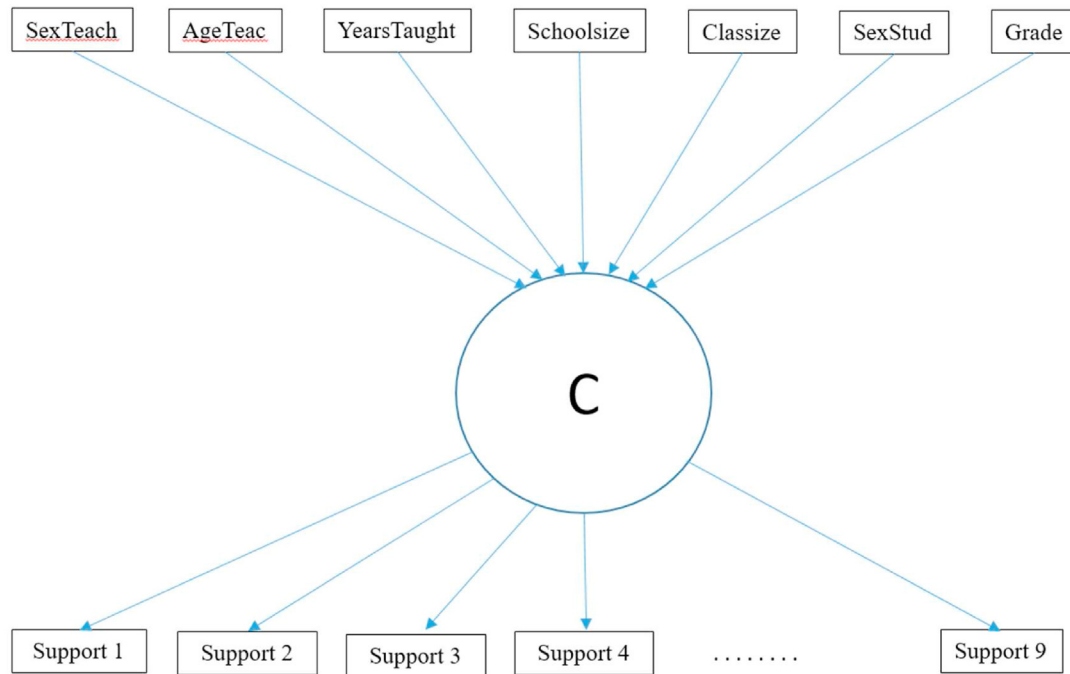
Note. C indicates the categorical latent variable describing the latent profiles for the 9 perceived support variables, SexTeach = Teachers gender, AgeTeach = Teachers age, YearsTaught = Teachers experiences in years as a teacher, Schooolsize = Number of students enrolled in a school, Classize = Number of students enrolled in the class, SexStud = Students gender, GRADE = grade in which the students are enrolled.

Fig. 1. *Schematic presentation of the latent profile analyses models with covariates*
Note. C indicates the categorical latent variable describing the latent profiles for the 9 perceived support variables, SexTeach = Teachers gender, AgeTeach = Teachers age, YearsTaught = Teachers experiences in years as a teacher, Schooolsize = Number of students enrolled in a school, Classize = Number of students enrolled in the class, SexStud = Students gender, GRADE = grade in which the students are enrolled.

Table 3
Correlations among all variables.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.Helpful.Conv.	—														
2.HighAnxiety	.52**	—													
3.AcademicDif.	.31**	.54**	—												
4.WithdrawnB.	.47**	.58**	.46**	—											
5.OtherProb.	.29**	.49**	.71**	.52**	—										
6.OutsideAgen.	.41**	.38**	.30**	.34**	.30**	—									
7.Parents	.37**	.33**	.31**	.38**	.30**	.53**	—								
8.FlexibleResp.	.31**	.18**	.14*	.22**	.19**	.34**	.37**	—							
9.Resources	.33**	.25**	.14*	.30**	.23**	.39**	.52**	.39**	—						
10. GendTeach	.01	-.03	-.06	-.06	-.02	-.05	-.20**	-.05	—05	—					
11. AgeTeach	.02	-.07	-.03	-.04	-.01	.06	.04	-.02	.03	-.16**	—				
12. Exper	.01	.02	-.02	—05	-.06	.06	.08	.01	.05	-.04	.65**	—			
13. SchoolSize	-.15**	.01	-.04	-.02	.02	-.07	-.08	-.09	-.06	.17**	-.18**	-.07	—		
14. ClassSize	-.20**	-.05	-.05	-.20**	-.04	-.08	-.10	-.08	-.07	.02	-.10	-.04	.47**	—	
15. GendStud	.05	.03	.10	-.06	.03	.02	.07	.07	.21**	-.02	-.11*	-.07	-.01	.01	—
16. Grade	.02	.02	.03	.02	-.01	-.01	.04	.09	.12*	.16**	-.15**	-.01	-.07	.02	.04

Note. *p* < .05, **p* < .01.

Table 4
Comparisons of relative model fit indices between latent profile analysis models with up to four profiles for teacher perceived usefulness.

N of LP	LL (Npar)	SCF	AIC	BIC	aBIC	Entropy	VLMR-LRT	LMR-LRT	Smallest group frequency	Interpretability
1	−2950.53 (18)	0.759	5937.06	6005.39	5948.297	–	–	–	329	
2	**−2611.57 (28)**	**1.015**	**5279.15**	**5385.44**	**5296.621**	**.874**	**ρ = .0000**	**ρ = .0000**	**124**	**Good**
3	−2551.58 (38)	1.574	5179.17	5323.42	5202.880	.811	ρ = .6388	ρ = .6439	84	Difficult
4	−2495.00 (48)	1.243	5085.99	5268.20	5115.945	.809	ρ = .0212	ρ = .0219	62	Difficult

Note. N = Number, LP = Latent profiles, LL = Loglikehood, Npar = Number of parameters, SCF = Scaling correction factor (Satorra & Bentler, 2010), VLMR-LRT Vuong-Lo-Mendell-Rubin Likelihood Ratio test, Lo-Mendell-Rubin Likelihood Ratio test.
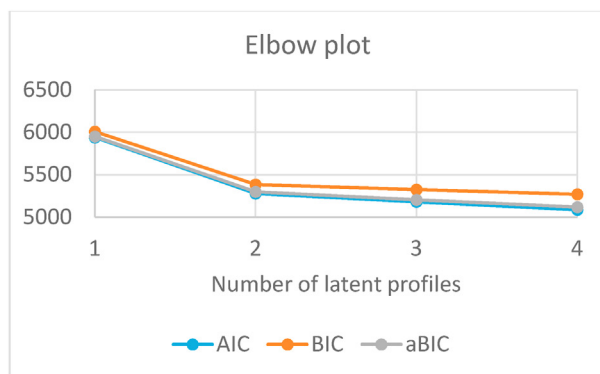
Elbow plot

Notes. AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion, aBIC = sample size adjusted Bayesian Information Criterion.

Fig. 2. Elbow plot of the latent analyses with varying numbers of profiles
Notes. AIC = Akaike's Information Criterion, BIC = Bayesian Information Criterion, aBIC = sample size adjusted Bayesian Information Criterion.

compared to the teachers in profile 2 and the situation was the same in relation to profile 2 teachers.

2.3. Characteristics of the latent profiles

Second, we examined the characteristics of the two latent profiles for teachers' experienced support. As seen in Table 5 and Fig. 3, the mean sizes of how teachers experienced support, are frequently higher across the different variables for those teachers belonging to profile 2 (61.7%) than those of profile 1 (38.3%). When comparing the two profiles, we found significant differences in mean scores for all variables, and the differences were mainly large. This indicate that teachers in profile 2 generally rated experienced support higher than teachers who are more likely to belong in profile 1. Hence, we labelled profile 1 teachers 'lower supported teachers'

and profile 2 teachers 'highly supported teachers' The variable that had the lowest mean size within both profiles was # 9, "My school allocates additional resources to help teachers meet the needs of shy students". Moreover, the highly supported teachers rated the variables # 2 ("I bring shy students to the attention of senior leadership because of their high anxiety"), # 3 ("I bring shy students to the attention of senior leadership because of withdrawn behavior"), and # 5 ("I bring shy students to attention of senior leadership because of association with other problems") as those they most frequently experienced that usually met their needs for support. The lower supported teachers experienced that # 8 (#My school responds flexibly to the needs of shy students, e.g., allow to stay inside), is the one they rated as highest and most frequently experienced that sometimes met their needs for support.

Table 5
Estimated Means of teachers perceived support for the two identified profiles (standard errors of the means in parentheses).

Variable	M (SE)		t	d
	Latent profile 1 (n = 124)	Latent profile 2 (n = 205)		
1. I have helpful conversations with the schools leadership about shy students	0.78 (0.06)	1.43 (0.04)	7.75**	1.05
2. I bring shy students to the attention of senior/leadership because of their high anxiety	0.80 (0.06)	1.72 (0.04)	11.66**	1.48
3. I bring shy students to the attention of senior/leadership because of academic difficulties	0.64 (0.07)	1.68 (0.05)	12.11**	1.06
4. I bring shy students to the attention of leadership because of withdrawn behavior	0.65 (0.06)	1.55 (0.05)	12.12**	1.30
5. I bring shy students to the attention of leadership because of association with other problems	0.63 (0.07)	1.63 (0.05)	10.71**	1.34
6. My school involves outside agencies (e.g., school psychologist) for help with the shy students	0.75 (0.07)	1.52 (0.05)	8.49**	1.03
7. My school involves the shy students' parents more frequently than other students' parents	0.56 (0.08)	1.45 (0.05)	8.94**	1.10
8. My school responds flexible to the needs of shy students (e.g., allow to stay inside)	1.00 (0.08)	1.44 (0.05)	5.17**	0.54
9. My school allocates additional resources to help teachers meet the needs of shy students (e.g., aid in classroom, courses, literature, more time)	0.42 (0.07)	1.01 (0.05)	6.40**	0.79

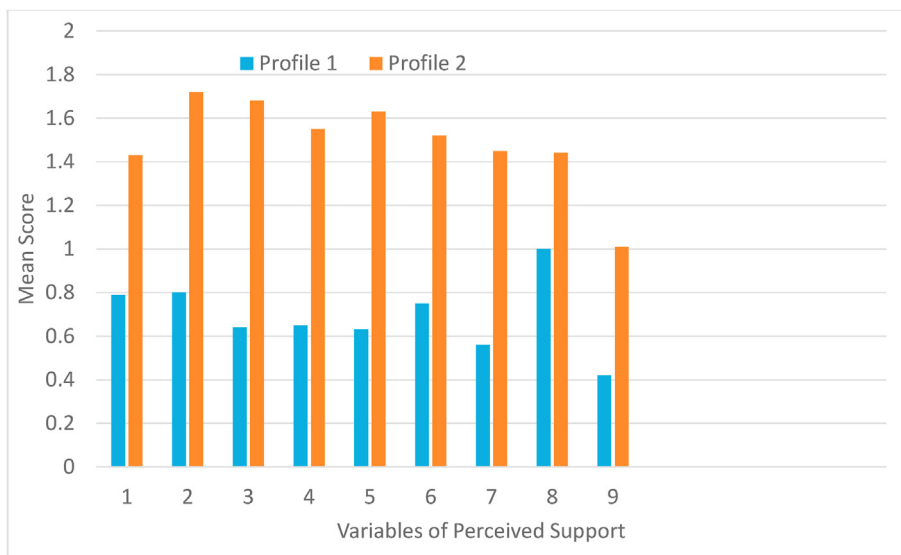*Note.* ** *p* < .01, d = Effect size Cohen's d.

Fig. 3. *Means for the two-profile solution of the nine perceived support variables.*

2.4. Latent regression on demographics of student, teacher and school

We examined the effects of demographic variables of school, teachers and students' as covariates in the LPA model to address to what extent these did differentiate the latent profiles for teachers' experienced support. We conducted preliminary assumption testing to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices and multicollinearity. We did not find any significant differences for any of the covariates, which might have led to biases in the reported regression coefficients. Because the profile memberships were categorical variables, we used logistic regression when interpreting the relations to the covariates. Table 6 demonstrates the resultant coefficients for the LPA. Except for class size, the characteristics of students, teachers, and school were not related to profile membership and did not contribute to profile differentiation. The negative effect of class-size revealed that the probability of being a member of the highly supported teachers was significantly ($p < .05$) higher for teachers who taught classes with a smaller number of students (≤ 15 enrolled). Hence, highly supported teachers' seemed to be more likely to perceive support when they teach smaller than larger classes (≥ 16 students enrolled). That is, teaching larger classes reduced the probability for being a highly supported teacher. However, the likelihood for being a highly supported

Table 6
Unstandardized regression coefficients of membership to latent profile 1 on predictors following the simultaneous modelling approach for the teachers' perceived support (based on the two-class solution).

Predictor variables	B (SE)	OR = Exp(B)
Teacher gender (0 = Female, 1 = Male)	0.62 (0.32)	1.85
Teacher age	0.05 (0.17)	1.06
Number of years teacher worked as a teacher	−0.04 (0.22)	0.96
School size	−0.08 (0.15)	0.93
Class size (1 ≤ 15, 2 > 16)	0.77 (0.39)*	2.17
Student gender (0 = Female, 1 = Male)	−0.24 (0.310)	0.79
Student grade	−0.04 (0.07)	0.96
Overall effect size OOR		2.70

Note. N = 329. Due to missing values in all covariates, the data of 37 teachers were excluded from these analyses. OR = Odds ratio. OOR = Unadjusted overall odds ratio for the entire set of predictors. *$p = < .05$.

teacher teaching larger classes was significantly higher than being a member of a lower supported teacher teaching larger classes (see Fig. 4). The unadjusted overall effect size (OOR) of the corresponding regression model was OOR = 2.70 which indicate a medium to large covariate effect size (Allen & Le, 2008; Chen, Cohen, & Chen, 2010).

3. Discussion

In the present study we sought to examine how teachers experience support in their work with shy students, and whether different profiles of teachers exist in terms of experienced support, and their potential characteristics. Our interest was also in the potential interaction with school features and teachers experiences of support, where the Darling-Hammond (2020) synthesis alerted us to central school features for successful pedagogy found in other literature. We therefore also took into consideration whether and how teachers' experiences of support interact with the features of school systems and structures.

While the present study builds on perspectives of the phase one relatively small sample of experienced teachers, our concern was to examine how teachers are supported in a larger scale representative sample. Our interest was sparked by the indications that teachers are often first responders to shy students and potential difficulties associated with shyness (Solberg, Edwards, & Nyborg, 2020). Three key points are discussed in response to our research questions that; 1) Teachers' experience of support is potentially related to the severity of the manifestation of shy students' problems (e.g. high anxiety, academic difficulties), 2) Teachers experience support from different stakeholders within school and families, but might lack additional resources, and 3) Teachers' experienced support is associated with class size and school size.

3.1. Teachers' experience of support and the severity of student shyness

Our analysis indicates that teachers reach out to senior leaders when shy students experience difficulties that are not easily managed in the inclusive classroom setting. This is revealed in the significant associations between the different indicators of problematic behaviors shown in Table 2 (e.g. high anxiety and other
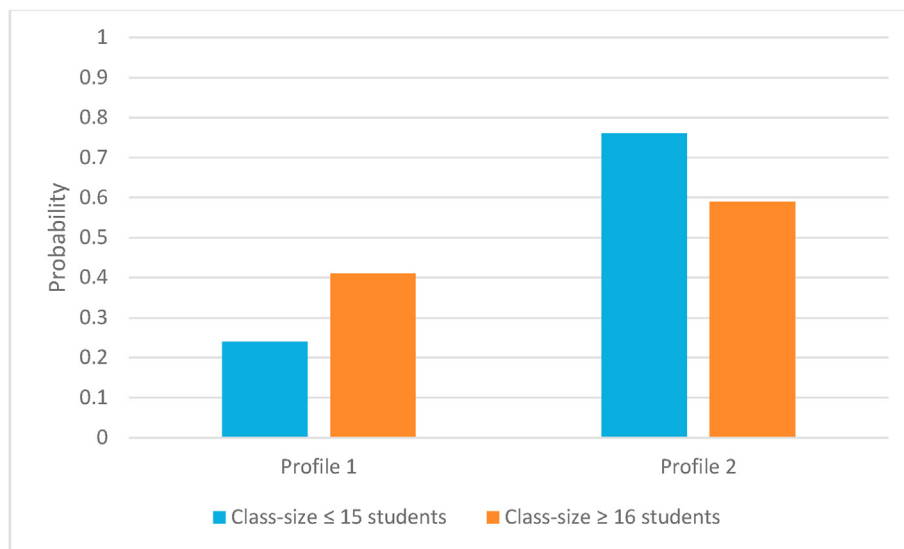
Fig. 4. *Estimated probabilities for a categorical variable as a function of Class-size.*

problems). Furthermore, managing student anxiety appears a high priority for teachers of shy students (see Tables 2 and 3).

From our phase one findings we saw that teachers took problems forward to leadership when they could be clearly labelled, e.g. high anxiety or severely withdrawn behavior (Solberg, Edwards, Mjelve, & Nyborg, 2020), a notion supported in the present study. Although shyness has been linked to several challenges for teachers, anxiety is the most robust association (Coplan et al., 2013), and is also central to teachers' descriptions of challenging shy behaviors; both in terms of identifying the students and offering anxiety-reducing strategies (Mjelve et al., 2019; Nyborg et al., 2020). Anxiety is, however, an issue that can warrant approaches that exceed the adjustments necessary for generally inclusive classrooms. In other words, it can warrant resources, such as aid in the classroom, courses, or more time allocated to this work.

3.2. Resource allocation and shyness

Our analysis indicates that teachers experience limited resources to support their work with shy students. There is a clear increase in 'Don't know responses' across all items that begin with 'my school' (see Table 2). Thus, despite the evidence in Table 2 that teachers did seek support for these labelled difficulties arising from shyness, their awareness of resources to help them with students was low. Considering that in the phase one studies we found that resource allocation, parental involvement, and flexibility in approaches were seen as useful by teachers (Solberg, Edwards, Mjelve, & Nyborg, 2020), there seemed to be a lack of whole school knowledge, particularly regarding resource allocation and parental involvement in the present sample. Previous research does indicate that teachers lack knowledge about available school resources for students with emotional and behavioral problems (Stormont, Reinke, & Herman, 2011). While Holen and Waagene reported in 2014 that, although Norwegian teachers generally seem to have knowledge about indicators of mental health difficulties, they vary with regards to knowledge about different sources of help. This lack of knowledge may have implications for how shy children receive support. Korem (2016), for example, reported that some teachers do not acknowledge the need shy students may have for assistance, and the importance of raising these students in pedagogical meetings at school.

Furthermore, the allocation of resources in school budgets usually follows school policies. For example, we saw from our phase one teacher interviews that if a difficulty could be labelled so that it was seen as a special educational need, resources were likely to be forthcoming (Solberg, Edwards, Mjelve, & Nyborg, 2020). The finding in the present study that there were low correlations between bringing a shy student to the attention of senior leadership due to academic difficulties and being allocated additional resources (Table 3) indicates that there is work to be done in schools to recognize how students displaying shy behaviors without adequate support may underperform academically both in the short and long term (Evans, 2001; Hughes & Coplan, 2010).

3.3. Class size and school size related to teachers' support

The results from the present analysis indicate that there are differences among teachers in how they rate the degree of support available. We found that teachers can be categorized into two profiles; The 'highly supported teachers' indicate a significantly higher degree of both teacher-initiated and school-systemic responses to supporting their work with shy students (Table 6), than the 'lower supported teachers'. Class size is the only school feature variable related to the probability of belonging to either profile. Table 3 indicates also that a lower class size (fewer than 16 students) can lead to teachers having more helpful conversations with senior leadership than teachers teaching larger classes. It is important to note that class size is independent of school size (Table 3).

Variations in experienced support were also evident in our phase one studies, as some teachers reported having easy access to senior leadership support, and conversations with colleagues and external parties (Solberg, Edwards, Mjelve, & Nyborg, 2020), while other teachers reported experiencing less support or none at all.

Why these variations in experienced support occur in the present sample is not entirely clear. However, class size does relate to the probability of being a highly or a lower supported teacher. Thus, the study does suggest that, smaller class size might be a feature that will impact teachers' experiences of support and may help explain why smaller classes are valued by teachers (OECD, 2019). This high value is despite findings that smaller classes do not produce better student outcomes (Filges et al., 2018; Kim, 2007) or

increased personalized instruction (Blatchford et al., 2007).

The findings, reported in Table 2, also indicate that school size is key to teachers' experienced support, in that the smaller the school, the more conversations with senior leadership and other teachers. We find support for this tendency in previous research, which argues that there are closer relationships between teachers and senior leaders in smaller schools (Lee & Loeb, 2000). This closeness can provide leaders with knowledge about e.g. changes in student grouping or the resources taken up by teachers (Robinson et al., 2009), which may result in a sense of school support.

3.4. Exploration of other variables

Although our main interest was the school feature variables, we did examine whether other demographic variables could explain how teachers experienced support. For example, it might be expected that teachers with less experience need more support than experienced teachers, although previous studies have not supported this assumption (Smith & Ingersoll, 2004), and neither do the results from our analysis (Table 3).

There was a significant correlation between student gender and the item measuring receiving additional support. Further analysis indicated that teachers with shy male students report receiving more additional resources than teachers in need of support with shy female students. As our focus is on the teachers in the present paper, we do not discuss it further, but it is an association worth further research, as gender is an emergent factor in recent shyness research (see e.g. Doey, Coplan, & Kingsbury, 2014).

3.5. Potential implications for leadership and practice

Our findings, combined with previous research, have several potential implications for school leadership to consider. First, our findings gives support to the importance of reaching shy students before they develop serious difficulties, such as high anxiety (Korem, 2016; Solberg, Edwards, & Nyborg, 2020). It is not surprising that the severity of student difficulties, that might also include behaviors that call for help outside the classroom, would increase teachers' need for support from senior leadership. However, we argue that reaching shy students before they develop difficulties that meet the threshold for statutory intervention is key to preventative efforts. This is particularly important since shyness lies below the threshold and we know that shy students are at risk of being overlooked by teachers and peers (Gresham & Kern, 2004; Nilsen, 2018), and are less likely to access support compared to children displaying disruptive externalizing behavior (Alter et al., 2013; Splett et al., 2019).

The relative invisibility of shy students relates to our second point, the lack of resources experienced by teachers. Although this finding could be because teachers are not aware of the resources available to them (Stormont et al., 2011), or that shy children are not allocated additional resources, or even the wording of the item (e.g. teachers rather than their school might make contact with parents), it does indicate a need to make available and visible resources for teachers in their work with shy students. In this regard, we have already suggested that the possible lack of additional resources for shy students may stem from the lack of school policies for supporting shy students, as resource allocation usually follows school policies (Solberg, Edwards, & Nyborg, 2020).

Thirdly, our analysis has indicated that class size and school size do impact on teachers' experiences of support with shy children. We also know from previous research that teachers are key to dealing with temperamental diversity (O'Connor et al., 2014); cope with the social nature of classrooms (Rudasill & Kalutskaya, 2014); and work with their preferred learning formats (Paulsen & Bru,

2008). With a focus on helping teachers to create and sustain sensitive environments (Gazelle, 2006), we suggest that attention to class size could be crucial for the promotion of inclusive classrooms for shy students. As we have already indicated, the 2019 OECD report, found that reducing class size is a high teacher priority.

Finally, how teachers negotiate support was not addressed in the questionnaire. Nonetheless, our phase one research found that teachers negotiate for support using relational competencies to create comprehensive pictures of the shy student in different contexts (Solberg, Edwards, Mjelve, & Nyborg, 2020). The variation in experiences of support that was revealed in the survey discussed here, suggests that some attention could be paid to how easy it is to negotiate support within school systems and how teachers might be helped in accomplishing these negotiations.

4. Conclusions

Shy students sit below the threshold of special needs statutory intervention and therefore below the school radar for potential risk, but some do develop difficulties within school and later (Findlay et al., 2009; Hughes & Coplan, 2010; Karevold et al., 2011; Nilsen, 2018). As previously discussed, adapted education is key to meet the diverse needs of all children, but such adapted and inclusive education does not just concern the individual teacher. Korem (2016) particularly advocated the need to raise awareness among teachers across the school. Identification and adapted measures are crucial to ameliorating potential difficulties, such as, poor academic performance, withdrawn behavior, social isolation or internalizing difficulties, before they accumulate, but teachers need support in this work. Smaller classes would seem to be one way, but resources are also important. Although teachers in Norwegian elementary schools experience some support in their work with shy students, they do not report receiving additional resources. Making resources, such as available courses, assistance in the classroom, help with the child at recess and advice from others visible to teachers for preventative work could also seem important to avoid negative outcomes for shy students by enabling teachers' adaptive responses to the diversity of needs in school.

4.1. Limitations and future research

The present study entails some limitations which point to opportunities for further research. First, the Norwegian context might not reflect the situation in other countries, so generalizing the results must be done with that in mind.

Second, the items reported on here have not been used in previous questionnaires as they were developed for the aim of this study based on phase one qualitative material in the larger project (Mjelve et al., 2019; Nyborg et al., 2020; Solberg, Edwards, & Nyborg, 2020; Solberg, Edwards, Mjelve, & Nyborg, 2020). We therefore encourage further use of the questionnaire. Finally, we were unable to pursue the differences in responses to shy females and males. This too would seem worthy of further study.

Declaration of competing interest

None.

Acknowledgement

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