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Finnish students' success in PISA studies

Abstract

The paper highlights central Finnish findings of the students' performances in all the domains in PISA 2000, 2003 and 2006 studies and discusses reasons behind success. In each study, Finnish students' achievement has been among the best both in terms of the mean level of attainment and in terms of student variance. This indicates that the Finnish comprehensive school yields high achievement in reading, mathematical and scientific literacy and has also successfully met the objectives of educational equity. These equity issues seem to have been achieved between different regions and language groups in the country. However, although the gender differences in mathematics and science performance have been very small, in reading literacy the gender difference has been among the largest in studied countries. PISA studies and their respective results have been discussed more thoroughly in a number of national and international reports (e.g. Kupari & Välijärvi 2005; Kupiainen et al., 2009; OECD 2001, 2004, 2007b; Välijärvi & Linnakylä, 2002; Välijärvi et al., 2003, 2007; Hautamäki et al., 2008).

PISA studies

The PISA programme aims at assessing young people's skills, knowledge and competencies from the perspective of future learning demands. PISA assesses 15-year-olds' performance in three main domains: reading literacy, mathematical literacy and scientific literacy. PISA surveys are conducted every three years with alternating prime domains.

PISA puts emphasis on the application of knowledge in different contexts in real-life situations that call for understanding, reflection and argumentation. This requires, of course, also basic competence with reference to facts, terminology, and concepts as well as computational and problem solving methods. Literacy is defined in the PISA framework as an important skill for every citizen's life. It highlights a student's own role in active acquisition and communication of knowledge. This also emphasizes a critical approach to information so that a distinction is made between opinions and statements based on evidence. (OECD, 2007a)

Finnish results

The most prominent feature of Finnish students' performance in PISA is its recurrently high level combined with small variance. This can be seen in the distribution of Finnish students through the proficiency levels, with a relatively small share of students at the lowest levels and a sizeable one at the two uppermost levels (Figure 1). However, the percentage of the topmost-performers has remained relatively low with regard to the high overall standard. Thus the high Finnish mean scores in every PISA studies have more or less been caused by the extremely high level performance of the weakest students in all the PISA domains (Figure 2). The Finnish system has been quite successful in supporting the learning of weaker students. However, in the future we have the challenge to help more top performers to use their full potential.

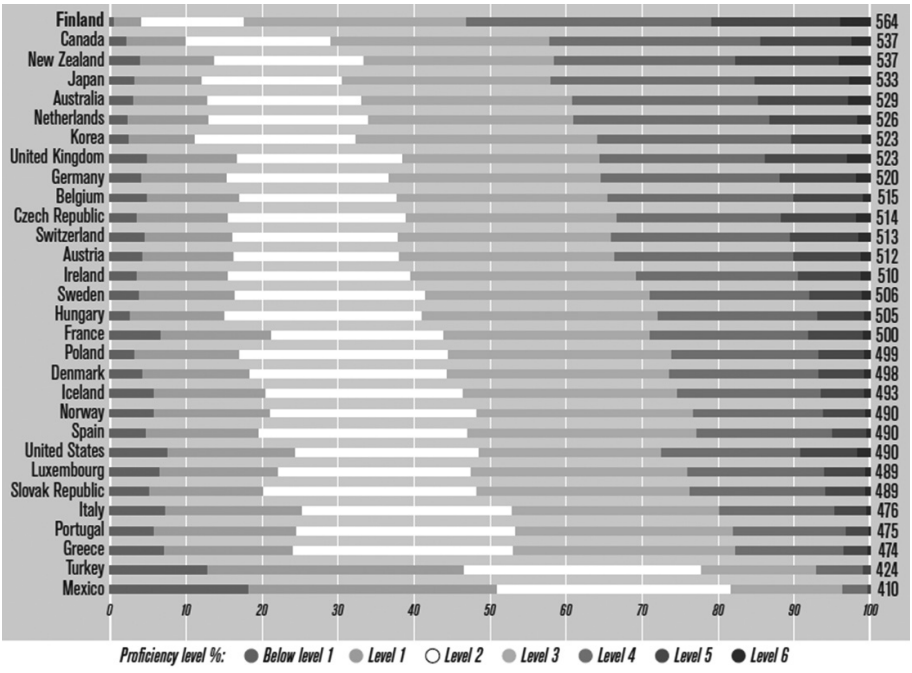

Figure 1 OECD countries' mean scores and distribution of students in proficiency levels in science - PISA 2005. (Kupiainen et al. 2009)

The small student level variance reflects also the very small between-school variance (less than 10 percent of the total variation), indicating the low impact students' social or economic background has on their performance. Yet, the socio-economic background is connected to student achievement in Finland, as well, but in every PISA this connection has been among the weakest of studied countries. Equity also seems to have been achieved largely between different regions and language groups in the country. Regional differences as well as those

between urban and rural areas have been very small. This means that Finnish schools provide education quite equally and the variation in performance stems mostly from the students' individual differences.

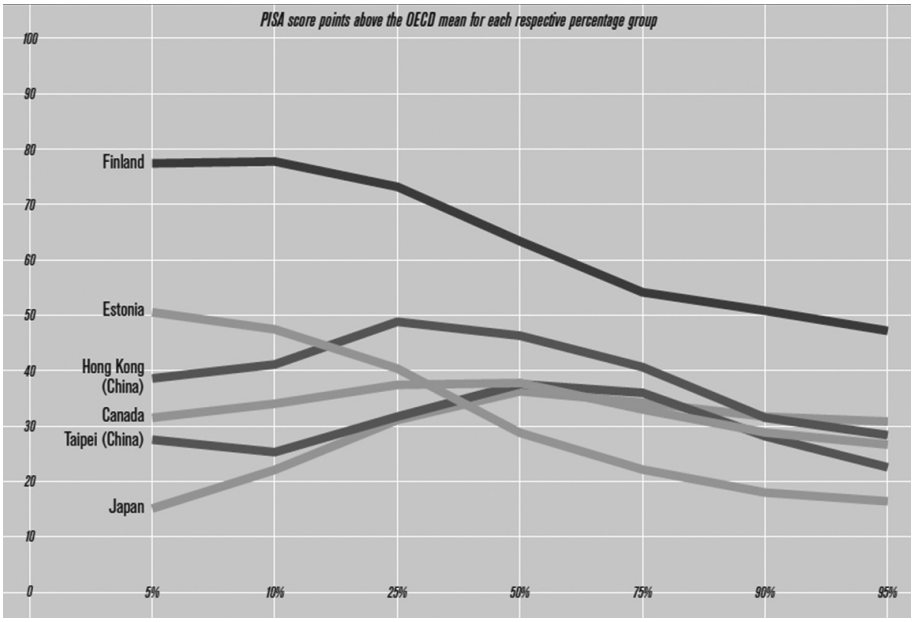

Figure 2 Science achievement profiles for the six top performing countries in PISA 2006. (Kupiainen et al. 2009)

However, there is another side of the coin as well. Firstly, whereas in mathematics and science performance the gender difference has been very small, there seems to be a chronic and very large gender difference in reading favoring girls. Somehow this large cab between favoring girls has not been seen as an alarming result, since Finnish boys are the topmost readers in the world. However, if this difference would have been in opposite way, without no doubt, great changes would have been made in Finnish education system to raise reading performance of the girls. Now only some test programs have been started in Finland to increase boys' performance in reading literacy.

Secondly, while Finnish students have performed among the top in PISA for three times in a row in all domains, they have regularly come out in international studies as less interested and less motivated than students in most other countries, and have sometimes even been interpreted as just "not liking school". The apparent paradox of these non-motivated high-performers does not get support from correlational analyses at the national level where questionnaire data and students' performance indicate a clear connection between the two (Kupiainen et al. 2009). However, there seems to be research based evidence that especially these indicators dealing with liking, motivation and interest are culturally biased (e.g. Kyriakides, 2006; Ramírez, 2004; Reinikainen, 2007; Shen, 2006; Shen & Talavera, 2003).

Shen (2006) wrote that one possible explanation for the poor student achievement in mathematics and science in the low performing countries is the low academics standards and unchallenging programmes of their school systems. Countries with demanding curricula and high standards are more likely to produce students with high academic achievement levels.

Reasons behind the Finnish success

Extensive network of schools matters. In Finland there is an extensive network of schools. Schools have been able to recruit highly qualified teachers. This ensures high educational quality and equality in all Finland. It has been thus of little consequence where students live and which school they go to. The opportunities to learn are virtually the same all over the country.

Heterogeneous groups matter. An important part of the explanation lies in the fact that comprehensive school pedagogy differs considerably from the pedagogy applied in parallel systems, characterized by explicit tracking and streaming. Heterogeneous groups, for instance, necessitate highly educated teachers, genuine experts in pedagogy. This is largely because in comprehensive systems, the task of the teacher consists in taking care of every single student and allowing, in everyday school work, for a diverse student body. Heterogeneous grouping appears to be of the greatest benefit to the weakest students; the performance of the best students, in contrast, seems to remain virtually the same irrespective of how the groups are formed.

Special education matters. To meet the policy of non-repeating, Finnish schools are obliged to provide special support to all students who are not able to follow and profit from regular classroom teaching. Special education is usually closely integrated into normal teaching and is highly inclusive by nature. Indeed, only about two per cent of students attend separate special education institutions. In practice, a student with problems in a certain subject or subjects typically has the opportunity of studying once or twice a week in a small group of 2–5 students or even individually with a special teacher.

Small class size matters. The results of PISA show also that in Finland the average number of students in study groups is among the smallest in the OECD (18 pupils). Nonetheless, Finnish teachers are constantly worried about what they consider too large group sizes, finding it demanding to look after the individual needs of different students.

The quality of teachers matters. In Finnish culture, the profession of teacher has been seen as one of the most important professions of society, and a lot of resources have consequently been invested in teacher education. Teachers have also been trusted to do their best as true professionals of education. From this it has followed that Finnish teachers have been entrusted with considerable pedagogical independency in the classroom and that schools have likewise enjoyed substantial autonomy in organizing their work within the limits of the national core curriculum. Finnish teachers have also almost exclusive responsibility for the

choice of textbooks. They also have more say than their colleagues in the OCED in determining course content, establishing student assessment policies, deciding which courses the school should offer and allocating budgets within the school.

All Finnish teachers, to start with, have to complete a master's degree either in education or in one or two teaching subjects. Additionally, the teacher's profession, especially of the class teacher, is greatly valued and popular among Finnish post-secondary students. Of all the applicants for this programme, only 20 per cent are admitted, which implies that those accepted are highly motivated and multi-talented students with excellent academic skills.

Curriculum matters. Until the 1990s, the Finnish national core curriculum used to be strict and detailed – the structure, organization, content, resources and methods of the comprehensive school all established in the curriculum – and textbooks meticulously controlled, the goal being high educational consistency across schools and classrooms. A profound change in curricular philosophy and practice, however, took place in the early 1990s. The national curriculum underwent reorganization, whereby it became more flexible, decentralized and less detailed. According to Lavonen (2008) PISA Framework (OECD 2007a) and the Finnish curricular documents and Finnish text-books bare also remarkable resemblance.

Cultural homogeneity matters. In the long term, the development of the Finnish comprehensive school has been underpinned by an exceptionally broad cultural and political consensus about the main lines of national education policy. In Finnish culture, grave political conflicts and sudden changes in educational thinking have been relatively rare.

Minorities matter. As a culturally homogeneous country, Finland has further been exemplary in taking care of its minorities. In Finland there are two official languages, Finnish (94 per cent of the inhabitants) and Swedish (6 per cent). Both of these language groups are equally entitled to and have equal resources for education in their own language from the pre-primary level up to the university level. As a matter of fact, the Swedish speakers have even better resources at the university level. Every Swedish speaking upper secondary school graduate has a place to study at the university whereas Finnish speakers have to compete for their places. There are relatively few and small other minorities in Finland.

Students test taking motivation matters. Finnish schools and pupils have reacted positively to participation in PISA. Finnish students clearly seem to be ready to apply their best knowledge, skills and perseverance in the PISA tasks. For example the percentage of missing responses in PISA 2006 for the different domains in Finland at 3 % to 6 % compared to the OECD means of 8 % to 15 % (Kupiainen et al., 2009). It seems that Finnish students are proud to represent their country in PISA study. Also the knowledge of the high result of former PISA studies seems to have motivated students to do their very best in the latter PISA studies.

Language and reading skills matters. The Finnish language and the central role of reading in daily life are factors which have been often brought up when looking for explanations for Finnish students' fine performance in comparative studies on reading literacy or comprehension (Välijärvi & Linnakylä, 2002). The phonetic character of Finnish language makes decoding easy, and beyond the lower grades, dictation is common only in foreign language classes. As it is, after children learn to decode the language which 'is spelled as it is pronounced', they soon learn to be ever more fluent readers due to the subtitling of all foreign language TV-programs and films. In Finland, there is also a very well-functioning network of free libraries. (Kupiainen et al., 2009)

There are many factors behind the success. All in all, the results of PISA suggest that there is no single key factor behind Finland's successful performance in PISA. Rather, Finland's high achievement seems to be attributable to a whole network of interrelated factors, in which students' own areas of interest and leisure activities, the learning opportunities provided by schools, parental support and involvement as well as the social and cultural context of learning and of the entire education system combine with each other. The above factors aside, mention should also be made of certain basic services that are well tended by the Finnish comprehensive school, such as offering free warm meals and school health services to all students and providing social, psychological and pedagogical support to students with special needs. All these factors help to even out variation in learning outcomes among students with divergent family backgrounds and individual skills.

Conclusion

The outstanding success of Finnish students in PISA has been a great joy but at the same time a somewhat puzzling experience to all those responsible for and making decisions about education in Finland. At a single stroke, PISA has transformed our conceptions of the quality of the work done at our comprehensive school and of the foundations it has laid for Finland's future civilization and development of knowledge. Traditionally, we have been used to thinking that the models for educational reforms have to be taken from abroad. This sudden change in role from a country following the example of others to one serving as a model for others reforming school has prompted us to recognize and think seriously about the special characteristics and strengths of our comprehensive school.

The good results of Finnish students should be taken as recognition to the high quality of Finnish schools and especially to the students and teachers working at these schools on a daily basis. The results give further support to the notion that a high average performance can be achieved by taking equally care of learning across the whole age cohort. The high overall standard of our education in the comprehensive school is an asset that allows providing support for the low achievers while also motivating the top performers to use their potential to the full. This kind of positive thinking building on our own strengths provides

a good basis for the development education that aims at even better achievements. Once we find better solutions for these development targets, we can expect even more positive results both in national and in international assessments in the future.

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