Do Teachers Spend Less Time Teaching in Classrooms With Students With Special Needs? Trends From International Data

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Debates about the inclusion of students with disabilities in general education classrooms often overlook its impact on teachers. In this study, I analyze the concern that teachers may spend less time teaching in classrooms with children with special needs using survey data on 121,173 teachers from 38 participating countries and partners of the Teaching and Learning International Survey (TALIS) 2013. I further examine teacher, classroom, and school factors that may explain disparities in time spent teaching in classrooms with and without students with special needs. The findings indicate teachers, on average, spend marginally less class time on teaching in classrooms that include more students with special needs. The disparity in teaching time is mostly removed when accounting for students with behavioral problems in classrooms.

Keywords: comparative education; disabilities; inclusion; regression analyses; secondary data analysis; special needs; teaching time

Although inclusive education is defined differently across and even within countries, more children with disabilities around the world today are educated in general schools and classrooms than before (Network of Experts in Social Sciences of Education [NESSE], 2012; Organisation for Economic Co-operation and Development [OECD], 2014a). In the European Union, for instance, about 53% of students with an official special education needs decision are taught in general classrooms with peers without disabilities (Ramberg, Lenart, & Watkins, 2017). In the United States, about two-thirds of students receiving special education spend a majority of their school day in general classrooms (U.S. Department of Education, 2016). Researchers report similar trends in access to general schools and classrooms for children with disabilities in China (Deng & Harris, 2008) and Australia (Australian Research Alliance for Children and Youth [ARACY], 2013). This greater inclusion[1] of children with disabilities in schools—defined broadly in this article as education in the general classroom setting with peers without disabilities (Cosier, Causton-Theoharis, & Theoharis, 2014)—reflects decades of international efforts to promote equal educational opportunities and human rights for a marginalized population (United Nations, 2015; Winzer & Mazurek, 2014).

As inclusion continues to expand around the world, educators must also adjust to changes in teaching and classroom learning to support the development of all children. However, while studies have examined the academic and social outcomes of children with disabilities in inclusion (e.g., Dessemontet, Bless, & Morin, 2011; Ruijs & Peetsma, 2009; Stiefel, Shiferaw, Schwartz, & Gottfried, 2018), there is less research on how inclusion affects teaching practices and children without disabilities (e.g., Fletcher, 2009; Gottfried & Kirksey, 2019). Of particular importance is potential changes to classroom instructional time. One possibility is teachers adapt curriculum in efficient ways or with the help of support staff such that more classroom time is spent on teaching and learning. The opposite is possible if teachers struggle with meeting individual learning needs—especially as disabilities may range from language impairment to autism—or managing student behavior. A better understanding of how inclusion may influence instructional time in different countries can help improve teaching and learning.

In this study, I explore how the inclusion of students with disabilities in mainstream classrooms may shape teacher decisions about instructional time. I make two key contributions to the

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literature: (a) I assess the extent to which teachers in classrooms with students with special needs[2] report spending a smaller proportion of their class time on teaching than teachers in classrooms without students with special needs, using data on 38 education systems and countries from the 2013 Teaching and Learning International Survey (TALIS); and (b) I analyze whether any disparities in class time spent on teaching in classrooms with students with special needs may be due to differences in classroom composition, teacher qualifications, or school characteristics. In comparing instructional time in classrooms with students with special needs in different countries, this study examines whether the effects of inclusion are universal or context specific. In identifying factors across countries that contribute to differences in instructional time, the results can inform local and international policies aimed at expanding and improving inclusion.

A challenge in international and comparative research is that terminology may vary across countries. In this article, I use the terms *students with special needs* and *students with disabilities* interchangeably to refer to students who have a formally identified learning challenge related to a physical, mental, or cognitive condition. I define *mainstream* or *general classrooms* as those in which students with and without disabilities are taught together.

Shifts in Inclusion Worldwide

Although estimates of disability rates vary depending on the definition used across countries, the *Global Burden of Disease* report that 93 million (5.1%) of children aged 0 to 14 years experience "moderate or severe disability" (Mathers, Lopez, & Murray, 2006). The majority of children with disabilities in low-income countries do not attend school (World Health Organization, 2011). However, international initiatives in the last 30 years, including the Salamanca Declaration, Millennium Development Goals (MDG), and more recent Sustainable Development Goals (SDG), have targeted improving access to the general education system for children with disabilities (Peters, 2007; United Nations, 2015; Winzer & Mazurek, 2014). TALIS 2013 shows that more than 70% of teachers in participating countries work in classrooms that include at least one student with special needs (OECD, 2014a). More than half of students with special needs in the European Union are educated in mainstream classrooms 80% of the time (Ramberg et al., 2017). Researchers find similar patterns of inclusion in countries such as Argentina (Skiliar & Dussel, 2011) and Ethiopia (Franck & Joshi, 2017).

In the United States, the inclusion of students with disabilities in the general education classroom is a key feature of the Individuals with Disabilities Education Act (2004) and federal policies aimed at improving educational opportunities and raising student achievement. The least restrictive environment (LRE) clause mandates that students with disabilities be educated in general classrooms with peers without disabilities to the extent possible. Alternative settings (e.g., self-contained classrooms) or other combinations are considered under LRE if a disability prevents students from learning in the general classroom. The emphasis on LRE has increased the percentage of students with disabilities educated in general classrooms for 80% of the day from 54% in 2005 to 63% in 2015 (U.S. Department of Education, 2012, 2016).

The Impact of Inclusion on Teachers and Teaching

Although studies have examined the impact of inclusion on the outcomes of students with and without disabilities (e.g., Fletcher, 2009; Gottfried, 2014; Kalambouka, Farrell, Dyson, & Kaplan, 2007; Ruijs & Peetsma, 2009; Stiefel et al., 2018), there is less research on how inclusion may affect teachers, specifically their use of instructional time. One challenge for teachers is adapting instruction that can support all students. On the one hand, in providing a more adaptive education to students with various learning needs, teachers may implement different levels of supports and progress monitoring that benefit everyone (Dyson, Farrell, Polat, Hutcheson, & Gallannaugh, 2004). On the other hand, students with disabilities have unique needs that often require adjustments to instruction that may not be beneficial to all (Dyson et al., 2004; Greene, Beszterczey, Katenstein, Park, & Goring, 2002). At a classroom level, the slower pace and decrease in instruction, combined with possibly lower education standards, may adversely impact all student learning (Huber, Rosenfeld, & Fiorello, 2001). Thus, as countries move towards greater inclusion of students with special needs, there is also a need to improve and support existing practices.

Studies on how teachers view inclusion for students with disabilities suggest that time is an issue, but this may also depend on attitudes, resources, and training (Hsien, Brown, & Bortoli, 2009). Research shows teachers with stronger classroom management may be more effective in allocating class time for instruction and providing individualized attention (Jordan, Schwartz, & McGhie-Richmond, 2009; Jordan & Stanovich, 2001). Therefore, changes in instructional time in classrooms with students with disabilities are likely contingent on the skills of teachers and not necessarily on having more students with disabilities. Research specifically on special education teachers shows that instructional time may also depend on classroom setting. Special education teachers on average spend about 32% of their class time on instruction, compared to 38% when coteaching in general education classrooms (Vannest & Hagan-Burke, 2010; Vannest, Hagan-Burke, Parker, & Soares, 2011). More research is needed on whether teachers in classrooms with students with disabilities spend less of their total class time teaching and, if so, what factors explain the difference.

The international literature further suggests that school contexts matter as the impact of inclusion on teachers and instructional time may depend on institutional capacity. Indeed, the pace of inclusion over the last 20 years has exceeded the capacity of schools and training of teachers in many countries (Chitiyo, Hughes, Changara, Chitiyo, & Montgomery, 2017; Deng & Holdsworth, 2007; Hadidi & Al Khateeb, 2015; Vorapanya & Dunlap, 2014). Whether teachers are teaching less in classrooms with students with disabilities may be magnified in certain countries, yet most research has focused on the United States (Kalambouka et al., 2007; Ruijs & Peetsma, 2009). Understanding how disparities in instructional time in classrooms that include students with disabilities may vary across countries has implications for meeting current international education goals.

Conceptual Framework

How teachers plan their classroom time may also relate to factors *independent* of students with disabilities. In this section, I organize the most proximal influences on teachers with an ecological framework focusing on teacher characteristics at the core, then broadening to the classroom, and finally the school and national contexts (Bronfenbrenner & Morris, 2006).

The Role of Teacher Capacity

Teachers may spend less time teaching in classrooms that include students with disabilities due to their preparation. The shortage of special education teachers has led many countries to employ unqualified personnel (Cooc, 2019; Cross, 2016; Deng & Holdsworth 2007; Kalyanpur, 2008). Studies in Ethiopia (Franck & Joshi, 2017), China (Feng, 2012), and Zimbabwe (Chitiyo et al., 2017) report teachers struggling with inclusion and desiring more training related to disabilities and providing accommodations. In the United States, teachers report a lack of training in instructional approaches, addressing specific disabilities, and managing behavior in inclusive classrooms (Finke, McNaughton, & Drager, 2009; McCray & McHatton, 2011). Limited professional preparation also reduces teacher self-efficacy, which can impact expectations of students and overall attitudes towards inclusion (Ajuwon et al., 2012).

The Role of Classrooms

Another factor that may affect how much class time teachers spend on instruction is related to the student composition of the classroom. For example, if student enrollment is greater in classrooms that include students with disabilities, then managing more students may influence how much time teachers can spend teaching. Students with disabilities may also be placed in lower track classes with other students of similar ability, learning challenges, or disadvantage (Oakes, 2005; Stodden, Galloway, & Stodden, 2003). Such lower track classes may be less conducive to learning as teachers spend considerable time on behavior management and addressing disruptive students (Burris & Welner, 2005). Thus, to the extent that students with disabilities are placed in classrooms with other struggling students without disabilities, this may pose additional challenges for teachers, including how to manage class time.

The Role of Schools

Research in school reform suggests that substantive changes in inclusion requires a schoolwide approach that transforms existing practices (Siperstein, Summerill, Jacobs, & Stokes, 2017). The school culture and prioritization of social inclusion can impact decisions about class scheduling and other policies to foster greater awareness of individual differences (McDougall, DeWit, King, Miller, & Killip, 2004; Simplican, Leader, Kosciulek, & Leahy, 2015). Strong school climate and leadership may promote interpersonal relationships and attitudes about inclusion among students and teachers (Abells, Burbidge, & Minnes, 2008), which can improve teaching within the classroom—including behavioral management and instructional time. If teachers in mainstream classrooms that include students with disabilities work in places with weaker school climate or leadership, then this may also negatively affect instructional time.

The Role of National Context

Differences in instructional time in classrooms that include students with and without disabilities may depend on special education policies across countries. Special education rates, for instance, range from 1.1% to 17.5% in European Union countries (Ramberg et al., 2017). In these countries, the percentage of students with special needs who are included in general classrooms 80% of the time ranges from 3.5% to 98.2% (Ramberg et al., 2017). In one of the largest studies to document cross-national special education and disability policies, the OECD (2007) found wide variation in disability categories and classroom settings. In addition, studies show large country differences in instructional time overall (e.g., Lavy, 2015; Long, 2014). These trends suggest that accounting for country-level contexts is critical when examining the relation between instructional time and classrooms that include students with special needs.

Summary and Research Questions

Few studies have explored how inclusion may affect teachers' usage of class time and how this relation may vary across countries and under different school contexts. In this study, I ask two research questions: (RQ1) To what extent do teachers in classrooms with students with special needs report spending a smaller proportion of their class time on actual teaching than teachers in classroom without students with special needs across countries? (RQ2) To what extent are any disparities in class time spent on teaching in classrooms with students with special needs due to differences in classroom composition, teacher qualifications, or school characteristics?

Methodology

Data Source and Sample

I used data from TALIS 2013 to examine how much time teachers allocate to teaching in classrooms with students with special needs. As one of the largest international surveys on the working conditions of teachers and principals and the learning environments of schools, TALIS is ideal for the present research objectives. TALIS asked teachers about their professional training, classroom instruction and planning, beliefs about student learning, classroom student population, school climate, and job satisfaction. The analytic sample consists of 121,173 lower secondary teachers from 38 OECD countries and partners and 1,074 schools.[3] Participants were surveyed in a two-stage probability sampling design with schools first selected using probability proportion to the size (PPS) of teachers within the select strata according to the context of each country. In the second stage, participants were randomly selected from the list of teachers in each school (OECD, 2014b). To enhance the comparability of results, each country was required to administer surveys at the end of the school year.

Measures

Outcomes. On all questions related to their teaching practices and student characteristics, teachers were asked to focus on one target class on a given day of the week. The main outcome is a continuous measure for the percentage of class time that teachers report spending on "actual teaching and learning." Teachers were also asked about the percentage of class time spent on "administrative tasks" and "keeping order in the classroom." Teachers wrote down a percentage to each question with the total equaling 100. One limitation of the outcome is the survey does not define or specify different types of "actual teaching and learning" activities. Furthermore, it is possible that some respondents may consider teaching students discipline or keeping order in classrooms as part of actual teaching and learning.

Teacher qualifications and characteristics. To account for teacher training and skills that may influence the amount of class time allocated to teaching, I included measures for education level (Level 5A or higher on the International Standard Classification of Education), whether the teacher attended a teacher education or induction program, mentorship, and years of teaching experience. Teachers were asked whether they received training in three areas related to the subjects they taught: content, pedagogy, and classroom practice. Other measures include whether the position was part-time or permanent. Variation in class time spent on teaching may also relate to feelings of self-efficacy and beliefs about teaching itself. I used two separate composite scales of individual self-efficacy and constructivist instruction, which involves learning through experiences and constructing knowledge, an approach that may require more instructional time. I also added composites for teacher collaboration and student relationships. All composites have strong reliability and validity (OECD, 2014b; see Appendix Table A1 for items).

Classroom student composition. The amount of time spent teaching may depend on the classroom context and student population. Teachers were asked to indicate the percentage of students from each of the following backgrounds in the target class: students whose first language is different from the language of instruction, low academic achievers, students with special needs, students with behavioral problems, and students from socioeconomically disadvantaged homes. The responses were the following: (a) none, (b) 1% to 10%, (c) 11% to 30%, (d) 31% to 60%, and (e) more than 60%. I grouped the last two categories because of the lower frequency in each. Students may fall into multiple categories, such as low academic achiever and socioeconomically disadvantaged, and would appear in each classroom composition indicator. TALIS defines students with special needs as "those for whom a special learning need has been formally identified because they are mentally, physically, or emotionally disadvantaged." The key predictor in this study is the percentage of students with special needs in the classroom, a measure for the inclusion of students with disabilities in the same setting as peers without disabilities. While classrooms with 31% or more students with special needs are likely to represent specialized or self-contained classrooms that may not include students without special needs, thus limiting inferences about inclusion, the other categories together allow for an analysis of how instructional time may differ in classrooms with different proportions of students with special needs (i.e., 1%–10% and 11%–30%), including those without any. I also control for class size as the number of students may affect decisions related to instructional time.

School characteristics. To control for the institutional context that may affect teacher instruction, I included two binary measures of whether the school was a public school and located in a city and a continuous measure of the student population. I also used measures of school resource, climate, and leadership. This included whether there was shortage of teachers with competency in special needs education. The school materials scale consisted of five items asking whether a shortage of equipment (instructional materials, computers, software, internet access, and library materials) was a problem at the school. The school delinquency and violence scale used four items related to the frequency of vandalism, physical injury among students, intimidation of staff, and verbal abuse among students. The mutual respect scale contained four items on open discussion among staff, respect for colleagues' ideas, culture of sharing, and positive relationships. The leadership scale consisted of three items on how often principals took actions to ensure teachers developed and improved teaching practices. The reliability and validity of all scales are available in the OECD (2014b) report (see Appendix Table A1 for items).

Analysis

To examine the relation between proportion of class time spent on instructional teaching and the proportion of students with special needs in the classroom, I used beta regression.[4] The model is commonly used for outcomes bounded between 0 and 1 (e.g., proportions and rates), as is the case with instructional time in this study, and because its predicted values are confined to the same range (Ferrari & Cribari-Neto, 2004). I model the mean of the dependent variable y conditional on covariates x, which I denote by u_x. Because y is in (0, 1), u_x must also be in (0, 1). To ensure that the conditional mean is inside the interval, one may use a range of link functions. I used a common logit link function for the conditional mean, denoted with $g(\cdot)$, as follows:

$$g\left(u_{\mathrm{X}}\right) = \mathrm{x}\beta$$

$$\mu_X = g^{-1}\mathrm{x}\beta$$

$$\ln\{\mu_X / \left(1-\mu_X\right) = \mathrm{x}\beta.$$

I expand on the base model to include the key predictors of interest in Equation (1):

$$\mathrm{x}\beta = \beta_0 + \beta_1 HINC + \beta_2 MINC + \beta_3 LINC + \delta. \qquad (1)$$

Here *HINC, MINC*, and *LINC* represent high (31% or more), medium (11%–30%), and low (1%–10%) in terms of the proportion of classroom students with special needs. The reference is classrooms without any students with special needs. I include country fixed effects in δ to account for observed and unobserved differences at the country level that may systematically

affect instructional time and special needs identification (e.g., historical contexts, policies).

To address the first research question about differences in teaching time, I estimate the marginal mean proportion of time spent teaching in each classroom. I also allow the effect of classrooms with students with special needs to differ across countries by interacting the classroom variables with the country fixed effects.[5] To address the second research question, I included measures of teacher, classroom, and school characteristics, sequentially, and examined whether disparities in teaching time across classrooms are attenuated. To account for the complex survey design, TALIS developers include teacher sample weights and replicate weights that adjust for the two-stage sampling (schools and strata in each country) and generate appropriate inferences and variance estimates with standard errors. I apply both the sampling and replicate weights using Stata's "svy" commands in all analyses. I imputed missing data for all variables using chained equations in Stata ("mi impute chained").[6] The analyses pooled together results from five imputed datasets.

Results

Characteristics of Classrooms With Students With Special Needs

In Table 1, I provide a descriptive summary of teachers, classrooms, and schools disaggregated by the percentage of children with special needs in their classroom. The second row shows that on average teaching time is lower in classrooms with more students with special needs. In classrooms with no students with special needs, teacher spent an average of about 81% of their time on teaching, compared to 78% and 76% for teachers in classrooms where 1% to 10% or 11% to 30% of students have special needs, respectively ($p < .001$). Teachers spent about 69% of their class time on teaching in classrooms where more than 30% of children have special needs. Teachers who worked with a higher percentage of children with special needs (30% or more) compared to teachers who did not had less experience and were more likely to be in part-time, nonpermanent positions ($p < .001$). Classrooms with a higher percentage of students with special needs also had students from more disadvantaged backgrounds, including lower socioeconomic status (SES) and achievement and more behavioral problems ($p < .001$)—factors that may affect class time for teaching and learning.

Research Question 1: Disparities in Teaching Time Across Countries

In Figure 1, I display the unadjusted average proportion of class time spent on teaching by the percentage of students with special needs in each country. The results show a fairly consistent pattern of less teaching time in classrooms with a greater percentage of students with special needs by country, though the disparity is wider in countries such as the Netherlands and Singapore. Interestingly, even in classrooms without any students with special needs, the percentage of class time spent teaching in countries varies widely, ranging from 68% in Brazil to 88% in Bulgaria. The results also show that in general, the difference in time spent teaching between classrooms without any students with special needs and classrooms with 1% to 10% special needs is fairly small in most countries. The difference in time spent teaching is most noticeable as classrooms enroll more than 11% students with special needs. For classrooms that enroll more than 30% students with special needs, which are likely specialized classrooms, teachers in nearly half of the countries spent less than 70% of their class time on teaching.

Research Question 2: Explaining Differences in Classroom Teaching Time

In Table 2, I present the results of beta regression models predicting the proportion of class time spent on teaching. I display only the coefficients associated with the classroom variables for the proportion of students with special needs to assess how disparities in time spent teaching may change after controlling for teacher, classroom, and school characteristics sequentially. Model 1 is an unconditional model showing that time spent teaching is lower (i.e., coefficients are more negative) in classrooms with a greater percentage of students with special needs. Model 2 controls for differences in teacher qualifications and characteristics, but the gap in time spent teaching remains nearly the same. In Model 3, controlling for classroom variables reduces the gap in time spent teaching relative to classrooms without any students with special needs. The coefficients are close to zero, not statistically significant, or greatly reduced compared to Model 1. School characteristics in Model 4 contribute little to the gaps in time spent teaching. Lastly, the full model explains less of the gaps than classroom characteristics alone in Model 2.

To further examine the role of classrooms, I fitted models with the classroom special needs variables and each classroom characteristic separately. I present the predicted average proportion of class time spent teaching in classrooms with different percentages of students with special needs in Figure 2. The results show that gaps in time spent teaching remain fairly similar to those in the unconditional model, after controlling for the percentage of students who are language minorities, are from low-SES households, or have low academic achievement. However, when controlling for students with behavior problems, the average proportion of class time spent on teaching is nearly identical across classrooms with different percentage of students with special needs. This suggests that disparities in time spent teaching in these classrooms appear related to students with behavior problems who are also in classrooms with students with special needs, a trend consistent across most countries (see Appendix Figure A1).

Although TALIS distinguishes between students with special needs versus behavior problems, the results in Figure 2 may capture students with special needs who also have behavior problems. Cross-tabulation results indicate that 9% of classrooms had no students with special needs and no students with behavioral problems, 23% had students with behavioral problems but not special needs, and 7% had students with special needs but not behavioral problems. In other words, in nearly 40% of the classrooms, there is no overlap between students with special needs and behavioral problems at all. The variation, however, allows me to examine time spent teaching in classrooms with students with special needs that have different proportions of students with behavior problems to tease out their separate

Table 1
Descriptive Summary of Teachers by Percent of Classroom Children Who Have Special Needs, Teaching and Learning International Survey (TALIS) 2013

			% Special Needs Children in Classroom							
	All		None		1%–10%[a]		11%–30%[a]		>30%[a]	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Percentage of teachers	100.0	—	30.2	—	48.6	—	13.8	—	7.5	—
Class time spent on…										
Actual teaching (%)	78.4	16.8	81.1	16.7	78.2***	16.5	75.7***	15.4	68.7***	18.1
Teacher characteristics										
Part time (%)	81.0	39.2	76.4	44.0	80.6***	40.4	88.4***	29.5	90.6***	24.6
Experience (years)	16.1	10.5	17.4	11.3	16.1***	10.7	14.6***	9.1	14.6***	8.5
Permanent position (%)	79.2	40.6	81.1	40.5	79.1**	41.5	79.8	37.1	71.8***	38.0
Education (>5A, %)	94.2	23.4	92.6	27.0	94.9***	22.5	95.6***	18.9	95.2***	18.1
Teacher program (%)	89.1	31.1	87.4	34.4	89.2***	31.7	91.1***	26.3	91.9***	23.1
Content training (%)	75.1	43.2	77.9	42.9	74.5***	44.5	75.6*	39.7	69.4***	38.9
Pedagogy training (%)	70.0	45.8	71.7	46.6	69.9*	46.8	70.9	42.0	66.0**	40.0
Practice training (%)	70.1	45.8	71.6	46.6	69.4*	47.0	70.6	42.2	69.8	38.8
Assigned a mentor (%)	15.2	35.9	14.8	36.7	15.8	37.2	14.1	32.2	14.0	29.4
Induction program (%)	54.3	49.8	52.3	51.6	55.0***	50.8	54.9	46.0	56.5*	41.9
Self-effectiveness[b]	12.6	1.9	12.7	1.9	12.5***	1.9	12.5***	1.8	12.5***	1.7
Constructivist beliefs[b]	12.8	2.1	12.9	2.1	12.8*	2.2	12.8*	1.9	12.6***	1.7
Cooperation with teachers[b]	9.8	2.0	9.8	2.0	9.8	2.0	9.9	1.9	10.0**	1.9
Student relationships[b]	13.2	2.1	13.1	2.2	13.2***	2.1	13.3***	2.0	13.5***	1.8
Stakeholders relationships[b]	11.0	2.2	11.3	2.2	11.0***	2.2	10.7***	2.1	10.6***	2.1
Classroom characteristics										
Class size	25.8	11.2	24.2	11.3	26.9***	11.2	26.1***	10.7	23.8	10.4
Language minority[c]	8.8	28.3	6.2	24.8	7.5**	26.9	11.6***	29.6	22.3***	35.1
Low achievement[c]	23.1	42.1	13.1	34.8	16.3***	37.7	38.0***	44.8	80.7***	33.4
Behavior problem[c]	13.2	33.9	8.2	28.4	9.1*	29.3	17.2***	34.8	52.4***	42.2
Low SES[c]	24.9	43.3	13.9	35.7	21.5***	41.9	40.2***	45.3	63.5***	40.7
School characteristics										
City (%)	36.6	48.2	37.1	49.4	37.0	49.2	34.4*	44.6	34.1	40.9
Public school (%)	84.5	36.2	87.3	34.0	83.2***	38.1	84.2**	34.2	83.9	31.7
Student enrollment (*M*)	705.2	503.1	656.4	516.7	716.8***	498.9	747.0***	488.1	734.1***	455.2
Language minorities (%)[d]	7.1	25.6	5.5	23.3	6.2	24.6	9.5***	27.6	14.1***	30.0
Special needs students (%)[d]	2.9	16.9	0.9	9.8	2.2***	14.9	5.9***	22.2	11.8***	27.7
Low SES students (%)[d]	31.1	46.3	21.9	42.2	30.3***	46.9	43.2***	46.5	51.1***	43.0
Shortage of SEN teachers (%)[e]	13.5	34.1	13.9	35.3	14.1	35.5	9.6***	27.6	13.4	29.3
School climate										
Instructional leadership[b]	11.4	1.9	11.4	1.9	11.3***	2.0	11.4	1.9	11.3	1.8
Distributed leadership[b]	12.3	2.1	12.7	2.2	12.2***	2.2	12.0***	1.8	11.8***	1.6
Student delinquency[b]	6.6	2.4	5.8	2.6	6.7***	2.4	7.2***	2.0	7.5***	2.1
Mutual respect[b]	13.4	2.1	13.5	2.1	13.3***	2.1	13.3**	2.1	13.2***	1.7
Material resources[b]	1.7	0.6	1.8	0.7	1.7***	0.7	1.6***	0.6	1.7***	0.5

Note. $n = 121{,}173$. All estimates include teacher- and school-level replicate weights where appropriate. SES = socioeconomic index; SEN = special education needs.
[a]Statistical comparisons are with reference group in "None."
[b]TALIS developed scales (see appendix for items).
[c]Percentage of teachers who indicated 31% or more of classroom students.
[d]Percentage of teachers in schools with 31% or more of selected student population.
[e]Percentage of teachers in schools where principals indicated shortage affects teaching capacity "a lot."
*$p < .05$. **$p < .01$. ***$p < .001$.

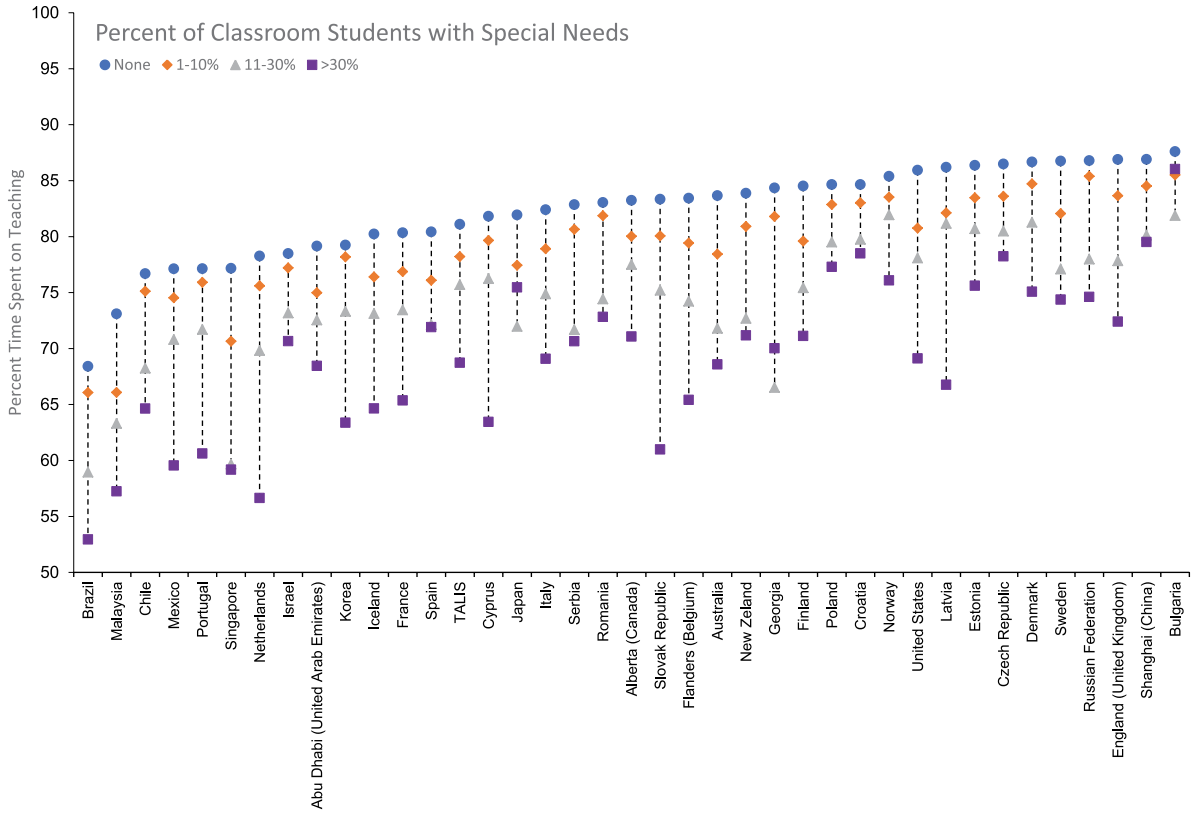

FIGURE 1. *Predicted average proportion of class time spent on teaching, by percent of students with special needs in class and country.*

Table 2
Beta Regression Models Estimating Relation Between Proportion of Class Time Spent on Instructional Teaching and Teacher, Classroom, and School Characteristics From Teaching and Learning International Survey (TALIS) 2013

	M1	M2	M3	M4	M5
SEN students in class					
1% to 10%	–0.167***	–0.167***	–0.032*	–0.155***	–0.038***
	(0.016)	(0.015)	(0.017)	(–0.016)	(0.018)
11% to 30%	–0.401***	–0.385***	–0.052	–0.378***	–0.066**
	(0.028)	(0.027)	(0.032)	0.028)	(0.033)
11% to 30%	–0.698***	–0.682***	–0.144*	–0.661***	–0.168**
	(0.045)	(0.045)	(0.056)	(0.047)	(0.058)
Teacher controls		Y			Y
Classroom controls			Y		Y
School controls				Y	Y
N	115,037	115,037	115,037	115,037	115,037

Note. Standard errors in parentheses. All models control for the fixed effects of countries and include sample and replicate weights at the teacher level. All teacher, classroom, and school controls are listed in Table 1. SEN = special education needs.
*$p < .05$. **$p < .01$. ***$p < .001$.

effects. In Figure 3, I show there is little difference in time spent teaching in classrooms with different proportions of students with special needs when there are no students with behavior problems. Similarly, in classrooms with 1% to 10% students with behavior problems but different proportions of students with special needs, there is little gap in time spent teaching. Thus, Figure 3 shows that while the amount of time spent teaching tends to decrease with more students with behavior problems overall, the gap among classrooms with different proportion of students with special needs is consistently small.

Table 3 further describes the extent to which instructional time is related to how countries may group students with special needs into classrooms with potentially other students with learning difficulties. The results, organized by average instructional time, highlight variation in the proportion of classrooms that enroll 1% to 10% students with special needs (24% in Georgia

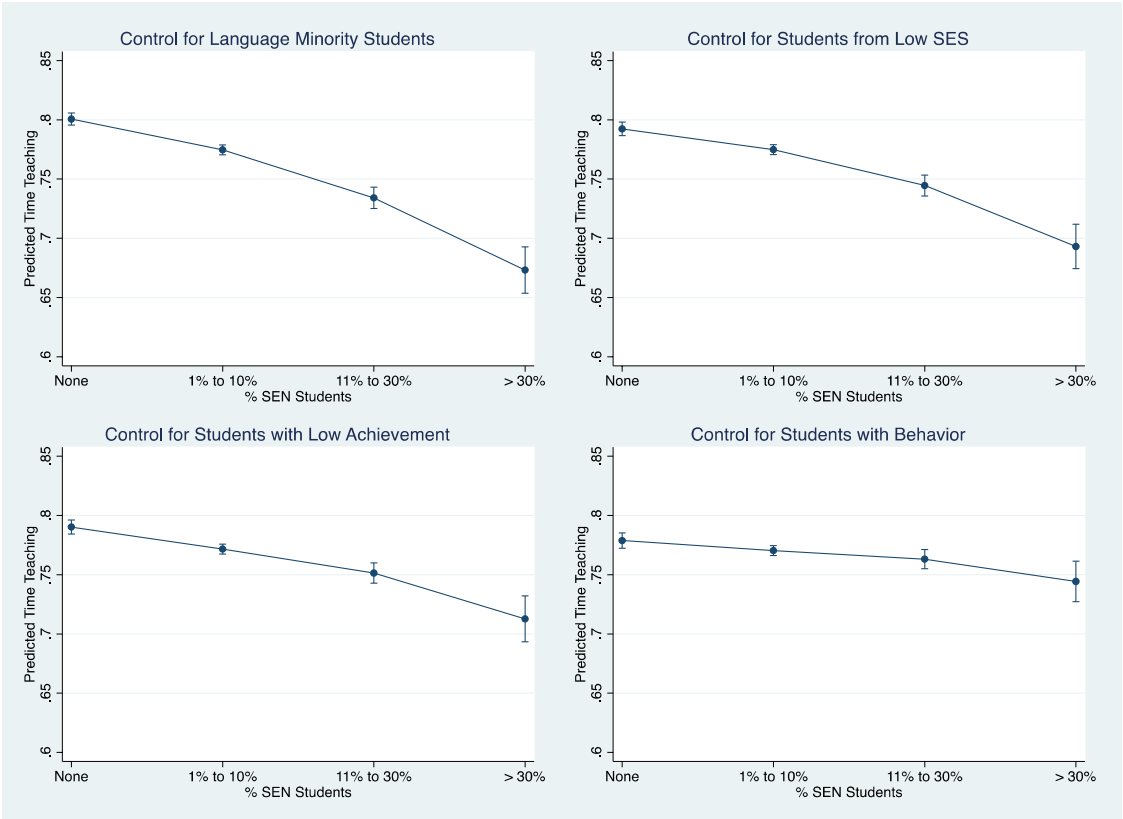

FIGURE 2. *Predicted average proportion of class time on teaching, by percent of students with special education needs (SEN) in class. Note. SES* = socioeconomic index.

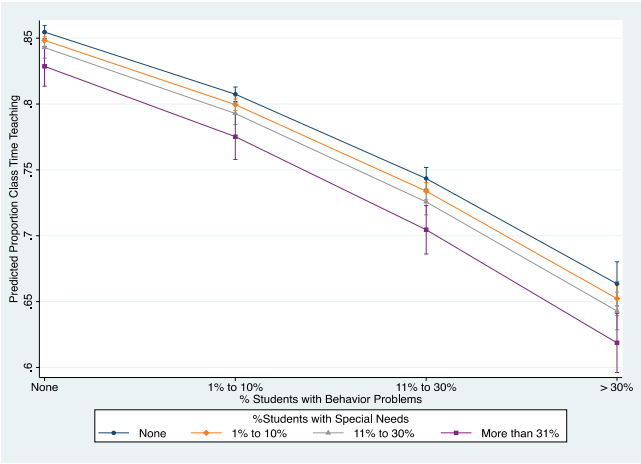

FIGURE 3. *A comparison of time teaching by the percentage of students with special needs in classrooms with students with behavior problems.*

versus 74% in South Korea), and show different levels of inclusion policies across countries. More importantly, in countries with the lowest average instructional time (e.g., Brazil, Malaysia, Singapore, Mexico), classrooms with students with special needs also include a greater proportion of students with other challenges, such as behavior. This is less the case for countries and cities that report the highest average instructional time (e.g., Bulgaria, Russia, Denmark, Shanghai).

Discussion

In this study, I make several contributions to the literature on how the expansion of inclusion for students with disabilities around the world may have consequences for teachers and students without disabilities. First, in focusing on the relation between the percentage of students with disabilities in a classroom and the proportion of self-reported class time spent on teaching, I examined how the inclusion of children with disabilities may influence instructional time. Second, I assessed whether this relation is consistent across countries. Third, I examined whether disparities in time spent teaching in classrooms that include children with disabilities may be related to differences in teacher traits, classroom characteristics, and school contexts.

Small Differences in Time Spent Teaching

The main finding that teachers do spend less class time on teaching in classrooms with students with special needs comes with a caveat. That is, the difference in the proportion of class time spent teaching in classrooms with no students with special needs versus classrooms with 1% to 10% and 11% to 30% is small (3–5 percentage point difference). Given that 63% of all TALIS teachers worked in the latter two classrooms, this suggests minimal differences in time spent teaching among most teachers in classrooms with and without students with special needs. One implication of this finding is that for countries focused on expanding and improving inclusion, resources should focus more on the quality and type of instruction or interactions

Table 3
Descriptive Summary of Classrooms That Enroll 1% to 10% of Students With Special Needs by Country, Teaching and Learning International Survey (TALIS) 2013

	Classrooms With 1%–10% Special Needs Students						
	Teaching Time	Class Size	% of Classes	Lang Minorities	Low Achieve	Low SES	Behavior
Brazil	66.1	31.0	51.5	4.0	35.3	44.0	35.4
Malaysia	66.1	31.7	28.2	36.9	36.7	41.4	20.2
Singapore	70.6	36.4	61.8	41.0	30.6	12.8	7.9
Mexico	74.5	33.4	51.0	4.0	22.3	44.1	18.1
Abu Dhabi (UAE)	75.0	25.0	45.7	33.0	14.1	4.4	7.2
Chile	75.1	32.5	52.3	1.7	10.1	27.3	10.3
Netherlands	75.6	26.0	54.4	5.7	3.5	1.4	1.2
Portugal	75.9	22.5	58.5	2.2	28.0	27.4	10.7
Spain	76.1	24.6	51.8	12.0	26.2	8.3	7.0
Iceland	76.4	21.0	49.6	1.9	1.6	1.4	0.5
France	76.9	25.9	55.4	2.9	11.5	15.3	2.2
Israel	77.2	28.5	48.4	6.5	13.2	12.0	5.4
Japan	77.4	31.8	54.5	0.1	4.0	2.0	0.8
Korea	78.2	32.5	73.6	0.3	1.6	2.2	0.2
Average	**78.4**	**25.8**	**48.6**	**8.8**	**23.1**	**24.9**	**13.2**
Australia	78.4	25.3	62.1	11.8	17.8	16.2	5.3
Italy	78.9	22.0	69.1	2.9	8.1	4.3	2.7
Flanders (Belgium)	79.4	18.0	47.1	12.2	8.1	3.5	1.2
Finland	79.6	18.7	46.9	3.0	10.7	2.1	4.0
Cyprus	79.6	21.1	46.1	20.1	22.1	15.4	7.9
Alberta (Canada)	80.0	26.1	49.3	17.2	8.7	8.3	2.4
Slovak Republic	80.1	19.4	56.4	7.3	6.9	6.8	3.5
Serbia	80.6	22.2	41.4	3.3	10.8	10.7	4.5
United States	80.7	27.8	48.5	13.8	16.6	34.0	5.4
Norway	80.9	24.9	56.5	8.8	18.8	15.5	5.7
Georgia	81.8	18.8	24.0	8.8	11.3	9.9	4.2
Romania	81.9	21.6	47.3	5.7	16.5	22.5	3.0
Sweden	82.0	22.2	56.2	10.4	4.5	1.8	0.6
Latvia	82.1	18.5	36.7	10.9	10.2	8.8	6.0
Poland	82.9	21.9	59.0	3.0	14.2	8.6	3.2
Croatia	83.0	21.0	60.5	2.8	4.3	5.1	1.6
Estonia	83.5	18.1	45.5	8.0	3.5	6.5	3.9
New Zealand	83.5	22.9	59.2	3.3	1.9	0.9	0.1
Czech Republic	83.6	21.4	53.6	1.4	14.4	3.4	2.9
England	83.6	24.4	50.6	9.3	6.4	9.6	1.7
Shanghai (China)	84.5	35.1	44.1	2.0	12.3	9.7	1.5
Denmark	84.7	21.7	52.3	5.7	2.6	1.5	0.5
Russian Federation	85.4	21.7	27.7	4.2	8.4	6.1	4.9
Bulgaria	85.5	22.3	39.6	32.5	16.2	22.8	6.5

Note. $n = 121{,}173$. All estimates include teacher sample weights and replicate weights for variance estimation. Language minority, low achievement, low socioeconomic status (SES), and behavior problems indicate the proportion of classrooms that enroll 1%–10% of students from each background.

between students with and without special needs that may affect learning, rather than total time (Vannest et al., 2011). The finding also has implications for countries in the early stages of including students with special needs and needing support from stakeholders. The minimal differences in instructional time in classrooms that include students with and without special needs should allay some concerns, particularly among parents of children without special needs, about inclusion. In addition, from an equity perspective, the finding suggests greater educational opportunity for children with special needs does necessarily need to come at the cost of other children's learning.

The key concern is classes with 30% or more students with special needs where teachers spend about 12 percentage points less of class time on teaching than teachers in classrooms with no students with special needs. It should be emphasized that these classrooms are rare (only 7.5% of all TALIS classrooms) and

likely different from typical classrooms that support inclusion. For context, the percentage of students with disabilities in most general education classrooms in the United States is less than 10%.[7] It is possible that these classrooms are specifically designated for the inclusion of more students with disabilities as a way to better allocate personnel (McCray & McHatton, 2011). However, one implication of the finding for policies aimed at including a greater proportion of students with special needs in general classrooms is teachers clearly need more in-class support.

The Role of Student Behavior in Time Spent Teaching

An important issue throughout this study is disparities in time spent teaching in classrooms with students with special needs may not necessarily be due to the students themselves but other factors associated with such classrooms. The results indicated that the student composition of the classroom, particularly the proportion of students with behavior problems, played the most significant role in explaining differences in time spent teaching in nearly all TALIS countries. The finding is consistent with research that shows managing behavior is a frequent challenge in inclusion efforts (i.e., Finke et al., 2009). Furthermore, students with disabilities or special needs are likely to be in the same classrooms as students with behavioral problems, which TALIS defined as separate from a disability. While students with disabilities may also have behavioral problems, the results show little difference in instructional time in classrooms with students with special needs but not behavioral problems.

The finding highlights the international trend of schools grouping students with the most learning challenges (including disability) and other disadvantages into the same classrooms (Oakes, 2005; Stodden et al., 2003). In the United States, more experienced teachers tend to have more influence in deciding classroom assignments, which often means teaching fewer disadvantaged students (Goldhaber, Lavery, & Theobald, 2015; Grissom, Kalogrides, & Loeb, 2015). Cross-national evidence indicates that the inequitable teacher distribution is also global in scope (Akiba, LeTendre, & Scribner, 2007; Luschei & Carnoy, 2010; Luschei & Jeong, 2018; Rivero, 2015). To the extent that classrooms include students with disabilities and students with other learning challenges, one policy implication for schools is to provide teachers with more training and support around managing students with behavioral problems, especially as the latter appears related to time spent teaching. Schools may assign or consider incentivizing more skilled teachers to work in such classrooms as a way to efficiently allocate personnel resources to the area of greatest need. A modest bonus to teach in low-performing schools, for instance, may reduce teacher turnover (Clotfelter, Glennie, Ladd, & Vigdor, 2008). Another policy implication is schools may need to consider how struggling students—whether related to disability, behavior, or low achievement—are placed in the same classrooms. Research shows high-performing schools assign teachers to students more equitably, suggesting that such a policy change may be efficient in raising achievement for all students (Kalogrides, Loeb, & Béteille, 2013). A more heterogeneous student grouping policy would not only benefit students with disabilities in terms of exposure to different peers but may also lessen the demands on teachers.

Limitations and Future Research

There are several limitations to this study that can guide future work. First, although TALIS distinguishes between special needs from behavior problems, in countries such as the United States there is an overlap between the two under the label of emotional and behavioral disorder. A better understanding of how these students in particular affect classroom instruction can inform inclusive education policies. Second, the focus on time spent teaching in this study acknowledges the impact of inclusion on teachers, but a larger concern is whether changes in instructional time affect student achievement. Future studies that link achievement data for students with and without disabilities to classroom time spent teaching can better address a potential mechanism through which inclusion impacts students. More importantly, if the mostly small differences in time spent teaching are not related to student achievement then this finding can provide further support of inclusion. Third, a related limitation is that even if teachers spend less time teaching in classrooms that include students with special needs, it is possible that the quality of teaching may be stronger or more focused. Ideally, it would be helpful to know how teachers are spending their time in inclusive classrooms. Higher quality teaching or different types of teaching activities may matter more than total classroom time on instruction. In addition, instructional time in this study relies on teacher self-reports across a school year that may be not fully accurate. Fourth, TALIS did not ask about aides or paraprofessionals who may influence the amount of time teachers can spend on instruction. Fifth, although TALIS operationalizes special needs as related to mentally, physically, or emotionally disadvantages for respondents, future research show explore how instructional time and challenges may differ in classrooms that include students with different disabilities. Lastly, the study uses a limited definition of inclusion in terms of education in the general classroom setting that does not capture other settings, including resource rooms, self-contained settings, or a combination thereof.

Conclusion

A concern with international efforts to expand the inclusion of children with disabilities into general classrooms is the impact on teachers and instruction. The findings in this study reveal that differences in time spent teaching between classrooms with and without students with special needs are qualitatively small (except in classrooms with a large percentage of students with special needs) and appear related to students with behavioral problems in the same classroom. The study suggests that students with disabilities alone are unlikely contributing to teachers spending less class time on teaching. Thus, supporting *all* students in inclusive classrooms worldwide may require schools to invest in some combination of greater teacher training, reallocating school personnel, and reconfiguring how students are grouped together.

NOTES

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[1]This definition is separate from *inclusive practices* and *beliefs* that ensure meaningful participation. In addition, under the Least Restrictive Environment (LRE) mandate in the United States, students with disabilities may be educated in regular classrooms, self-contained settings, or some combination thereof.

[2]TALIS defines students with special needs as "those for who a special learning need has been formally identified because they are mentally, physically, or emotionally disadvantaged."

[3]The United States participated but did not meet OECD requirements for response rates. I used the full data because the model results were similar with and without the U.S. sample.

[4]I converted the percentages to proportions for the beta regression model.

[5]This is equivalent to including a statistical interaction between two variables. Whereas a model with only the main effects of the classroom special needs inclusion variables and country dummy variables estimates the influence of each controlling for the other, an interaction between the two allows the effect of classroom special needs inclusion to differ across countries. The main results are also identical to fitting models with only the special needs inclusion classroom variables for each country separately, rather than one model with the country fixed effects.

[6]Missing data on the selected variables ranged from 1.3% to 19.7% with an average of 5.0%. The amount of missingness was largest for the outcome variable.

[7]These estimates are based on calculations from the teacher surveys of the Early Childhood Longitudinal Study (ECLS-K:2011).

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Appendix

Table A1
Summary of Variables for All Indices Used in Analyses

Scale	Variable	Alpha
Cooperation		
Exchange teaching materials with colleagues	TT2G33D	.76
Engage in discussions about the learning development of specific students	TT2G33E	
Work with other teachers in my school to ensure common standards in evaluations for assessing student progress	TT2G33F	
Attend team conferences	TT2G33G	
Teach jointly as a team in the same class	TT2G33A	
Observe other teachers' classes and provide feedback	TT2G33B	
Engage in joint activities across different classes and age groups (e.g. projects)	TT2G33C	
Take part in collaborative professional learning	TT2G33H	
Student relationships		
In this school, teachers and students usually get on well with each other	TT2G45A	.78
Most teachers in this school believe that the students' well-being is important	TT2G45B	
Most teachers in this school are interested in what students have to say	TT2G45C	
If a student from this school needs extra assistance, the school provides it	TT2G45D	
Stakeholder relationships		
This school provides staff with opportunities to actively participate in school decisions	TT2G44A	.86
This school provides parents or guardians with opportunities to actively participate in school decisions	TT2G44B	
This school provides students with opportunities to actively participate in school decisions	TT2G44C	
This school has a culture of shared responsibility for school issues	TT2G44D	
There is a collaborative school culture which is characterized by mutual support	TT2G44E	
Instructional leadership		
I took actions to support cooperation among teachers to develop new teaching practices	TC2G21C	.78
I took actions to ensure that teachers take responsibility for improving their teaching skills	TC2G21D	
I took actions to ensure that teachers feel responsible for their students' learning outcomes	TC2G21E	
Distributed leadership		
This school provides staff with opportunities to actively participate in school decisions	TC2G22A	.73
This school provides parents or guardians with opportunities to actively participate in school decisions	TC2G22B	
This school provides students with opportunities to actively participate in school decisions	TC2G22C	
Student delinquency		
Vandalism and theft	TC2G32D	.81
Intimidation or verbal abuse among students (or other forms of nonphysical bullying)	TC2G32E	
Physical injury caused by violence among students	TC2G32F	
Intimidation or verbal abuse of teachers or staff	TC2G32G	
Mutual respect		
School staff have an open discussion about difficulties	TC2G30C	.79
There is mutual respect for colleagues' ideas	TC2G30D	
There is a culture of sharing success	TC2G30E	
The relationships between teachers and students are good	TC2G30F	
Materials resources		
Shortage or inadequacy of instructional materials (e.g., textbooks)	TC2G31D	.86
Shortage or inadequacy of computers for instruction	TC2G31E	
Insufficient internet access	TC2G31F	
Shortage or inadequacy of computer software for instruction	TC2G31G	
Shortage or inadequacy of library materials	TC2G31H	
Self-efficacy		
Control disruptive behavior in the classroom	TT2G34D	.90
Make my expectations about student behavior clear	TT2G34F	
Get students to follow classroom rules	TT2G34H	
Calm a student who is disruptive or noisy	TT2G34I	
Craft good questions for my students	TT2G34C	
Use a variety of assessment strategies	TT2G34J	

(continued)

Table A1 (continued)

Scale	Variable	Alpha
Provide an alternative explanation for example when students are confused	TT2G34K	
Implement alternative instructional strategies in my classroom	TT2G34L	
Get students to believe they can do well in school work	TT2G34A	
Help my students value learning	TT2G34B	
Motivate students who show low interest in school work	TT2G34E	
Help students think critically	TT2G34G	
Constructivist		
My role as a teacher is to facilitate students' own inquiry	TT2G32A	.71
Students learn best by finding solutions to problems on their own	TT2G32B	
Students should be allowed to think of solutions to practical problems themselves before the teacher shows them how they are solved	TT2G32C	
Thinking and reasoning processes are more important than specific curriculum content	TT2G32D	

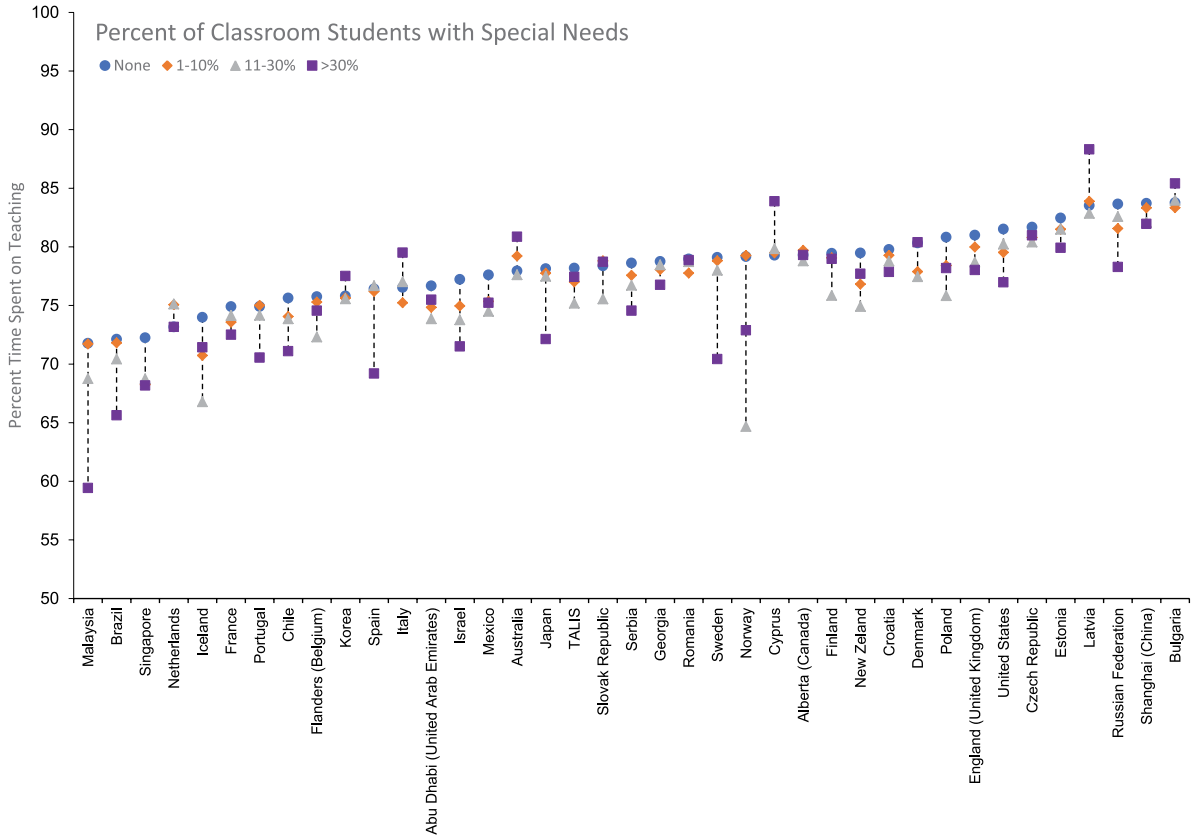

FIGURE A1. *Predicted average proportion of class time spent on teaching, controlling for students with behavior problems in classroom.*