

TALIS 2018 RESULTS: EQUITY

The OECD Teaching and Learning International Survey (TALIS) is an international, large-scale survey of teachers, school leaders and the learning environment in schools. This note presents findings about teacher allocation from the viewpoint of equity based on the reports of lower secondary teachers and their school leaders in mainstream public and private schools.¹ This note draws on data collected in 2017/2018.

Denmark

I. Do students have equitable access to effective teachers and learning environments?

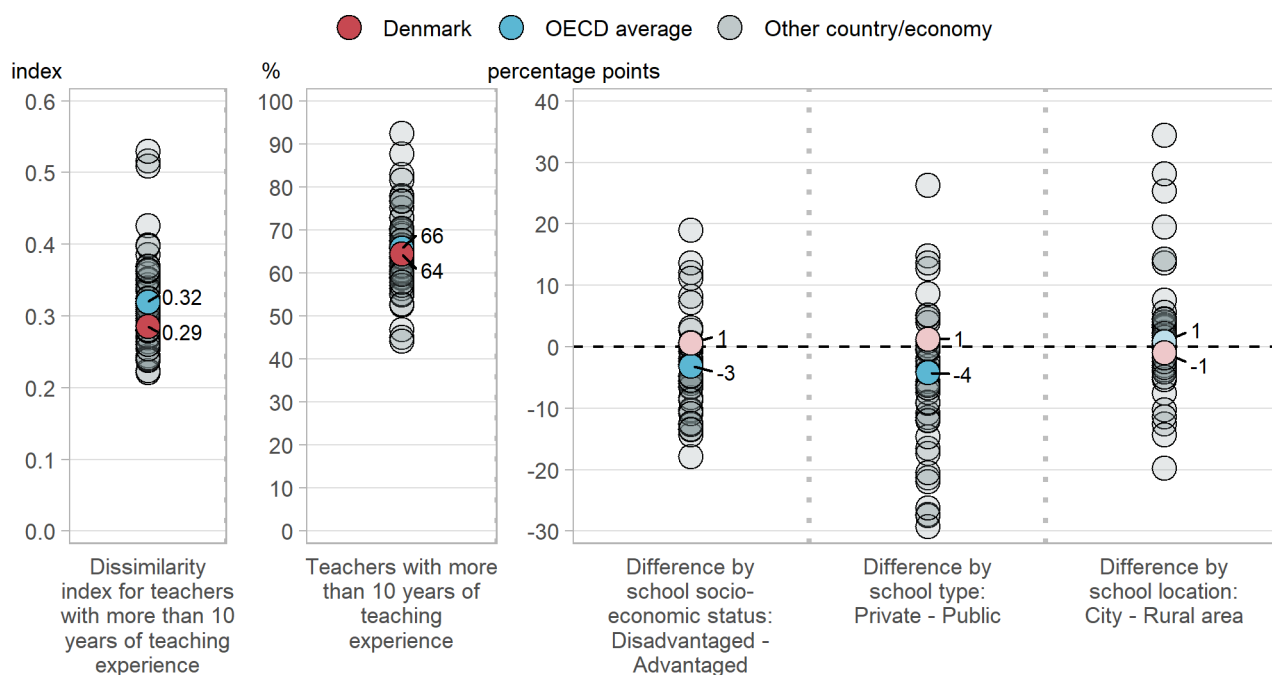
- TALIS covers a range of teacher characteristics and teaching practices that have been shown to be robustly associated with effective teaching and higher student performance. These include years of experience, content of initial education and self-efficacy, the frequency of use of cognitive activation and clarity of instruction practices as well as the time devoted to actual teaching during class. Students taught by different teachers often have very different educational outcomes. This section examines how students with different backgrounds differ in their access to effective teachers and learning environments.

Experienced teachers

- Past research has shown that experienced teachers are on average more effective than their less experienced colleagues in raising the performance of their students. In the TALIS 2018 cycle, 64% of teachers in Denmark had more than 10 years of teaching experience.
- According to system-level correlational analysis, countries and territories that are characterised by a more even distribution of experienced teachers across schools tend to have higher average scores in the PISA reading assessment (reading was the focus domain in PISA 2018). In Denmark, the dissimilarity index for experienced teachers is 0.29, which is not statistically different from the OECD average (0.32). This means that about three in ten experienced teachers would need to change schools (i.e. moving to schools with a lower share of experienced teachers) in order to ensure an equal presence of experienced teachers across schools. Importantly, an uneven allocation of teachers with certain characteristics does not necessarily mean that a school system is inequitable: allocating more experienced teachers to the schools that need them most can be a deliberate policy choice.
- In Denmark, the share of experienced teachers in socio-economically disadvantaged schools (more than 30% of the student body is from socio-economically disadvantaged homes) is not statistically different from what is observed in advantaged schools (10% of the student body or less is from socio-economically disadvantaged homes).
- In Denmark, the share of experienced teachers is not statistically different in private schools from what is observed in public schools.
- As with most TALIS participants, in Denmark the share of experienced teachers is not statistically different between urban schools (those located in cities with over 100 000 inhabitants) and rural schools (those located in rural areas or villages with up to 3 000 inhabitants).

Figure 1. Allocation of experienced teachers

Results based on responses of lower secondary teachers and principals



Notes: Only countries and territories with available data are shown. The dissimilarity index measures if the allocation of teachers with a given characteristic in a country's schools resembles the overall teacher population of the country and it ranges from 0 (i.e. the allocation of teachers in schools resembles perfectly the teacher population of the country) to 1 (i.e. teachers with a certain characteristic are concentrated in a single school). Differences across school types that are not statistically significant are highlighted with lighter colours.

Source: OECD, TALIS 2018 Database, Table 2.3.

Teachers with comprehensive formal education

- TALIS asks teachers about the content of their initial education and training. In the TALIS 2018 cycle, 39% of teachers in Denmark reported to have received a comprehensive initial education, which includes subject content, pedagogy, classroom practices, cross-curricular skills, teaching in a mixed-ability setting and classroom management: this is the same as the OECD average (39%). On average across OECD countries/territories, initial training in cross-curricular skills, teaching in a mixed-ability setting and classroom management tend to be less prevalent than the other types of training.
- As shown by system-level correlational analysis, across countries and territories, the more even the distribution of teachers with comprehensive initial training across schools, the higher students' mean reading score in PISA. In Denmark, the dissimilarity index for comprehensively trained teachers is 0.28, which is not statistically different from the OECD average (0.26).
- As with most TALIS participants, in Denmark there is no statistically significant difference in the share of teachers with comprehensive formal education between disadvantaged and advantaged schools, private and public schools, and urban and rural schools.

Teachers with higher self-efficacy

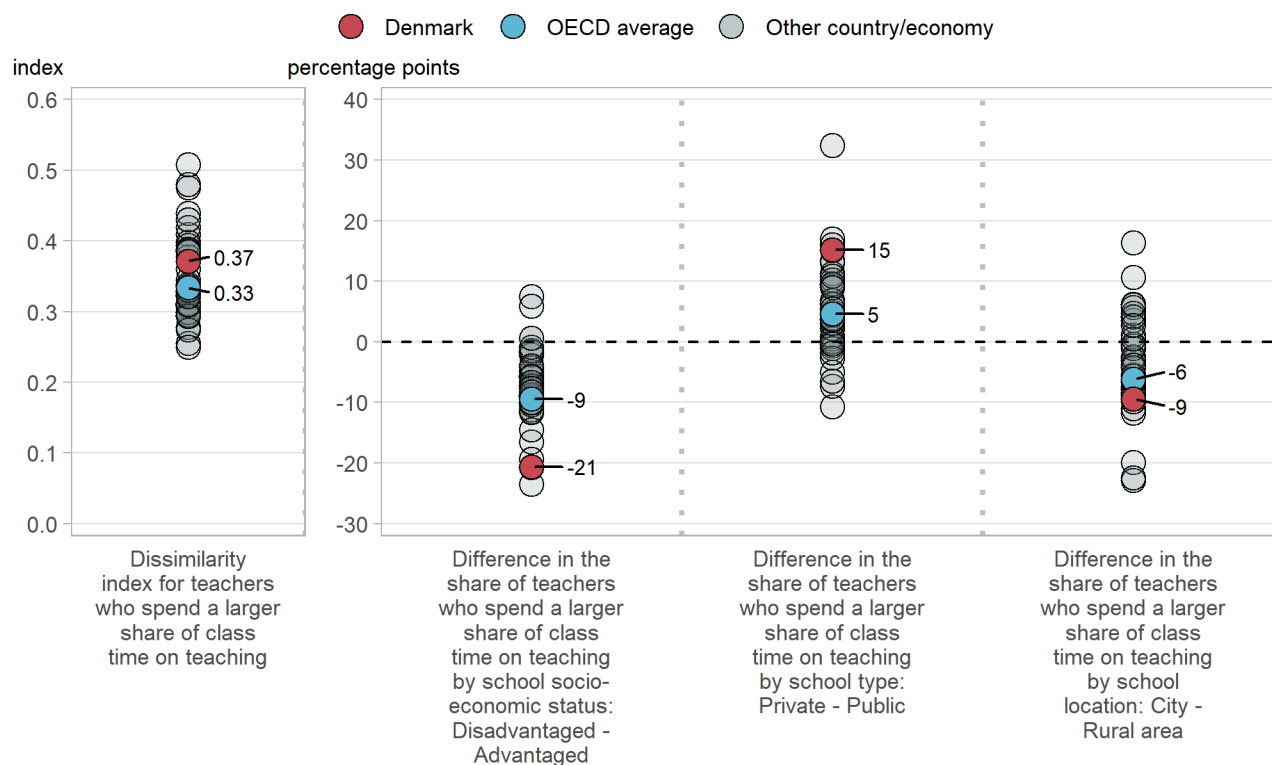
- Research highlights how self-efficacy is positively related to performance in a wide range of settings. Teachers and students are no exception. TALIS elicits teachers' self-efficacy beliefs by asking them to assess their ability to perform well in a range of tasks related to classroom management, instruction, and students' engagement. In Denmark, the dissimilarity index for teachers with higher self-efficacy (defined as those in the top quarter of the national distribution of the self-efficacy scale) is 0.32, which is not statistically different from the OECD average (0.29).

- In the majority of countries and territories participating in TALIS, the share of teachers at the top of the national distribution of the self-efficacy scale is not statistically different across the different types of schools; that is, between disadvantaged and advantaged schools, private and public schools, and urban and rural schools. This is also true in Denmark.

Teachers who allocate a larger share of class time to actual teaching

Figure 2. Allocation of teachers who spend a larger share of class time on actual teaching

Results based on responses of lower secondary teachers and principals



Notes: Only countries and territories with available data are shown. The dissimilarity index measures if the allocation of teachers with a given characteristic in a country's schools resembles the overall teacher population of the country and it ranges from 0 (i.e. the allocation of teachers in schools resembles perfectly the teacher population of the country) to 1 (i.e. teachers with a certain characteristic are concentrated in a single school). Differences across school types that are not statistically significant are highlighted with lighter colours.

Source: OECD, TALIS 2018 Database, Table 2.12.

- Past research has highlighted a positive association between the share of class time teachers devote to teaching and student achievement. The ability of teachers to maximise instruction time is closely related to their ability to maintain order in the classroom. But of course students' attitudes and behaviour also matter as a factor influencing the proportion of time spent on teaching and learning, and are partly outside of teachers' control. TALIS measures the instruction time to which students are exposed by asking teachers how their working time is allocated between different tasks such as administrative tasks, keeping order and actual teaching in a regular weekly class.
- According to system-level correlational analysis, students' average performance in reading is lower in education systems where teachers who spend a larger share of class time on actual teaching are unevenly distributed across schools. In Denmark, the dissimilarity index for teachers who spend a larger share of class time on actual teaching (defined as those in the top quarter of the national

distribution of the share of class time allocated to actual teaching) is 0.37, which is not statistically different from the OECD average (0.33).

- Across TALIS participants, teachers who maximise their students' learning opportunities by spending more time on actual teaching in the classroom tend to be over-represented in socio-economically advantaged schools and private schools. This indirectly confirms that teachers' ability to maximise the time spent on actual teaching and to manage the classroom is likely to be related to the classroom environment, which can be more challenging in certain schools than in others. In Denmark, the share of teachers who spend a larger share of class time on actual teaching is 21 percentage points lower in socio-economically disadvantaged (9%) than in advantaged schools (30%).
- In Denmark, the share of teachers who spend a larger share of class time on actual teaching is 15 percentage points higher in private schools (37%) than in public schools (21%).
- Although differences according to school location tend to be less common, in Denmark the share of teachers who spend a larger share of class time on actual teaching in urban schools is different from what is observed in schools located in rural areas. The share of teachers who spend a larger share of class time on actual teaching is nine percentage points lower in urban schools (18%) than in rural schools (28%).

Teachers who use cognitive activation practices on a more regular basis

- Cognitive activation consists of instructional activities that require students to evaluate, integrate and apply knowledge within the context of problem solving (e.g. presenting tasks for which there is no obvious solution or which require students to think critically, and asking students to decide on their own procedures for solving complex tasks). Past research has shown that the use of cognitive activation is associated with higher student achievement. In Denmark, the dissimilarity index for teachers who rely on cognitive activation practices most often (defined as those who are in the top quarter of the national distribution in terms of the frequency of use of cognitive activation practices) is 0.26, which is not statistically different from the OECD average (0.3).
- As in most countries and territories participating in TALIS, in Denmark there is no statistically significant difference in the share of teachers who rely on cognitive activation practices on a more regular basis between disadvantaged and advantaged schools, private and public schools, and urban and rural schools.

Teachers who use clarity of instruction practices on a more regular basis

- Clarity of instruction is conceptualised in TALIS as the ability to set clear and comprehensive instruction and learning goals, to connect new and old topics, and to provide students with a summary at the end of the lesson. Past studies have shown how this practice is related to positive student outcomes, including learning motivation, achievement and satisfaction. In Denmark, the dissimilarity index for teachers who most often adopt clarity of instruction techniques (defined as those who are in the top quarter of the national distribution in terms of the frequency of use of clarity of instruction practices) is 0.32, which is not statistically different from the OECD average (0.3).
- In Denmark, the share of teachers who more regularly adopt clarity of instruction practices is not statistically different across different types of schools, such as between disadvantaged and advantaged schools, private and public schools, and urban and rural schools.

II. Do students have equitable access to digital learning in school?

- The use of digital technology for teaching and learning can help students acquire digital skills, social-emotional skills and more standard cognitive skills such as numeracy and literacy. While teachers' reliance on ICT has increased considerably in the wake of the COVID-19 pandemic, school closures have also highlighted the continued presence of digital divides. Available evidence shows that learning losses have been the most severe among marginalised students, who tend to have more limited access

to digital learning resources. It is important to note, however, that the data presented in this note were collected in 2017/2018; that is before the outbreak of the COVID-19 pandemic.

ICT equipment in school

- Having adequate ICT equipment at school, such as software, computers, laptops and smart boards, is essential to effective digital learning. In the TALIS 2018 cycle, 13% of principals in Denmark reported that the school's capacity to provide quality instruction was hindered "quite a bit" or "a lot" by a shortage or inadequacy of digital technology for instruction. This is lower than the OECD average (25%).
- On average across OECD countries/territories, the share of principals who reported that the school's capacity to provide quality instruction was hindered by a shortage or inadequacy of digital technology for instruction is higher in socio-economically disadvantaged schools than in advantaged schools (by nine percentage points). Yet, in Denmark there is no statistically significant difference in the share of these principals between disadvantaged and advantaged schools.
- The share of principals who reported that the school's capacity to provide quality instruction was hindered by a shortage or inadequacy of digital technology for instruction is 12 percentage points higher in public schools than in private schools on average across OECD countries/territories. In Denmark, the share of these principals is 19 percentage points lower in private schools (0%) than in public schools (19%).
- On average across OECD countries/territories, there is no statistically significant difference in the share of principals who reported that the school's capacity to provide quality instruction was hindered by a shortage or inadequacy of digital technology for instruction between urban and rural schools. This is also true in Denmark.

Teachers with high self-efficacy in ICT use

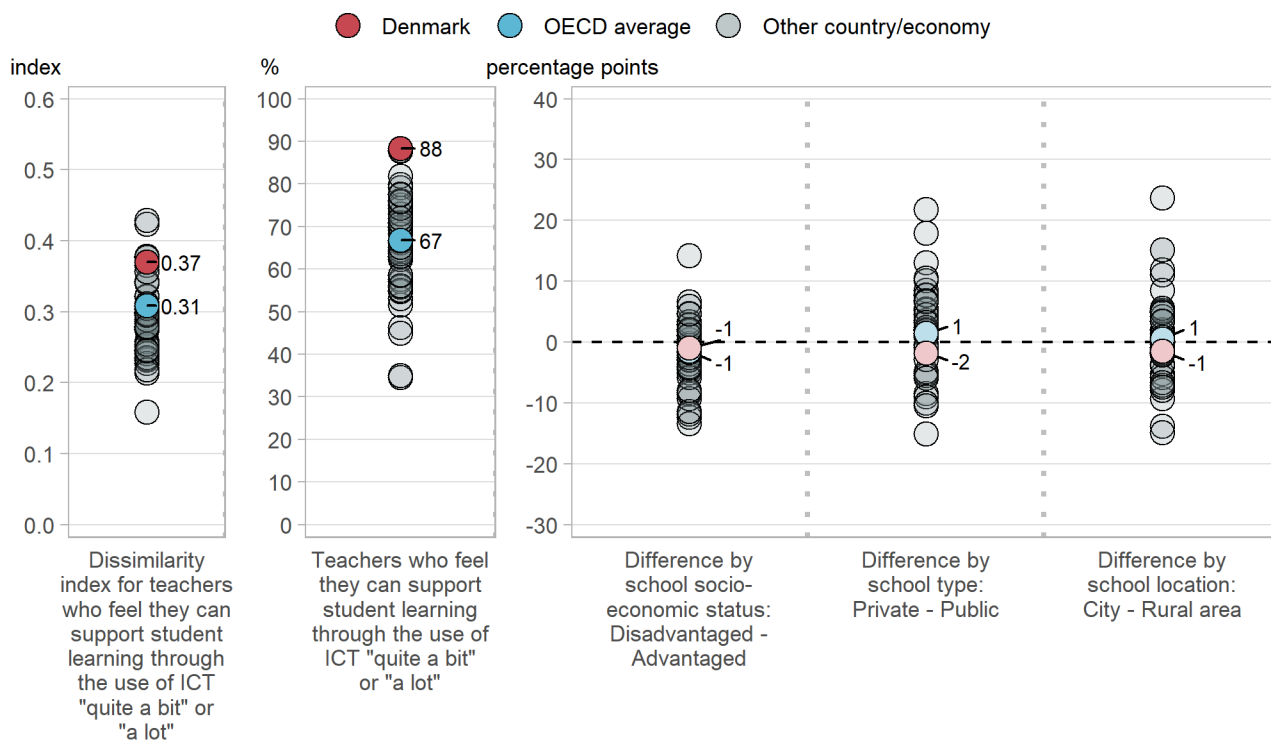
- Having access to technology does not improve student learning in itself. Effective integration of technology into teaching and learning requires teachers who are well trained and able to use digital tools for instruction. In the TALIS 2018 cycle, 88% of teachers in Denmark reported that they could support student learning through the use of digital technology "quite a bit" or "a lot", which is higher than the OECD average (67%).
- The dissimilarity index for these teachers is 0.37, which is higher than the OECD average (0.31). This means that three in eight teachers with high self-efficacy in ICT use would need to change schools (i.e. moving to schools with a lower share of teachers with high self-efficacy in ICT) in order to ensure an equal presence of these teachers across schools. At the same time, it has to be noted that in Denmark a large share of teachers (88%) report high self-efficacy in ICT use. In such cases, the dissimilarity index may not be particularly meaningful as, inevitably, most students will have access to some teachers who feel capable of using digital technology in class. It is also important to acknowledge that self-efficacy is context-specific. Therefore, the same teacher may report a different level of self-efficacy in a different school environment.
- According to system-level correlational analysis, disadvantaged students tend to have just as much or more opportunity to learn digital literacy skills (such as detecting if the information read is subjective or biased) in education systems where teachers with high self-efficacy in ICT and teachers who regularly teach using ICT are more evenly distributed across schools.
- In Denmark, the share of teachers who feel they can support student learning through the use of digital technology "quite a bit" or "a lot" is not statistically different in socio-economically disadvantaged schools than what is observed in advantaged schools.
- The share of teachers with high self-efficacy in the use of digital technology for instruction tends to be higher in private schools than in public schools in almost a quarter of the countries and territories

participating in TALIS. In Denmark, the share of these teachers is not statistically different in private schools from what is observed in public schools.

- Similar to most TALIS participants, in Denmark there is no statistically significant difference in the share of teachers who feel capable of using ICT in class between urban and rural schools.

Figure 3. Allocation of teachers with high self-efficacy in ICT use

Results based on responses of lower secondary teachers and principals



Notes: Only countries and territories with available data are shown. The dissimilarity index measures if the allocation of teachers with a given characteristic in a country's schools resembles the overall teacher population of the country and it ranges from 0 (i.e. the allocation of teachers in schools resembles perfectly the teacher population of the country) to 1 (i.e. teachers with a certain characteristic are concentrated in a single school). Differences across school types that are not statistically significant are highlighted with lighter colours.

Source: OECD, TALIS 2018 Database, Table 3.12.

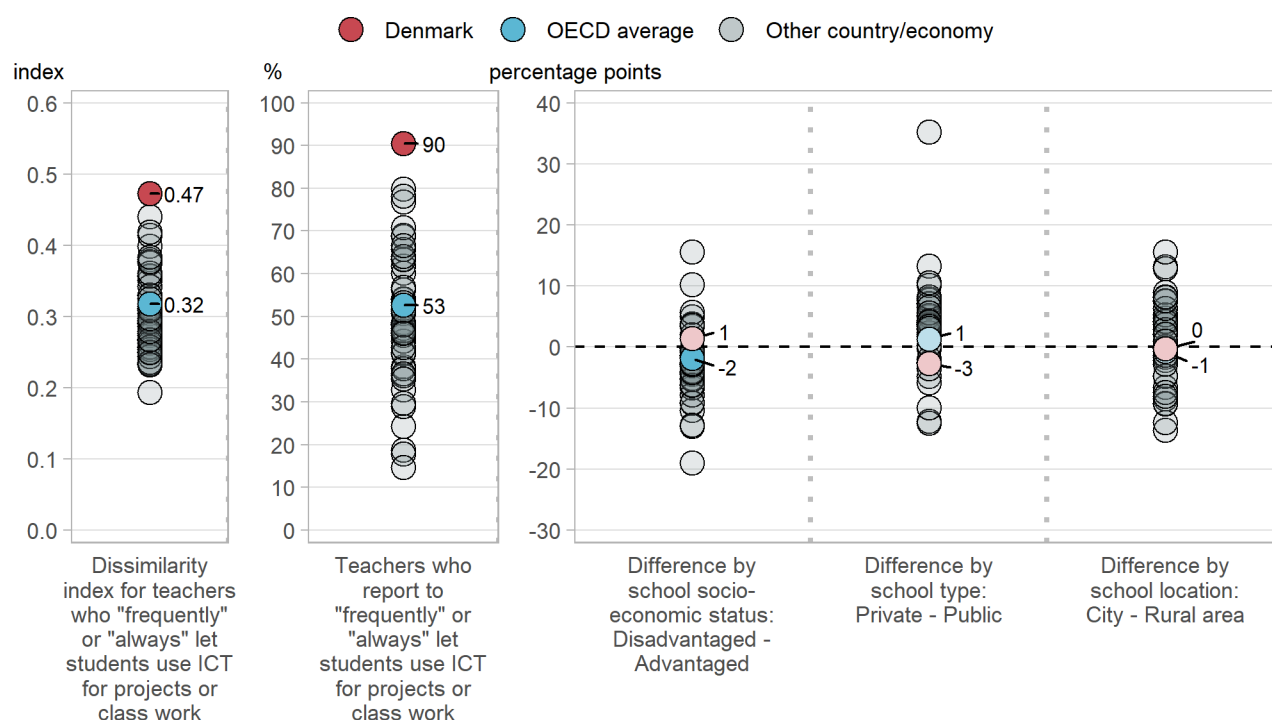
Teachers who use ICT for teaching on a regular basis

- Past research has highlighted a positive relationship between teachers' perceived self-efficacy in ICT and their use of digital technology in the classroom. Although the literature also shows that ICT use at school does not automatically lead to better student outcomes – both too limited and overly excessive use of ICT can be associated with lower student achievement – teachers' and students' ability to make the most of ICT is reinforced by regular and judicious use of digital technology in the classroom. In the TALIS 2018 cycle, 90% of teachers in Denmark reported "frequently" or "always" letting students use ICT for projects or class work, which is higher than the OECD average (53%). The dissimilarity index for these teachers is 0.47, which is higher than the OECD average (0.32). However, as in Denmark the large majority (more than 75%) of teachers reported using ICT for teaching on a regular basis, the uneven distribution of these teachers, as indicated by the dissimilarity index, should be less of a concern. In Denmark, most schools have teachers who frequently use ICT for teaching.
- As with most TALIS participants, in Denmark the share of teachers who regularly use ICT in class is not statistically different between socio-economically disadvantaged and advantaged schools.

- In almost a quarter of the education systems participating in TALIS, the share of teachers who “frequently” or “always” let students use ICT for projects or class work tends to be higher in private schools than in public schools. Yet, in Denmark there is no statistically significant difference in the share of teachers who regularly use ICT in class between private and public schools.
- As with most TALIS participants, in Denmark there is no statistically significant difference in the share of teachers who regularly use ICT for teaching between urban and rural schools.

Figure 4. Allocation of teachers who regularly use ICT for teaching

Results based on responses of lower secondary teachers and principals



Notes: Only countries and territories with available data are shown. The dissimilarity index measures if the allocation of teachers with a given characteristic in a country's schools resembles the overall teacher population of the country and it ranges from 0 (i.e. the allocation of teachers in schools resembles perfectly the teacher population of the country) to 1 (i.e. teachers with a certain characteristic are concentrated in a single school). Differences across school types that are not statistically significant are highlighted with lighter colours.

Source: OECD, TALIS 2018 Database, Table 3.15.

Key features of TALIS 2018

TALIS uses questionnaires administered to teachers and their school principals to gather data. Its main goal is to generate internationally comparable information relevant to developing and implementing policies focused on school leaders, teachers and teaching, with an emphasis on those aspects that affect student learning. It gives a voice to teachers and school leaders, allowing them to provide input into educational policy analysis and development in key areas.

- The international target population for TALIS is composed of lower secondary teachers and their school leaders in mainstream public and private schools. TALIS 2018 offered three additional options: 15 countries and territories, including Denmark, also surveyed teachers and school leaders in their primary schools (ISCED level 1), 11 countries and territories, including Denmark, did so in their upper secondary schools (ISCED level 3) and 9 countries and territories, including Denmark, conducted the

survey in schools that participated in the 2018 OECD Programme for International Student Assessment (PISA).

- Building on literature identifying the characteristics and practices of teaching that boost student achievement, the report *Mending the Education Divide: Getting Strong Teachers to the Schools That Need Them Most*, published on 14 March 2022, shows how teachers with different characteristics and practices tend to concentrate in different schools, and how much access students with different socio-economic backgrounds have to strong teachers. It points out the aspects of different educational systems that influence how teachers are allocated to schools. The report also discusses the consequences that inequitable teacher allocation systems have on students' educational outcomes.
- The dissimilarity index captures to what extent the distribution of teachers belonging to different groups departs from what would be observed if teachers were allocated across schools in a perfectly random way. This index (commonly used as a measure of segregation) is related to the proportions of teachers of either one of two groups that have to be displaced in order to achieve a perfectly even distribution, i.e. a situation where the shares of teachers of different types in each school equal the shares observed in the overall population. The dissimilarity index can identify the teacher characteristics and practices along which teachers tend to sort across schools and highlight overall imbalances in teacher allocation. Randomly assigning teachers to schools, however, may not help in addressing concerns related to equity.
- All results presented in this country note can be found in the report *Mending the Education Divide: Getting Strong Teachers to the Schools That Need Them Most*. The sources of the data for Section I are: Tables 2.3, 2.5, 2.6, 2.8, 2.10, 2.12 and 4.1; for Section II are: Tables 3.3, 3.4, 3.12, 3.15 and 4.2.
- Estimates for differences across school types may be missing for various reasons: the question referring to the school type was not administered; there are too few or no observations to provide reliable estimates and/or to ensure the confidentiality of respondents; or the data referring to the school type were withdrawn or were not collected at the request of the country concerned.
- The production of the country notes has been automatised in R software following syntaxes developed by Markus Schwabe.


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References

OECD (2022), *Mending the Education Divide: Getting Strong Teachers to the Schools That Need Them Most*, TALIS, OECD Publishing, Paris, <https://doi.org/10.1787/92b75874-en>.

For more information on TALIS 2018 visit <http://www.oecd.org/education/talis/>

Data can be found also on line by following the **StatLinks**  under the tables and charts in the publication.

Explore, compare and visualise more data and analysis using: <http://gpseducation.oecd.org/>.

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¹ It is important to note, however, that the relevance of the public-private divide varies across countries/territories. The share of private schools is very low in certain countries/territories. In TALIS, a privately managed school is a school whose principal reported that it is managed by a non-governmental organisation. In some countries/territories, the privately managed schools category includes schools that receive significant funding from the government. A publicly managed school is a school whose principal reported that it is managed by a public education authority, government agency, municipality, or governing board appointed by the government or elected by public franchise.