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School Tracking: Diverse Mechanisms, Effects and Policy Responses

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Editorial

In many developed countries students encounter curricular differentiation and are sorted into groups, classes and schools as they progress through the educational system. This sorting, commonly referred to as ‘tracking’ (or sometimes also referred to as ‘ability-grouping’ or ‘streaming’), is widely based on some kind of indicators of students’ intellectual ability (be it some measure of student ability – e.g. IQ tests, subject-matter tests – or its estimation – e.g. evaluation by teachers). Tracking has been the centre of educational debates for many years, mainly the impact of tracking on students’ achievement and on educational inequalities. Although the ‘tracking discourse’ is international, we have to bear in mind that the forms of tracking differ from nation to nation and its characteristics do evolve over time.

Comparative analyses of tracking mechanisms between nations are scarce (even though its importance is highlighted – e.g. Kerckhoff, 2001 – one of three important characteristics for comparing educational systems is stratification, referring to tracking), but among the few, LeTendre, Hofer & Schimizu (2003) compare tracking practices in the United States, Germany and Japan and have identified five distinct types of tracking. While Germany applied the curricular differentiation by school type (Type 1 in their typology) in lower-secondary as well as upper-secondary education, Japan sorted students into various types of schools only at the high school level, and in the US, differentiation into different types of schools was not used neither in lower- nor in upper-secondary education. The most common ways of differentiating students in the US, as well as in many other nations with comprehensive school systems, takes place within individual schools.

Recently following the LeTendre typology simplified in three main categories – between-school tracking, within-school tracking and course-by-course streaming – Chmielewski, Dumont, & Trautwein (2013) using PISA data and comparing education systems around the world showed that different types of school tracking might have different effects on student outcomes. In their study they documented different effects of tracking types on students’ mathematics self-concept. The available evidence to date on the effects of tracking on overall student achievement seems to be ambiguous. One of the reasons could also be that the effects differ by type of tracking and its concrete implementation. Therefore, it is important to study both elements: the effects of tracking at the national level, as well as the development of the educational structures and mechanisms of tracking. The topical papers of this

6 special issue thus provide two single country studies explaining the mechanisms of tracking in Germany and Australia and one paper that documents inequality related to tracking in the Czech Republic.

The first study, by *Michael Becker, Marko Neumann and Hanna Dumont*, analyses the recent development of tracking practices in Germany. They argue that Germany is typically perceived as a prototypical example of between-school tracking, as also referred to in the paper of LeTendre and his colleagues. However, due to the criticism of tracking and implementation of de-tracking reforms, the school structure is much more diverse now and all three forms of tracking analysed by Chmielewski et al. (2013) are simultaneously present in Germany. Even though the paper is a single country study seen from an international point of view, it is a truly comparative work as authors analyse the differences between 16 German states and provide a typology of these states with respect to school structures. Also, the results of numerous German studies, including longitudinal studies, assessing the effects of different types of tracking, are presented in this paper and the need for further data and analyses is well perceived by the authors.

In the second paper, *Laura B. Perry and Stephen Lamb* analyse the curricular differentiation in Australia using the original typology of five types of tracking proposed by LeTendre et al. (2003). Beyond this analytical approach, they refer to research from the Australian context, which highlighted that even in course-by-course tracking inequality is highly present and students from low SES background are less likely to study the most advanced subject offerings. Their text highlights an important message: even in typical course-by-course streaming, there may be systemic, but less visible and clear differences between schools. High SES schools provide typically more advanced courses and in this way the choice of school in line with differentiated curricula provided even on a course-by-course basis may result in more systemic inequalities between schools and in limited access to advanced curricula for some low SES students.

The last paper in the topical part of this issue written by *Tomáš Katrňák and Natalie Simonová* analyses the trends in educational fluidity after the fall of socialism in the Czech Republic. It is well recognized that the structure of upper-secondary schooling in the Czech Republic is traditionally highly diversified (under socialism as well as nowadays) and between-school tracking is widely used, offering different credentials and certificates which has an effect on the social status of individuals compared to their parents. Even though the structure of upper-secondary schooling has basically remained the same, the higher tracks providing the upper-secondary leaving certificate (*maturita*) have had higher student intakes since 1989 and also access to university was guaranteed to more students. However, the view that the socialist education system provided greater equal opportunities is tested by the authors and the answer is provided based on the analyses of several datasets. Their findings also highlight the importance of inequalities, showing that the vast majority of children of parents from the lowest social classes are the ones achieving the same low education as their parents. Even though the authors do not document particular

effects of tracks on inequalities, qualitative research in the Czech Republic has highlighted the issues linked to the reproduction of inequalities and the role of tracking in upper-secondary schools.

The final part of the topical issue is represented by an interview with Professor *Adam Gamoran* about tracking and its effects. Summarising the research findings and discussing the de-tracking reform in the USA and many examples of research effects of various forms of tracking, it echoes well with the first two topical papers of this issue and we highly recommend that readers read this interview.

Beyond the topical section, this issue also includes a paper written by *Anna Janovská, Olga Orosová, Jozef Janovský* about head teacher's social support, personality variables and subjective well-being of Slovak primary teachers as well as a conference report from the XVI World Congress of Comparative Education Societies in Beijing.

David Greger

References

- Chmielewski, A. K., Dumont, H. Trautwein, U. (2013). Tracking effects depend on tracking type: An international comparison of students' mathematics self-concept. *American Educational Research Journal*, 50, 925–957.
- Kerckhoff, A. C. (2001). Education and social stratification processes in comparative perspective. *Sociology of Education Extra Issue*, 74, 3–18.
- LeTendre, G. K., Hofer, B. K., & Shimizu, H. (2003). What is tracking? Cultural expectations in the United States, Germany and Japan. *American Educational Research Journal*, 40(1), 43–89.

Recent Developments in School Tracking Practices in Germany: An Overview and Outlook on Future Trends

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Abstract: Grouping students into different learning groups according to their achievement levels, often referred to as ability grouping or tracking, is an almost universal feature of secondary school structures. Explicit school tracking, i.e., providing different school types according to different levels of ability, is one way to implement ability grouping in school systems. Germany is still considered the prototypical example of explicit school tracking, often in reference to its three-tier structure. However, many are unaware that this structure is hardly present anymore. In recent decades, tracking practices in secondary school structures have been subject to substantial discussion and changes in Germany. As a result, several German states (*Länder*) have changed their tracking practices and now differ in the extent to which they implement explicit tracking. The article gives an overview of the specific structures of and changes in tracking practices and explores how the system in Germany can be described, both historically and currently. It also gives an outlook on the political and educational implications of these changes.

Keywords: secondary schools, school structure, ability grouping, school tracking, de-tracking reform

Most education systems, particularly at the secondary level, group students according to their achievement levels (a practice also known as ability grouping, tracking, or streaming; Chmielewski, Dumont, & Trautwein, 2013; Ireson & Hallam, 2001; LeTendre, Hofer, & Shimizu, 2003). Even elementary schools use strategies to divide students into learning groups (e.g., Hallam, Ireson, Lister, Chaudhury, & Davies, 2003). Yet, even if these measures are a central element in secondary education almost universally, they are also universally debated, both in terms of their general effectiveness and the extent to which ability grouping and tracking – in particular in the most rigid form, which involves grouping students into different school types – contribute to social inequality and achievement heterogeneity (Gamoran, 1992; Hattie, 2002; Lucas, 1999; Maaz, Trautwein, Lüdtke, & Baumert, 2008; Schofield, 2010).

In the international debates about tracking, the German case features prominently in comparative analyses as Germany is thought to have a very rigid form of explicit school tracking. This “classical” structure of tracking involves dividing students into three different secondary school tracks very early on (after 4th grade), with each track leading to a different type of school-leaving certificate (Maaz et al., 2008; Neumann, Maaz, & Becker, 2013). However, this picture is no longer up to date, and it is even debatable whether this classical tripartite system ever truly

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10 existed. This is because, in Germany, education is a state and not a federal matter, and due to this traditional regional sovereignty, there has never been *one* German educational system but at least 16 variations with differing degrees of similarity (Baumert, Cortina, & Leschinsky, 2008; Herrlitz, Hopf, Titze, & Cloer, 2008). Today, it is still true that students are divided into secondary school tracks in all German states. However, the prototype of a three-tier track system, involving a lower, intermediate, and academic track (*Hauptschule*, *Realschule*, and *Gymnasium*) that lead to corresponding school-leaving certificates, no longer exists in its pure form in any German state. Recent research has postulated a trend towards a two-paths-system (*Zwei-Wege-Modell*; cf. Hurrelmann, 2007, 2013). But even if this applies, there is still great heterogeneity among the various states and their development. There exists everything from a two-tier system to a six-tier system, and according to recent documents from German educational ministries, there are 17 different secondary school types (KMK – Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland, 2012). The only secondary school type that all federal states offer is the high-ability or academic track, i.e., *Gymnasium*. This situation has come about due to historical developments and more recent educational reform trends, which we will outline in this article.

In the following article, we will give an overview of the German tracking system, identify trends towards change in the tracking system, and suggest reasons for this. We will focus on tracking in the lower secondary school system (i.e., from 5th to 10th grade). Therefore, the first part will explicate terminology and theory, elaborate on the general assumptions of the debate on ability grouping and tracking, and discuss how to categorize the German situation in the international context. Then we will describe the historical and current setup of tracking in Germany. We will also give some insights into the drivers and current state of school structures and their reforms in Germany and how to systematize the current diversity. We will give an outlook on the recent momentum of de-tracking reforms.

1 Types and effects of ability grouping and school tracking

Ability grouping may take various forms, but it seems to be an almost universal feature of secondary schooling (Chmielewski et al., 2013; Ireson & Hallam, 2001; LeTendre et al., 2003) – following the basic idea that optimal instruction is facilitated when the ability level of students is more homogenous (Baumert, Stanat, & Watermann, 2006; Hattie, 2002). The German form of ability grouping involves a tracking system that groups students into separate school types according to different ability levels. This is often labeled as explicit *between-school* tracking (or *between-school streaming*) and is considered the most rigid form of ability grouping, as it separates students into different schools. Other common forms of ability grouping place students within one school into different streams. This can take the

form of grouping students across all subjects into the same learning group (usually referred to as *within-school* tracking or streaming), or, it can take a weaker form, involving grouping students within schools into subject-specific learning groups, but with learning groups varying from subject to subject (also labeled as *course-by-course* tracking or setting). In Germany in recent times, all three forms of tracking have existed simultaneously: As mentioned above, all 16 states practice an explicit form of student tracking according to different ability levels into different school types. These types differ in their features: in how or to what extent they implement within-school tracking or course-by-course tracking.

The question of whether and to what extent these different tracking practices are effective has been a matter of intense debate (Hattie, 2002; Ireson & Hallam, 2001; Lucas, 1999; Schofield, 2006). On the one hand, Hattie (2002, 2009) showed in his meta-analysis that the average effect of ability grouping on student achievement is rather low, with $d = 0.05$. If there is any benefit to ability grouping at all, it appears to be accrued by higher-ability students rather than lower-achieving students, who may learn better in mixed-ability groups. On the other hand, Schofield (2006, 2010) pointed out that ability grouping cannot be considered as an isolated factor, as it typically goes hand in hand with entirely different curricula (similarly, Hallinan & Kubitschek, 1999), and effects seem to be, indeed, even more heterogeneous when ability grouping is associated with variations in curricula (Gamoran & Berends, 1987; Gamoran & Mare, 1989; Hoffer, 1992; Oakes, 1985). Empirically, there is support for the idea that various forms of ability grouping may have less of an effect on average achievement but increase the variance (e.g. Hanushek & Wößmann, 2006).

In Germany, there is evidence indicating that achievement gains differ between tracks (or school types) even when students' individual prior achievements and family backgrounds are accounted for (Becker, Lüdtke, Trautwein, Köller, & Baumert, 2012; Köller & Baumert, 2001; Retelsdorf, Becker, & Möller, 2011). Accordingly, tracks may be understood as differential learning environments within the secondary school system, offering students different opportunities to develop their abilities (Baumert et al., 2006; Trautwein, Dumont, & Dicke, 2015). Yet, the scientific debate on the consequences of tracking is inconclusive on many levels. In particular, in the case of Germany, it has become a prominent field of empirical research. However the empirical evidence is still mixed. For example, many studies have limited internal validity (Becker, 2009), and the size and direction of effects are rather domain dependent and may depend on types of ability grouping (e.g., Becker, 2009; Chmielewski et al., 2013; Dumont, Protsch, Jansen, & Becker, 2017). In the case of Germany, there are relatively few longitudinal studies with a higher internal validity. However, these studies suggest that the more academically oriented tracks foster higher learning. That holds more or less consistently for subjects like mathematics and English as a foreign language but far less so for reading skills. Additionally, the clarity of this pattern seems to depend on grade level (for an overview see, e.g., Becker, 2009). In contrast, for psychosocial constructs such as academic self-concept and interest, the opposite pattern was found, meaning that the academically oriented tracks seem to

12 have a negative impact on development and the more vocationally oriented tracks seem to foster more positive development. In these constructs, the specific effect pattern appears to be moderated by the specific school structures (mainly the presence of further within-school streaming; cf. Chmielewski et al., 2013) and the very specific psychosocial construct under consideration (Becker et al., 2014; Dumont et al., 2017; Knoppick, Becker, Neumann, Maaz, & Baumert, 2015). Additionally, recent research has highlighted that some of the effects, at least for psychosocial outcomes, were less bound to type of track than to the school-leaving certificates that students attained – and this was fairly independent of school track (Dumont et al., 2017).

In a similar vein, the practice of between-school tracking has been criticized from a social reproduction perspective, because transition processes from primary to secondary schools are not influenced only by ability. Track assignment in Germany is largely based on achievement, but beyond achievement, social class and also ethnicity also play a role in these transition processes, one that is much less important than achievement, but also not negligible (Dumont, Maaz, Neumann, & Becker, 2014; Maaz et al., 2008). Additionally, students' predominant form of between-track mobility is downward, meaning that they leave the more academically oriented tracks, due to insufficient achievement, and join the more vocationally oriented tracks, and this again has a socially selective component (Bellenberg, 2012; Cortina, 2003).

On the other side, during the last decades a system evolved in which a student can continue his or her education and, for example, attain a university entrance certificate even though he or she may have originally decided against an academic track at the transition from primary into secondary school (sometimes labeled vertical permeability; Köller, Baumert, Cortina, Trautwein, & Watermann, 2004; Köller, Baumert, & Schnabel, 1999; Maaz et al., 2008; Trautwein, Nagy, & Maaz, 2011; see also below). Because of these manifold, partly contradictory aspects the long-term consequences of school track decisions for students' overall academic careers and life courses are only partly understood so far (Maaz et al., 2008).

All these general elements have featured in the arguments of proponents and opponents of tracking practices in the public and political debate in Germany (Baumert, Maaz, Neumann, Becker, & Dumont, 2013; Neumann, Maaz, et al., 2013). The proponents of tracking have highlighted that tracking may provide an opportunity for better instruction and avoid the risks of demanding too much or too little from the students. The opponents have highlighted the risks that more rigid and earlier forms of ability grouping imply for the low-achieving and socially less privileged children. It may reproduce societal strata that are ability-based but simultaneously socially exclusive. These arguments have also formed part of the historical public and political discussion in Germany, which has led to the structure of today's secondary school system in Germany.

2 The classical structure of school types in German secondary schooling: Basic ideas, features, and consequences

In Germany, the “traditional” three-tier secondary system dates back to 19th century school structures (Herrlitz et al., 2008), which differentiated between a “lower” education system, oriented towards practical vocational training in craftsmanship and manual labor, and a “higher” track oriented towards academic professions. But it was only in the 1950s in West Germany that the ideas and image of the prototypical German three-tier system were refined (Baumert et al., 2008; Baumert et al., 2013). After four years of non-tracked elementary school, students were selected into three different types of secondary schools: low-, intermediate- and academic-track schools (*Hauptschule*, *Realschule*, and *Gymnasium*). As the low-track school type, the *Hauptschule* provided a slower-paced and vocationally oriented curriculum. The *Realschule*, an intermediate-track school type, also delivered a vocational curriculum, but the focus was less on manual labor and more on administrative and commercial work. The *Gymnasium*, the high-track school type, provided students with an academic curriculum that prepared them for higher education and academia (Baumert et al., 2008; Hurrelmann, 2013; Neumann, Maaz, et al., 2013).

These secondary school types corresponded closely with different secondary school-leaving certificates: the *Hauptschulabschluss* (the lowest school-leaving certificate, received after 9th grade), the *Mittlerer Schulabschluss* (the intermediate school-leaving certificate, received after 10th grade) and the *Abitur* (the highest school-leaving certificate, received after 12th or 13th grade). These different certificates did and still do largely determine a person’s future occupational options. In particular, they are prerequisites for certain professions, with the broadest range of opportunities for the *Abitur*, which also allows for university enrollment, and the narrowest range for the *Hauptschulabschluss*, which mainly qualifies students for manual labor apprenticeships (Baumert et al., 2008).

Even today, an echo of this model is discernible in many of the German states but, in fact, this pure form has scarcely existed in the German states, both historically and today. For example, in West Germany in the 1950s and 1960s, around 80% of students attended the low-track school and about 10–15% attended the academic-track school. Yet, enrollment in the intermediate track varied substantially across states, ranging from 4% to 24% of students (Baumert et al., 2008).

Picht’s (1964) seminal works in the 1960s and the diagnosis of a *Bildungskatastrophe* (“educational catastrophe”) prompted a debate about social distributional justice and permeability of the German school system and called into question the functionality of the three-tier structure (Dahrendorf, 1965; Peisert, 1967). This debate led to several initiatives, including experiments with school structures and the introduction of a *Gesamtschule*, a comprehensive school type comprising all ability levels, usually implementing a course-by-course tracking system (Köller, 2008). The introduction of the comprehensive school in the late 1960s and 1970s was done

14 with the aim of abandoning the traditional three-tier system, and implementation differed state-by-state – some states had a large proportion of students attending comprehensive schools, while other states did not have this school type at all. In all states in which the comprehensive school was introduced, it did not replace the three-tier system entirely but added a fourth school track alongside the other three school types (Baumert et al., 2008; Köller, 2008). This led to the paradoxical situation that states that had implemented de-tracking reforms ultimately had more school types than states that held on to the tracking system; for example, Bavaria was one of the most vigorous proponents of early and rigid tracking but – in terms of the number of tracks – the least tracked state in western Germany, at least until the early 2000s (Baik, 2011; Tillmann, 2012).

At the same time, this development was exclusive to the states of West Germany. The states of the former German Democratic Republic (GDR) in eastern Germany implemented a unified secondary school system in the 1960s (*Polytechnische Oberschule*; Baumert et al., 2008). It was an untracked system with only weak course-by-course tracking to the end of lower secondary schooling. Students' educations mainly differed in their durations, typically ending after 10 years; a minority continued to upper secondary education (*Erweiterte Oberschule*) in preparation for higher education. This system existed all over the former GDR, but it was almost immediately abandoned after the fall of the wall and German reunification. On paper, the new eastern German states adopted a tracking system similar to that of the western German states, but in effect, they created new school types, mainly by introducing a combined school track for the lower and intermediate school tracks by means of within-school streaming. This resulted in the establishment of a two-tier system right from the start in Saxony, Saxony-Anhalt, and Thuringia (Baumert et al., 2008; Baumert et al., 2013). But even in eastern German states that followed a three-tier system more closely, such as Mecklenburg-Western Pomerania and Brandenburg, a two-tier system was at least established in areas with lower population densities, where the three-tier system proved impractical.

3 Recent trends towards a two-tiered system

In recent years, there has been a renewed debate on tracking practices in Germany for various reasons. Most of this discourse revolves around the maintenance of the lower tracks, mainly the *Hauptschule* (Baumert et al., 2013; Hurrelmann, 2013; Neumann, Maaz, et al., 2013). As a result, de-tracking reforms have taken place in several states. Even though each state has different tracking practices and thus a different secondary school structure, there is a general trend towards a two-tier secondary school system (Hurrelmann, 2013; Tillmann, 2012). There are various reasons for these de-tracking policies:

- Demographic change has led to low population densities in various areas, a trend that is predicted to intensify in coming years, mainly in rural Germany. Like in

the early 1990s in some parts of the eastern German states, such as Mecklenburg-Western Pomerania, where low population density made the three-tier system unsuitable early on, the current demographic trends make the maintenance of a multi-tier track system less attractive (Baumert et al., 2013).

- In general, parental educational aspirations have increased steadily over the last few decades. This has led to relatively high participation in academic-track schools and has prompted a dramatic change in the distribution of students: Even where the lower track school still exists, it usually only caters to a minority of 5 to 20% of the student body. At the same time, the once very exclusive Gymnasium now represents the main school. Educating about 40% of the students, it is now the most popular and the most homogeneous school track (Baumert et al., 2006). Indeed, it is the only track that exists in all 16 German states.
- In parallel, the prerequisites for entering vocational training and the labor market have increased. Jobs that do not require elaborate general schooling and vocational training have lost their importance, and with them the lower track school-leaving certificate has lost its appeal (see also Protsch & Solga, 2015).
- International comparative large-scale studies, particularly the PISA Study, fueled an intense educational debate in Germany because a large share of students seemingly failed to reach a minimum achievement level by the end of their compulsory education (Artelt, Stanat, Schneider, & Schiefele, 2001; Maaz & Baumert, 2011).
- Additionally, the PISA Study showed that the correlation between achievement and social background in Germany was among the highest of the countries studied. Consequently, there was heated debate on the extent to which school structures were adding to these problems. In particular, in urban areas in which the share of low-track school attendees was minimal, research evidence suggested that the student body composition hindered instruction and academic achievement development (Baumert et al., 2006).
- In recent decades, the association between school track and school-leaving certificate has weakened. There were various drivers of this, including the introduction of comprehensive schools in West Germany, the establishment of the two-tier system in the eastern German states, and the introduction of a vocationally based but general upper-secondary school system allowing students to attain a university entrance diploma outside of the “classical” way (Neumann & Brauckmann, 2004). These factors led to the greater openness now discernible in the educational systems of all 16 states (Köller et al., 2004; Köller et al., 1999).

These elements led to implicit or explicit changes in the German school systems, thus creating substantial heterogeneity. Students at the end of primary education are confronted with very different options depending on their state of residence. The heterogeneity inheres in the school tracks offered beside the academic track school, in the number of these other tracks, in their implementation, and in the labeling of these non-academic school tracks (cf. Appendix, Table A1; Neumann, Maaz et al., 2013). From the “original” three tier-track system, the low-track

- 16 Hauptschule remains only in four states and the intermediate Realschule in five states. Additionally, the comprehensive schools that emerged from the structural reforms in the 1970s have continued to exist in eight states. The remaining school types represent new school types. Counting across all states, 17 different school types exist in the 16 states of Germany. Although the heterogeneity signaled by the different labels may appear bewildering, it can be interpreted as a strategic attempt to avoid an association with the heated debate about school structures in the 1970s (Baumert et al., 2013). Additionally, the schools may be labeled differently, but they have similar school structures. For example, western states have started to copy the system introduced in the former GDR states. The schools have new labels (e.g., *Regionale Schule*, “Regional School”), but the school tracks all practice the eastern German “innovation” of within-school streaming. Meanwhile, the eastern German schools also operate under different labels (e.g., *Regelschule*, “Standard school”; *Sekundarschule*, “Secondary school”). At the same time, the number of school tracks is also not homogenous within the states. Due to local differences and specific regional needs, not all school tracks are available across all local school districts. For example, the high number of schools tracks seen in the state of Hesse, which has five different types of academic school tracks, varies locally, and most areas do not offer all five school tracks (Baumert et al., 2013).

A systematization of recent school structures

One way to group these heterogeneous systems focuses on the permeability of schools, specifically whether the same school offers different school-leaving certificates. Hurrelmann (2013) and Tillmann (2012) have suggested that instead of speaking of a “tier” system, it would be more appropriate to speak of a “path” system, as students can acquire equivalent school-leaving certificates in multiple ways (Hurrelmann, 2013; Tillmann, 2012). The states do vary in how open “school tracks” are. One could speak of a “paths” system if the system is more based on within-school streaming or course-by-course tracking systems, with school tracks generally providing all school-leaving certificates under one roof. A system based more on explicit school tracks, focusing mainly on the curriculum bound to one school-leaving certificate would be labeled a “track” system (Hurrelmann, 2013; Tillmann, 2012).

By applying this systematization, we can identify six more or less distinct groups (see Table 1). The groups are systematized according to how closely they correspond to a “track” or a “path” system and according to how differentiated the school system is. The first group contains the majority of reduced “two-paths-system” types (*Zwei-Wege-Modell*; Hurrelmann, 1988, 2013). In addition to the academic-track school, these systems provide only one other track, which also offers all school-leaving certificates, including university entrance diplomas; this model exists in three states (Bremen, Hamburg, Saarland). A closely related model is the “two-paths-system-extended” (*Zwei-Wege-Modell-erweitert*) system present in Ber-

lin and Schleswig-Holstein; these states do have one dominant non-academic school track offering all school-leaving certificates, but one additional school track exists, which is only of marginal importance quantitatively.

The “two-tier-system” (*Zweigliedrigkeit*) refers to those states that have only one alternative school track besides the academic track school, but that alternative track does not offer university entrance diplomas. It currently only applies to the state of Saxony. Similarly, the “two-tier-system-extended” (*Zweigliedrigkeit-erweitert*) relies mainly on one school track besides the academic-track school, but other school tracks that are numerically marginal also exist. This is currently the largest group, with five states (Brandenburg, Mecklenburg-Western Pomerania, Rhineland-Palatinate, Saxony-Anhalt, and Thuringia). Bavaria can be categorized as a “three-tier-modified-system” (*Dreigliedrigkeit-modifiziert*) as it has maintained a three-track system, but the original low-track school type was reorganized to create a school type that not only provides the lower school-leaving certificate but also other school-leaving certificates (with the exception of the university entrance diploma). Still, this school structure is the closest to the stereotype of the classical German school tracking system. The last category of school type can be labeled as the “three-tier-system-extended” (*Dreigliedrigkeit-erweitert*), in which both the classical lower- and intermediate-track schools exist alongside other school types that offer direct access to the university entrance diploma. This category comprises Baden-Wuerttemberg, Hesse, Lower Saxony, and North Rhine-Westphalia. Tillmann (2012) also proposed to classify Hesse, Lower Saxony, and North Rhine-Westphalia as a “four-tier-system” due to the tradition of comprehensive schools going back to the 1970s (Tillmann, 2012).

It is important to note here that this categorization holds only to a certain degree. States do vary in how they implement vertical mobility, i.e., how one can gain another school certificate after acquiring an initial certificate. In the “paths” systems, this is solved within schools that provide options for all school-leaving certificates. Yet, states have also implemented systems in which tracks build on each other such that they appear to be one path. For example, schools in Baden-Wuerttemberg and a few other states created an upper “vocational” Gymnasium track that connects directly to the intermediate track (Realschule). It is well-established that students can combine these tracks to attain a university entrance diploma, and there are direct preparatory courses, which exist as a form of within-school streaming, to link the lower secondary school track to this type of upper secondary general education in a path-like fashion (Neumann & Brauckmann, 2004).

In summary, the majority of the German states have now adopted a “two-paths” model, which mainly consists of the Gymnasium as the academic track, principally providing access to university training, and a second school type that also opens the path to university training but does not primarily serve this purpose. The other states that lean more towards a “tier system” seem to have developed a system that allows them to institutionalize vertical mobility in a less direct but nevertheless potentially explicit way; perhaps most importantly, this allows the states to adapt their school

18 Table 1 Types of secondary school structures in the 16 states of Germany (at the beginning of the school year 2013/2014)

Type of school structure	State
Two-paths	Bremen
	Hamburg
	Saarland
Two-paths-extended	Berlin
	Schleswig-Holstein
Two-tier	Saxony
	Brandenburg
Two-tier-extended	Mecklenburg-Western Pomerania
	Rhineland-Palatinate
	Saxony-Anhalt
	Thuringia
Three-tier-modified	Bavaria
	Baden-Württemberg
Three-/four-tier-extended	Hesse
	Lower Saxony
	North Rhine-Westphalia

systems depending on specific regional demands, for example, where low population density makes multiple tracks too costly (Tillmann, 2012). It is likely that these states will use this currently implicit adaptive reform strategy to reduce the complexity of their school structures, at least in the long run (Baumert et al., 2013; Hurrelmann, 2013).

4 Future opportunities and challenges of structural reforms

In this section, we will elaborate on some of the main aspects implied by the current state of affairs against the aforementioned background and identify drivers that may become relevant for remodeling school structures. Structural reforms have focused on non-Gymnasium tracks, creating school structures that serve mainly to dissolve negatively selected school environments (Baumert et al., 2013). This has been accompanied by measures that strengthen and open alternative pathways towards university education in non-Gymnasium school tracks and simultaneously reduce the number of alternative school tracks – despite the heterogeneity that exists *prima facie* between the 16 states.

What is remarkable in the recent trend towards “two-tier” or even “two-paths” systems is that the debate around it has been less dogmatic and more pragmatic than the debate about school structures in previous decades. Even conservative proponents have not uniformly held onto the three-tier system but have even argued in favor of a two-tier or even a two-paths system (Neumann, Maaz, et al., 2013). On

the other hand, proponents of a unified comprehensive system can also accept the current movement as it implies a reduction of school tracks and as such represents a step into the “right direction” (although it represents only an in-between step; cf. Hurrelmann, 2007, 2013). Whether the structural reforms will stop with a two-tier/-paths system and how this debate will continue will emerge in the future. Currently, at least based on public opinion, neither parents nor teachers nor school leaders are mostly in favor of a unified comprehensive school system; the majority has argued for a two-tier system (Vodafone Stiftung Deutschland, 2013). The results of scientific studies point into the same direction. In the so-called BERLIN study, which looked at a structural de-tracking reform that reduced the former five-tier school system to the aforementioned two-paths-extended system in Berlin (Maaz, Baumert, Neumann, Becker, & Dumont, 2013), almost 70% of all parents were opposed to unifying all school types and students into one comprehensive school type (Böse, Neumann, Becker, Maaz, & Baumert, 2013).

Finally, referendum voters in the state of Hamburg opposed a unified comprehensive system, overruling state government plans to extend primary education (in the comprehensive elementary schools, which are without explicit tracking) from 4 to 6 years (Bale, 2013). In contrast, it proved possible to unify all non-Gymnasium school tracks into one type of comprehensive *Stadtteilschule* (not including the Gymnasium-track student body).

The relatively non-dogmatic discussion about the recent reduction of school tracks and the absence of pedagogical trench warfare makes it possible to consider those aspects of school life that are likely to have more impact: the actual implementation and organization of instruction. As Hattie (2002, 2009) has highlighted, these processes are much more predictive of successful schooling than structures per se. Indeed, the German system, with its 16 versions of school tracking, has illustrated exactly this: Recent national comparative studies have not identified a clear relationship between the number of tracks and average achievement across various competencies domains (e.g., Köller, Knigge, & Tesch, 2010; Prenzel et al., 2008). The high-achieving states were both three-tier systems (Bavaria and Baden-Wuerttemberg) but also two-tier models (Thuringia and Saxony). Additionally, the correlations between achievement and social origin were only weakly associated with the tracking structures of states (e.g., Ehmke & Baumert, 2008; Knigge & Leucht, 2010). What the reduced structures and/or the strengthening of the path system over the tier system implies for student learning is still an open question.

These debates are also connected to the question of transition decision. Placing students into tracks at an early age has been a particular focal point of critique, as research has provided evidence that the groupings are not only based on ability but also biased by social origin (“secondary” disparities; Maaz et al., 2008). Whether the reduced track/paths system in Germany will perform better in these respects is not yet clear. The first results from the BERLIN study, which evaluates the aforementioned de-tracking reform in the state of Berlin, suggest that transition decisions remained relatively comparable, regardless of the reduction in school tracks. This may be due

20 to the fact that, in the state of Berlin, secondary social disparities were relatively low in comparison to other states, and de-tracking in this context may have less relevance for transitions (Dumont et al., 2014; Dumont, Neumann, Maaz, Becker, & Baumert, 2013). On the other hand, decision patterns in the state of Berlin seemed to be stable because there is a decision pattern still attached to the specific local school. In particular, the decisions were related to the salience of the information that a school offered all school-leaving certification options (Dumont et al., 2013; Neumann, Kropf, et al., 2013). That may point towards the problems of de-tracking reforms in general: first, to what extent do old structures continue in new structures via school administrations and staff, and second, to what extent may parental knowledge continue to be based (and biased) by preceding school structures (Hurrelmann, 2007; Tillmann, 2012)? In a reformed system, school transition decisions are crucially impacted by how new structures are used to establish a new environment for learning and the extent to which the impact of a reform is actually acknowledged and accepted by parents. The implications of decision patterns at the end of elementary school for absolute achievement, the correlation between social origin and achievement, and educational attainment in terms of school-leaving certification require further exploration.

5 Synopsis and outlook

The current German school system and its recent history can be described in terms of two developments, which appear somewhat contradictory on the surface (Neumann, Maaz, et al., 2013). On the one hand, structures in lower secondary schooling are converging towards a situation in which most states provide only two different school tracks: the academic track and another, alternative, secondary school track. This development has its origins in the abolition of the lower track, *Hauptschule*, in most western German states and the simultaneous strengthening of school types that use within-school or course-by-course tracking. At the same time, three- or four-tier systems continue to exist, in some places with an even higher number of school tracks but with local variations (or, alternatively expressed, local limitations). Whether these developments represent pragmatic steps towards an overall reduction of school structure complexity or implies rather an increased heterogeneity on the school district level remains to be seen.

Even assuming a trend towards a two-tier/paths system exists, the heterogeneous labeling and organization of these paths and tiers is still substantial. To a certain extent, the situation is much less transparent than two decades ago. It mainly revolves around the form taken by non-academic track schools and how access to university entrance diplomas is organized (directly or with separate vertical transition options). Even now, it is entirely unclear which of these strategies will be most successful in terms of general student learning and attainment of school-leaving certificates, and in terms of avoiding school drop-out and achievement levels below the minimal requirements for further professional development. Information

about these systems must be gathered (Maaz et al., 2013) as knowledge about these changes is still anecdotal. To that end, it remains to be seen whether the hypothesized two-paths system will become the new “classical” German system, representing an example of a less rigidly tracked system, and whether this will contribute to addressing and solving some of the problems attributed to the German school system.

Appendix

Table A1: Number and labels of non-Gymnasium (non-GY) school tracks in all 16 states for lower secondary schools at the beginning of the school year 2013/2014 (differentiated whether school track provides direct access to university entrance diplomas).

State	N°. of non-GY school tracks	Label of non-GY school track
Baden-Württemberg	4	Hauptschule, Werkrealschule, Realschule, Gemeinschaftsschule*
Bavaria	2	Mittelschule, Realschule
Berlin	2	Integrierte Sekundarschule*, Gemeinschaftsschule*
Brandenburg	2	Oberschule, Gesamtschule* (integr.)
Bremen	1	Oberschule*
Hamburg	1	Stadtteilschule*
Hesse	5	Hauptschule, verbundene Haupt- & Realschule, Mittelstufenschule, Realschule, Gesamtschule* (coop. or integr.)
Mecklenburg-Western Pomerania	2	Regionale Schule, Gesamtschule* (coop. or integr.)
Lower Saxony	4	Hauptschule, Realschule, Oberschule*, Gesamtschule* (coop. or integr.)
North Rhine-Westphalia	4	Hauptschule, Realschule, Sekundarschule*, Gesamtschule* (integr.)
Rhineland-Palatinate	2	Realschule plus, Gesamtschule* (integr.),
Saarland	1	Gemeinschaftsschule*
Saxony	1	Mittelschule
Saxony-Anhalt	3	Sekundarschule, Gesamtschule* (coop. or integr.), Gemeinschaftsschule*
Schleswig-Holstein	2	Regionalschule, Gemeinschaftsschule*
Thuringia	3	Regelschule, Gemeinschaftsschule*, Gesamtschule* (coop. or integr.)

Notes:

*School tracks with direct access to university entrance diploma.

coop. = within-school tracking (“kooperativ”); integr. = course-by-course tracking (“integriert”);

Source: Neumann, Maaz et al. (2013).

- Artelt, C., Stanat, P., Schneider, W., & Schiefele, U. (2001). Lesekompetenz: Testkonzeption und Ergebnisse. In J. Baumert, E. Klieme, M. Neubrand, M. Prenzel, U. Schiefele, W. Schneider, P. Stanat, K.-J. Tillmann & M. Weiß (Eds.), *PISA 2000: Basiskompetenzen von Schülerinnen und Schülern im internationalen Vergleich* (pp. 69–137). Opladen: Leske + Budrich.
- Baik, K. J. (2011). *Die Einführung der sechsstufigen Realschule im Freistaat Bayern: eine kritische Analyse* (= Dissertation, Universität Regensburg). Retrieved 02. 10. 2013, from <http://epub.uni-regensburg.de/19989>
- Bale, J. (2013). Weg da – Wir wollen lernen! Education reform in Hamburg, Germany in neo-liberal times. *Teachers College Record*, 115, 1–36.
- Baumert, J., Cortina, K. S., & Leschinsky, A. (2008). Grundlegende Entwicklungen und Strukturprobleme im allgemeinbildenden Schulwesen. In K. S. Cortina, J. Baumert, A. Leschinsky, K. U. Mayer & L. Trommer (Eds.), *Das Bildungswesen in der Bundesrepublik Deutschland: Strukturen und Entwicklungen im Überblick* (pp. 53–130). Reinbeck bei Hamburg: Rowohlt.
- Baumert, J., Maaz, K., Neumann, M., Becker, M., & Dumont, H. (2013). Die Berliner Schulstrukturreform: Hintergründe, Zielstellungen und theoretischer Rahmen. In K. Maaz, J. Baumert, M. Neumann, M. Becker & H. Dumont (Eds.), *Die Berliner Schulstrukturreform: Bewertung durch die beteiligten Akteure und Auswirkungen des neuen Übergangsverfahrens von der Grundschule in die weiterführende Schule* (pp. 9–34). Münster: Waxmann.
- Baumert, J., Stanat, P., & Watermann, R. (2006). Schulstruktur und die Entstehung differenzieller Lern- und Entwicklungsmilieus. In J. Baumert, P. Stanat & R. Watermann (Eds.), *Herkunftsbedingte Disparitäten im Bildungswesen: Differenzielle Bildungsprozesse und Probleme der Verteilungsgerechtigkeit* (pp. 95–188). Wiesbaden: VS Verlag für Sozialwissenschaften.
- Becker, M. (2009). *Kognitive Leistungsentwicklung in differenziellen Lernumwelten: Effekte des gegliederten Sekundarschulsystems in Deutschland*. Berlin: Max-Planck-Institut für Bildungsforschung.
- Becker, M., Lüdtke, O., Trautwein, U., Köller, O., & Baumert, J. (2012). The differential effects of school tracking on psychometric intelligence: Do academic-track schools make students smarter? *Journal of Educational Psychology*, 104(3), 682–699. doi: 10.1037/a0027608
- Becker, M., Neumann, M., Tetzner, J., Böse, S., Knoppick, H., Maaz, K., ... Lehmann, R. (2014). Is early ability grouping good for high-achieving students' psychosocial development? Effects of the transition into academically selective schools. *Journal of Educational Psychology*, 106, 555–568. doi: 10.1037/a0035425
- Bellenberg, G. (2012). *Schulformwechsel in Deutschland. Schulformwechsel in Deutschland: Durchlässigkeit und Selektion in den 16 Schulsystemen der Bundesländer innerhalb der Sekundarstufe I*. Retrieved from http://www.bertelsmann-stiftung.de/cps/rde/xbcr/SID-22695327-418F2916/bst/xcms_bst_dms_36755_36821_2.pdf
- Böse, S., Neumann, M., Becker, M., Maaz, K., & Baumert, J. (2013). Beurteilung der Berliner Schulstrukturreform durch Schulleiterinnen und Schulleiter, Lehrkräfte und Eltern. In K. Maaz, J. Baumert, M. Neumann, M. Becker & H. Dumont (Eds.), *Die Berliner Schulstrukturreform: Bewertung durch die beteiligten Akteure und Auswirkungen des neuen Übergangsverfahrens von der Grundschule in die weiterführende Schule* (pp. 209–261). Münster: Waxmann.
- Chmielewski, A. K., Dumont, H., & Trautwein, U. (2013). Tracking effects depend on tracking type: An international comparison of students' mathematics self-concept. *American Educational Research Journal*, 50(5), 925–957. doi: 10.3102/0002831213489843
- Cortina, K. S. (2003). Der Schulartwechsel in der Sekundarstufe I: Pädagogische Maßnahme oder Indikator eines falschen Systems? *Zeitschrift für Pädagogik*, 49, 127–141.
- Dahrendorf, R. (1965). *Gesellschaft und Demokratie in Deutschland*. München: Piper.
- Dumont, H., Maaz, K., Neumann, M., & Becker, M. (2014). Soziale Ungleichheiten beim Übergang von der Grundschule in die Sekundarstufe I: Theorie, Forschungsstand, Interventions- und

- Fördermöglichkeiten. *Zeitschrift für Erziehungswissenschaft, Sonderheft 24-2014* (Herkunft und Bildungserfolg von der frühen Kindheit bis ins Erwachsenenalter: Forschungsstand und Interventionsmöglichkeiten aus interdisziplinärer Perspektive), 141–165.
- Dumont, H., Neumann, M., Maaz, K., Becker, M., & Baumert, J. (2013). Der Übergangsprozess von der Grundschule in der Sekundarstufe I vor und nach der Schulstrukturreform in Berlin: Die Rolle primärer und sekundärer Herkunftseffekte. In K. Maaz, J. Baumert, M. Neumann, M. Becker & H. Dumont (Eds.), *Die Berliner Schulstrukturreform: Bewertung durch die beteiligten Akteure und Auswirkungen des neuen Übergangsverfahrens von der Grundschule in die weiterführende Schule* (pp. 133–207). Münster: Waxmann.
- Dumont, H., Protsch, P., Jansen, M., & Becker, M. (2017, February 13). Fish swimming into the ocean: How tracking relates to students' self-beliefs and school disengagement at the end of schooling. *Journal of Educational Psychology*, Advance online publication. <http://dx.doi.org/10.1037/edu0000175>
- Ehmke, T., & Baumert, J. (2008). Soziale Disparitäten des Kompetenzerwerbs und der Bildungsbeteiligung in den Ländern: Vergleiche zwischen PISA 2000 und 2006. In M. Prenzel, C. Artelt, J. Baumert, W. Blum, M. Hammann, E. Klieme & R. Pekrun (Eds.), *PISA 2006 in Deutschland: Die Kompetenzen der Jugendlichen im dritten Ländervergleich* (pp. 319–342). Münster: Waxmann.
- Gamoran, A. (1992). The variable effects of high school tracking. *American Sociological Review*, 57(6), 812–828.
- Gamoran, A., & Berends, M. (1987). The effects of stratification in secondary schools: Synthesis of survey and ethnographic research. *Review of Educational Research*, 57(4), 415–435.
- Gamoran, A., & Mare, R. D. (1989). Secondary school tracking and educational inequality: Compensation, reinforcement, or neutrality? *The American Journal of Sociology*, 94(5), 1146–1183.
- Hallam, S., Ireson, J., Lister, V., Chaudhury, I. A., & Davies, J. (2003). Ability grouping practices in the primary school: A survey. *Educational Studies*, 29(1), 69–83. doi: 10.1080/03055690303268
- Hallinan, M. T., & Kubitschek, W. N. (1999). Curriculum differentiation and high school achievement. *Social Psychology of Education*, 3(1–2), 41–62.
- Hanushek, E. A., & Wößmann, L. (2006). Does educational tracking affect performance and inequality? Differences-in-differences evidence across countries. *Economic Journal*, 116(510), C63–C76.
- Hattie, J. A. C. (2002). Classroom composition and peer effects. *International Journal of Educational Research*, 37, 449–481.
- Hattie, J. A. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.
- Herrlitz, H. G., Hopf, W., Titze, H., & Cloer, E. (2008). *Deutsche Schulgeschichte von 1800 bis zur Gegenwart: Eine Einführung*. Weinheim: Juventa.
- Hoffer, T. B. (1992). Middle school ability grouping and student achievement in science and mathematics. *Educational Evaluation and Policy Analysis*, 14, 205–227.
- Hurrelmann, K. (1988). Thesen zur strukturellen Entwicklung des Bildungssystems in den nächsten fünf bis zehn Jahren. *Die Deutsche Schule*, 80(4), 451–461.
- Hurrelmann, K. (2007). Jetzt muss die bundeseinheitliche Schulreform kommen! – Ein Zwei-Wege-Modell ist hierfür realistischer und berechenbarer als ein Radikalumbau. *Recht der Jugend und des Bildungswesens*, 55(3), 264–270.
- Hurrelmann, K. (2013). Das Schulsystem in Deutschland: Das „Zwei-Wege-Modell“ setzt sich durch. *Zeitschrift für Pädagogik*, 59(4), 455–468.
- Ireson, J., & Hallam, S. (2001). *Ability grouping in education*. London: Sage.
- KMK – Sekretariat der Ständigen Konferenz der Kultusminister der Länder in der Bundesrepublik Deutschland. (2012). *Vereinbarung über Schularten und Bildungsgänge im Sekundarbereich I (Beschluss der Kultusministerkonferenz vom 03.12.1993 i. d. F. vom 04.10.2012)* Retrieved from http://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/1993/1993_12_03-VB-Sek-I.pdf

- 24 Knigge, M., & Leucht, M. (2010). Soziale Disparitäten im Spracherwerb. In O. Köller, M. Knigge & B. Tesch (Eds.), *Sprachliche Kompetenzen im Ländervergleich* (pp. 185–202). Münster: Waxmann.
- Knoppick, H., Becker, M., Neumann, M., Maaz, K., & Baumert, J. (2015). Der Einfluss des Übergangs in differenzielle Lernumwelten auf das allgemeine und schulische Wohlbefinden von Kindern. *Zeitschrift für Pädagogische Psychologie*, 29, 163–176. doi:10.1024/1010-0652/a000158
- Köller, O. (2008). Die Gesamtschule – Erweiterung statt Alternative. In K. S. Cortina, J. Baumert, A. Leschinsky, K. U. Mayer & L. Trommer (Eds.), *Das Bildungswesen in der Bundesrepublik Deutschland: Strukturen und Entwicklungen im Überblick* (pp. 437–465). Reinbek bei Hamburg: Rowohlt.
- Köller, O., & Baumert, J. (2001). Leistungsgruppierungen in der Sekundarstufe I: Ihre Konsequenzen für die Mathematikleistung und das mathematische Selbstkonzept der Begabung. *Zeitschrift für Pädagogische Psychologie*, 15(2), 99–110.
- Köller, O., Baumert, J., Cortina, K. S., Trautwein, U., & Watermann, R. (2004). Öffnung von Bildungswegen in der Sekundarstufe II und die Wahrung von Standards Analysen am Beispiel der Englischleistungen von Oberstufenschülern an integrierten Gesamtschulen, beruflichen und allgemein bildenden Gymnasien. *Zeitschrift für Pädagogik*, 50(5), 679–700.
- Köller, O., Baumert, J., & Schnabel, K. U. (1999). Wege zur Hochschulreife: Offenheit des Systems und Sicherung vergleichbarer Standards. Analysen am Beispiel der Mathematikleistungen von Oberstufenschülern an integrierten Gesamtschulen und Gymnasien in Nordrhein-Westfalen. *Zeitschrift für Erziehungswissenschaft*, 2(3), 370–405.
- Köller, O., Knigge, M., & Tesch, B. (2010). *Sprachliche Kompetenzen im Ländervergleich*. Münster: Waxmann.
- LeTendre, G., Hofer, B., & Shimizu, H. (2003). What is tracking? Cultural expectations in the U. S., Germany, and Japan. *American Educational Research Journal*, 40, 43–89.
- Lucas, S. R. (1999). *Tracking inequality: stratification and mobility in American high schools*. New York: Teachers College Press.
- Maaz, K., & Baumert, J. (2011). Risikoschüler in Deutschland: Teil 1. Identifikation und Beschreibung. *Schulverwaltung: NRW*, 22(2), 56–59.
- Maaz, K., Baumert, J., Neumann, M., Becker, M., & Dumont, H. (2013). *Die Berliner Schulstrukturreform: Bewertung durch die beteiligten Akteure und Auswirkungen des neuen Übergangsverfahrens von der Grundschule in die weiterführende Schule*. Münster: Waxmann.
- Maaz, K., Trautwein, U., Lüdtke, O., & Baumert, J. (2008). Educational transitions and differential learning environments: How explicit between-school tracking contributes to social inequality in educational outcomes. *Child Development Perspectives*, 2, 99–106.
- Neumann, M., & Brauckmann, S. (2004). Berufliche Gymnasien in Baden-Württemberg: Geschichte und heutige Ausgestaltung. In O. Köller, R. Watermann, U. Trautwein & O. Lüdtke (Eds.), *Wege zur Hochschulreife in Baden-Württemberg. TOSCA – eine Untersuchung an allgemein bildenden und beruflichen Gymnasien* (pp. 69–111). Opladen: Leske + Budrich.
- Neumann, M., Kropf, M., Becker, M., Albrecht, R., Maaz, K., & Baumert, J. (2013). Die Wahl der weiterführenden Schule im neu geordneten Berliner Übergangsverfahren. In K. Maaz, J. Baumert, M. Neumann, M. Becker & H. Dumont (Eds.), *Die Berliner Schulstrukturreform: Bewertung durch die beteiligten Akteure und Auswirkungen des neuen Übergangsverfahrens von der Grundschule in die weiterführende Schule* (pp. 87–131). Münster: Waxmann.
- Neumann, M., Maaz, K., & Becker, M. (2013). Die Abkehr von der traditionellen Dreigliedrigkeit im Sekundarschulsystem: Auf unterschiedlichen Wegen zum gleichen Ziel? . *Recht der Jugend und des Bildungswesens*, 61(3), 274–292.
- Oakes, J. (1985). *Keeping track: How schools structure inequality*. New Haven, CT: Yale University Press.
- Peisert, H. (1967). *Soziale Lage und Bildungschancen in Deutschland*. München: Piper.
- Picht, G. (1964). *Die Deutsche Bildungskatastrophe*. Olten/Freiburg i. Br.: Walter.

- Prenzel, M., Artelt, C., Baumert, J., Blum, W., Hammann, M., Klieme, E., & Pekrun, R. (2008). *PISA 2006 in Deutschland: Die Kompetenzen der Jugendlichen im dritten Ländervergleich*. Münster: Waxmann.
- Protsch, P., & Solga, H. (2015). How employers use signals of cognitive and noncognitive skills at labour market entry. Insights from field experiments. *European Sociological Review*, 31(5), 521–532.
- Retelsdorf, J., Becker, M., & Möller, J. (2011). Reading development in a tracked school system: A longitudinal study over 3 years using propensity score matching. *British Journal of Educational Psychology*, 82, 647–671. doi: 10.1111/j.2044-8279.2011.02051.x
- Schofield, J. W. (2006). *Migrationshintergrund, Minderheitenzugehörigkeit und Bildungserfolg Forschungsergebnisse der pädagogischen, Entwicklungs- und Sozialpsychologie, AKI-Forschungsbilanz 5*. Berlin: Wissenschaftszentrum Berlin für Sozialforschung.
- Schofield, J. W. (2010). International evidence on ability grouping with curriculum differentiation and the achievement gap in secondary schools. *Teachers College Record*, 112(5), 1490–1526.
- Tillmann, K. J. (2012). Das Sekundarschulsystem auf dem Weg in die Zweigliedrigkeit. Historische Linien und aktuelle Verwirrungen. *Pädagogik*, 64(5), 8–12.
- Trautwein, U., Dumont, H., & Dicke, A.-L. (2015). Schooling: Impact on cognitive and motivational development. In J. D. Wright (Ed.), *The international encyclopedia of social and behavioral sciences* (2nd ed., pp. 119–124). Oxford: Elsevier.
- Trautwein, U., Nagy, G., & Maaz, K. (2011). Soziale Disparitäten und die Öffnung des Sekundarschulsystems: Eine Studie zum Übergang von der Realschule in die gymnasiale Oberstufe. *Zeitschrift für Erziehungswissenschaft*, 14, 445–463. doi: 10.1007/s11618-011-0220-5
- Vodafone Stiftung Deutschland. (2013). *Hindernis Herkunft. Eine Umfrage unter Schülern, Lehrern und Eltern zum Bildungsalltag in Deutschland*. Düsseldorf: Druckstudio GmbH.

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Curricular Differentiation and Stratification in Australia

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Abstract: This paper examines curricular differentiation and stratification in the Australian education system. Our aim is to contribute to the development of a comparative framework about curricular differentiation and stratification in national systems of education. Using a typology from LeTender, Hofer and Shimizu (2003), we show how and where curricular differentiation and stratification occur in Australia. We draw on secondary sources and our insider, lived knowledge to show how and where curricular differentiation and stratification occur as well as the structural features of Australian schooling that mediate them. Curricular differentiation and stratification are not widely researched in the Australian context, suggesting that these processes are naturalised. As such, this paper presents preliminary insights that can serve as a foundation for future research.

Keywords: curricular differentiation, curricular stratification, Australia

In this paper we examine how curricular differentiation and stratification occur in Australia. We define curricular differentiation as the process by which individual students are provided different curricular opportunities based on their varying needs, interests, motivations and abilities. Curricular differentiation happens, to a greater or lesser degree, in all education systems, including comprehensive systems such as Australia's. It is not necessarily inequitable, especially if conducted flexibly and in a way that respects student differences while also attempting to maximise all students' learning. We define curricular stratification as the process by which groups of students, defined by ascriptive characteristics such as gender, ethnicity or social class, are consistently provided different curricular opportunities with varying levels of status and pathways for further study and life opportunities. For example, curricular stratification occurs when students from marginalised social groups are regularly and substantially over-represented in remedial or "special education" classes. We argue that curricular stratification is unjust because it reproduces educational inequalities which in turn reproduce other forms of inequality within the larger society. It is also inefficient because it often stunts students' development.

Curricular differentiation and stratification comprise a wide range of practices, from ability grouping within classrooms at one extreme to curricular differentiation between schools at the other. In this paper we provide an overview of the forms of curricular differentiation and stratification that occur in Australia, as have been documented in research studies and other secondary sources. We also examine the

28 systemic features of Australian schooling that foster curricular differentiation and stratification.

For international readers, the Australian case can contribute to a larger theoretical understanding about curricular differentiation and stratification and the policies, practices and structures that mediate them. A large part of this paper is therefore devoted to describing in fine-grained detail the features of Australian schooling that are relevant for understanding how and why curricular differentiation and stratification occur. We conclude with some insights about ways in which particular educational policies and structures can exacerbate curricular stratification. Understanding these relationships can provide insight that may be useful for other countries that are seeking to reduce educational inequalities by ameliorating curricular stratification.

1 Theory & research about curricular differentiation and stratification

Much of the literature about curricular differentiation and stratification in comprehensive education systems focuses on access to rigorous academic curricula. Access to rigorous academic curricula can be examined as it is patterned by practices and structures that occur within schools or between schools. Within-school access is shaped by tracking practices. In comprehensive secondary education systems, schools typically offer core curricular areas such as English and mathematics in tracks or streams with varying levels of rigour and depth (LeTendre et al., 2003). Placement in the most rigorous track is often selective and based on students' prior achievement or some other measure such as an aptitude test. In many instances, students in the lowest tracks experience negative learning environments which are associated with higher rates of school dropout (Werblow, Urick, & Duesbery, 2013). Most researchers therefore caution that within-school tracking needs to be implemented carefully to minimize stunted learning opportunities (Hallinan, 2000). Cautions about tracking are especially warranted since research has consistently shown that students from marginalised backgrounds are less likely to be placed in the most rigorous tracks than are their more privileged peers. The social stratification of within-school curriculum opportunities has been extensively documented in a range of contexts, including the United States (Burriss, Welner, & Bezoza, 2009) Gamoran, 1987; Oakes, 1990; Orfield, 1996; Tate, 1997), Australia (Lamb, Hogan, & Johnson, 2001), Canada (Lessard, Larose, Duchesne, & Feng, 2014) and cross-nationally (Schmidt, Burroughs, Zoido, & Houang, 2015).

1.1 Approach

We are interested in mapping the range of mechanisms that are related to curricular differentiation and stratification in Australia, for the purpose of deepening

our comparative understanding of these mechanisms as they occur in a variety of national contexts. As such, we use a conceptual framework that accounts for these mechanisms as they occur both within schools and between schools. We use the framework developed by LeTendre, Hofer and Shimizu (2003), which they name a typology of curricular differentiation. It consists of five types of structures and processes which result in differentiated (and stratified) curricula. The types are ordered from the formal and rigid (Type 1) to the unplanned (Type 5). We chose the framework by LeTendre and colleagues for two reasons. First, as described by Dupriez, Dumay and Vause (2008), their framework accounts for differences within comprehensive education systems. This is a point of difference from other frameworks that focus exclusively on differences between comprehensive and selective/differentiated systems, such as the framework by Hanushek and Wößmann (2006). Second, LeTendre et al.'s framework is available in English. The framework by Mons (2007), which Dupriez et al. (2008) used for their study, could be useful if we were able to read French.

We next describe the features of Australian schooling that have the potential to shape curricular differentiation and stratification. We provide a fair amount of detail about a broad range of features that relate to how schools are organised, managed and funded, and also how curricula are designed and assessed. We describe these features of Australian schooling with both breadth and depth to open up rich and possibly new insights about the processes of curricular differentiation and stratification and the policies and structures that shape them. We draw on secondary sources and our own lived experiences to describe these features of Australian schooling.

Finally, we use LeTendre et al.'s typology to examine the forms of curricular differentiation and stratification in Australia. As in our depiction of Australian schooling, we draw on secondary sources and our insider, lived experiences. As such, our findings should be considered a first step towards a larger, more comprehensive study of curricular differentiation and stratification in Australia.

1.2 Theoretical framework

As described earlier, we use LeTendre and colleagues (2003) typology to show how curricular differentiation and stratification occurs in Australia. We describe their typology in this section. Table 1 below provides an overview of the typology.

Type 1 relates to the curricular differentiation that occurs between types of schools. These school type differences are formal and structural, rather than random or accidental. They have different purposes and names, and offer different forms of curricula and different post-school pathways for entering the labour force or further study. Type 1 typically occurs at the end of primary or lower secondary school, and is common in many European countries. For example, the Czech Republic has three types of upper secondary institutions (for students from Year 10 and higher): academic (gymnasia), technical (prumyslovka), and vocational/trades

30 Table 1 Typology of Curricular Differentiation

Type 1: School type

Curricular differentiation by school type implies differences in the organizational forms of schooling. Schools at the same level exhibit formal differences in curriculum and instructional style and often offer students distinct differences in educational trajectories (e.g., workforce entry as opposed to tertiary education). Entry is typically controlled by formal selection mechanisms, and it is usually difficult for students to move from one type to another.

Type 2: Course of study

Curricular differentiation by course of study involves the provision of more than one formal path that students may follow within a given school or school type. Typically there is a distinct core of academic classes for each course of study. A particular course has the same core curriculum across the nation (or state), and it is typically difficult for students to move from one course to another.

Type 3: Stream

Curricular differentiation by stream occurs gradually over time in terms of the number and difficulty of courses. Entry into a stream typically is determined by student interest and past grades, and movement between streams is more fluid than in Type 2. Differentiation by stream is referred to by various terms, such as tracking, streaming, or lanes.

Type 4: Ability Grouping

Curricular (or at least instructional) differentiation by ability group occurs within one class or grade, on the basis of some measure or estimation of student ability. Students may form separate groups within the same classroom or be “pulled out” to study elsewhere. Examples are ability-based reading groups, gifted and talented programs, and some kinds of special education classes. A wide range of criteria, ranging from standardized tests to teacher assessment, determines entry. Movement out of ability group tracking may be fluid in the early stages but becomes progressively more difficult.

Type 5: Geographic location

Differences in curricular offerings, instructional quality, and opportunity to learn occur among schools of the same type depending on the social composition and funding base in the geographic area where the schools are located. Such differentiation can occur locally or regionally.

Adapted from LeTendre et al. (2003).

(uciliste). Finland has two types of upper secondary institutions, also for students from Year 10: general academic school (lukio) and vocational school (ammattikoulu). Approximately 40% of students in Finland attend a vocational upper secondary school (Finnish National Board of Education, 2016). Type 1 curricular differentiation is not common in the United States (LeTendre et al., 2003) or most other English-speaking countries. Rather than provide vocational education in a different type of school, options for vocational schooling are embedded within the one type of “high school” or provided by non-school organisations.

Type 2 comprises curricular differentiation that is the result of formal pathways about a broad disciplinary area (e.g., health sciences, business, humanities). These courses of study are typically standardised across regional or national education

systems and are comprised of multiple core subjects. Movement between tracks is difficult. The Swedish and Norwegian education systems contain Type 2 curricular differentiation. Rather than choosing a type of upper secondary school as in Finland, students attend just one type of “high school” but choose a course of study within it. Type 2 is not common in the United States (LeTendre et al., 2003) or most other English-speaking countries.

Type 3 comprises steams, paths or tracks within a given school. These tracks consist of multiple curricular subjects, but are differentiated from each other by rigor rather than broad disciplinary area, as in Type 2. Type 3 tracks frequently range across multiple year levels. An example would be a high school that offers a university preparatory track for the highest academic performers, and a general track for everyone else. Type 3 is very common in the United States (LeTendre et al., 2003).

Type 4 comprises ability grouping, which is similar to Type 3 but is less systematic and narrower in scope. Rather than spanning multiple subjects and year levels, it is typically restricted to individual subjects and year levels. Typically there are one or more tracks for each core subject area, with each track providing different levels of extension or rigor. For example, a school could offer three tracks (advanced, general, and foundation) for mathematics in Year 9. In primary schools, it typically occurs within classrooms. For example, a teacher might divide her Year 2 students into four groups for reading or math. LeTendre et al. (2003) found that it is ubiquitous in the United States but rare in Germany and Japan. It is very common in primary schools in English speaking countries but rare in European or Asian classrooms, where whole-class, undifferentiated teaching is more common in primary schools.

Type 5 comprises curricular differentiation that occurs across different geographic regions. In essence, it is unsystematic differentiation that happens between schools of the same type due to differences in the socioeconomic composition and funding base of the school. LeTendre et al. (2003) found that this form of curricular differentiation occurred in all three countries but most especially in the United States.

2 The Australian educational context

While education systems across the globe are very similar in terms of taught curriculum areas and institutional structures (Grubb, 1985; Ramirez & Meyer, 2002), they often vary substantially when examined in more detail. This is not surprising since education systems are highly complex social institutions. The structural and organisational features of education systems can have a large impact on student opportunities and experiences. The nature and quality of these features, however, are often not clearly understood by onlookers. Detailed depictions of education systems are also typically lacking in the research literature. We therefore describe the Australian education system in fine-grained detail so that the processes of curricular differentiation and stratification can be understood. We also present a summary of this fine-grained detail in Table 2 below.

32 Table 2 Summary of the Australian education system

Structure and duration	
Total duration of primary and secondary schooling	Years P, 1–12 (13 years); P stands for “preparatory” and is one year of mandatory pre-primary schooling, provided at primary school
• Duration of primary schools	Years P, 1–6 or Years P, 1–7 (7 or 8 years)
• Duration of secondary schools	Years 7–12 or Years 8–12 (5 or 6 years)
• Duration of lower secondary	Years 7/8–10 (3–4 years)
• Duration of upper secondary	Years 11–12 (2 years)
School starting age (Year 1)	6 or 7 years of age
Curriculum structure	
Year P, 1–10	Comprehensive
Year 11–12	Differentiated within schools
Governance: curriculum and assessment	
Federal government: The Australian Curriculum, Assessment and Reporting Authority	<ul style="list-style-type: none"> • Creates national curriculum standards • Administers national standardised testing regime (NAPLAN) in Years 3, 5, 7 and 9 • Reports average school achievement scores and other school information on publicly available website (MySchool)
State curriculum and assessment authorities	<ul style="list-style-type: none"> • Develops subject specific courses of study • Creates and administers external assessments in upper secondary • Grants school leaving certificates
Governance: funding and policy	
Federal government: Australian Government, Department of Education and Training	<ul style="list-style-type: none"> • Sets policy and guidelines for all levels of schooling and education • Provides funding to private schools • Provides targeted funding for public school initiatives
State government: Departments of Education	<ul style="list-style-type: none"> • Oversees, manages and funds public schools
State government: Departments of Education Services	<ul style="list-style-type: none"> • Sets policy and provides oversight for all sectors and levels of education, from early childhood to university
School leaving certificates	
<ul style="list-style-type: none"> • Issued by state authorities • Graduation requirements vary by state and territory and certificate. In most states, school leaving certificates are based on externally assessed, subject specific exams in Year 12, or completion of a vocational certificate 	
University admission	
<ul style="list-style-type: none"> • Based on Australian Tertiary Admission Rank (ATAR) • ATAR is based on subject scores achieved as part of senior school certificates 	

Private school sector enrolment rates; % of students in Australia that attend a private school (as of 2016)

- All students: 35%
 - Primary students: 30%
 - Secondary students: 41%
-

School funding

Public schools: funded by state authorities, with supplemental voluntary fees paid by parents; public schools receive targeted funding from federal government for specific purposes, and small general needs-assessed allocations

Private schools: funded by private fees, other private sources, and the federal and state and territory governments

School admissions

Public schools

- Most public schools have a catchment zone
- Some schools are selective entry, recruiting students on the basis of academic tests or demand for specialist subjects
- Theoretically possible to apply for admission to any public school but restricted by availability of places within a given school
- A small but growing number of schools do not have catchment zones and instead use academically selective processes to admit students

Private schools

- Based on ability to pay fees
 - Faith-based schools may restrict admission based on faith
 - Rarely based on academic selection
-

Australia has a comprehensive education system that comprises primary and secondary schools. Schooling is compulsory for 11–13 years, depending on state and territory. Primary schools typically comprise the first seven or eight years of schooling, and secondary schools comprise six or five years of schooling. One or two years of pre-primary education is attached to primary schools, with the final year of pre-primary being compulsory, but additional to the 12 years of primary and secondary schooling. Most children start Preparatory year when they are five or six years old. Secondary schools are typically divided into lower and upper (senior) secondary, with lower secondary comprising Years 7–10 and upper secondary comprising Years 11–12.

Schooling in Australia is overseen, managed and funded by both state and federal authorities. States play the largest role, but the role of the federal government is increasing. The federal government's role relates to development of national curriculum standards, assessment and reporting of numeracy and literary standards, and provision of supplemental funding (primarily to private schools). Individual states are responsible for funding and managing public schools. They are also responsible for developing courses of study that integrate the national curriculum standards. Each state has a department of education that oversees public schooling, and a curriculum and assessment authority that develops courses of study and assesses student

34 achievement for all schools in the state, both private and public. States also have a department or ministry of education services that coordinates all educational activities in the state, as well as a cabinet level Minister for Education.

The main federal authority that regulates schooling is the Australian Curriculum, Assessment and Reporting Authority (ACARA). ACARA is responsible for developing the national curriculum standards, administering a national standardised assessment test, and reporting information about schools online. The national standardised assessment test – National Assessment Program – Literacy and Numeracy (NAPLAN) – is administered to all students in Years 3, 5, 7 and 9. Individual student results are reported to schools and parents, and school aggregate results are publicly reported on the federal government’s MySchool website (myschool.edu.au).

2.1 Curriculum policy

The national curriculum is a framework agreed to by Australian governments (state and federal) that sets expectations and standards for eight learning areas in P–10 and four learning areas for Years 11–12. The eight learning areas for P–10 are English, Mathematics, Science, Health and Physical Education, Humanities and Social Sciences, The Arts, Technologies and Languages (ACARA, 2016). The latter four learning areas include multiple subjects; for example, the Humanities and Social Sciences learning area includes four subjects (civics, geography, history, and economics/business). The upper secondary curriculum framework includes four learning areas: English, Mathematics, Science, and Humanities and Social Sciences. Broad content and achievement standards are detailed for each learning area and for each year (sometimes collapsed across bands of years). These descriptions are fairly brief and broad, typically around 600–1300 words for each year level, and are available to the public online (<http://www.australiancurriculum.edu.au/Curriculum/Overview>).

The learning areas from the national curriculum are then developed into more detailed courses of study and/or syllabi by state curriculum authorities for each year level. For the Years P–10, there is typically just one course of study or syllabi per learning area. Upper secondary education (Year 11 and Year 12) is not covered by the national curriculum. It is set and administered by individual states and territories. The upper secondary curriculum is often broad containing many choices to accommodate diversity, ranging from academically demanding subjects such as Physics to less academically demanding subjects such as General Science. For example, in New South Wales, the science learning area is comprised of five courses of study (Biology, Chemistry, Earth and Environmental Science, Physics, and Senior Science, an integrated, interdisciplinary approach for developing science literacy without further post-secondary study in the sciences) (BOSTES, 2016). In Western Australia, by contrast, the science learning area includes an additional five courses (for a total of 10 courses): Aviation, Human Biology, Marine and Maritime Sciences, Plant Production Systems, and Psychology (SCASA, 2016). The number of courses of study for Years 11–12 varies by state but is typically at least 40 or 50 specific courses.

Differentiation by rigor within each learning area or course of study varies by year level and by state. For Years P–10, courses of study and syllabi are designed in a comprehensive manner for primary and lower secondary, i.e. there is just one syllabus per learning area or course of study per year group. For upper secondary (Year 11 and Year 12), however, some state authorities create syllabuses at different levels of difficulty for each learning area. In other states, courses of study (other than English and math) are not differentiated.

As can be surmised from the previous description, the curriculum structure is streamlined and comprehensive for Years P–10 but numerous, diverse and differentiated for Years 11–12. For Years P–10, there is typically one syllabus per learning area or subject per year, and all schools in the state use this syllabus to guide their teaching and learning. For Years 11–12, however, the range of courses of study on offer is more than any one school could possibly provide. Thus, schools are able to choose which courses of study they offer students. These decisions are based on student preferences, enrolment sizes, parent expectations, and school aims for market positioning (Perry, Lubienski, & Ladwig, 2015). The selection of curricular offerings is further complicated by the number of levels that are offered for each course of study. With a minimum of two levels for each course of study, there are typically a minimum of 80 courses of study to select from.

Vocational courses of study are also offered in some schools. State curriculum and accreditation authorities adopt and accredit courses that were initially developed as part of industry training packages and accredited at levels of study (certificate I, II, III or IV, diplomas) consistent with the Australian Qualifications Framework (AQF). The AQF is a national policy framework that regulates and standardises vocational qualifications as well as post-secondary academic degrees. Vocational qualifications are nationally standardised and each industry area has up to four certificate levels (Certificate I being the lowest and Certificate IV being the highest). The vocational courses of study that are offered in secondary schools typically involve some workplace learning and lead to a nationally recognised certificate, typically no higher than Certificate III. Students gaining or studying vocational education courses at a given Certificate level can continue to study for a higher certificate in a post-secondary vocational education institution. The number of vocational education courses of study that are offered in secondary schools varies by state. In Western Australia, for example, vocational courses of study have been developed for ten industry areas (automotive, business and financial services, community services and health, construction industries, creative industries, engineering, hospitality and tourism, and information and communications technology). In addition to these school-based VET offerings, students may also study a VET qualification at either a public or private registered training organisation. Public training organisations are similar to community colleges in the United States or polytechnics in some European countries.

State authorities develop school leaving certificates. Both vocational and academic courses of study can be used to earn the school leaving certificate. In some states, students who are studying vocational courses of study would also typical-

36 ly study some academic subjects as well. The school leaving certificate provides a pathway for further study at either a university or vocational/technical institution. Approximately 26% of Australian students by age 19 do not complete their schooling and therefore do not earn a school leaving certificate (Lamb, Jackson, Walstab, & Huo, 2015). Non-completion rates are particularly high for students from lower socioeconomic backgrounds; 60% of low SES students complete secondary school, compared to 90% of high SES students (Lamb et al., 2015).

Universities admit students to undergraduate programs based on their Australian Tertiary Admission Rank (ATAR), though also through direct access without ATAR. The ATAR is a national system for ranking students and is based on performance in four to six courses of study. Students who want to pursue university study through obtaining an ATAR, generally attain study scores (derived from school-based and examination assessments) in relevant subject areas, the mix of which varies by state and territory. The study scores are then translated into a rank based on calibrated scaling, with advanced mathematics, foreign languages, chemistry and physics typically receiving a stronger weighting.

2.2 Organizational features of the education system

The Australian school system is comprised of public and private schools. Public schools are managed and organized by state public education authorities. Private schools are either 'systemic' meaning that they form part of a system managed and organised by specific authorities (such as the Catholic Church), or are 'non-systemic' meaning that each school operates largely independently usually under the aegis of a governing board or school council. Most Catholic schools are systemic and organised, managed and funded by the Catholic Education Office in each state, but some Catholic schools are independent. Most other private schools are non-systemic; some of these non-systemic schools are associated with a Protestant faith or are non-denominational, while a small number are associated with other faiths (e.g., Islam, Judaism).

Australia has one of the largest private school sectors among economically developed countries. Slightly more than 30% of all students attend a private primary school (ABS, 2016), and this number rises to 41% among secondary students; overall, approximately 35% of students attend a private primary or secondary school (ABS, 2016). Among the member countries of the Organization for Economic Cooperation and Development (OECD), only Belgium, the Netherlands and Chile have a greater proportion of students enrolled in a private school. Private schooling is more widespread among secondary students possibly in part because of the widespread perception that it is more effective at preparing students for the ATAR, a perception that is reinforced by the publication of school ATAR scores in the popular media.

School sector is patterned by socioeconomic status in Australia. This is not surprising given the widespread perception among many (but certainly not all)

parents is more successful in accessing university places for its students. Schools with largest intake of students from the highest socioeconomic backgrounds tend to be private, and schools with largest intake of students from the lowest socioeconomic backgrounds tend to be public (Ryan & Watson, 2004; Watson & Ryan, 2010). For example, in Perth, the capital city of Western Australia, public schools comprise 96% of secondary schools in the lowest socioeconomic quintile but only 13% of schools in the top socioeconomic quintile (Perry & Southwell, 2014). Historically, most professionals and business and political elites in Australia have chosen private schools for their children's education (Anderson, 1992; Higley, Deacon, & Smart, 1979), a trend that has not abated. Since the 1970s, the proportion of students from middle-class families who attend a private school has also grown (Teese, 2011). Even in working-class communities, private schools tend to have a middle-class socioeconomic composition. As described by Teese (2011, p. 7), "in low SES communities, public schools over-enrol low SES students and private schools over-enrol higher SES students". In fact, very few low SES private schools actually exist (Teese, 2011). Data from the Programme for International Student Assessment (PISA) verify this claim. In the 2009 Australian dataset of 353 schools, for example, only two of 70 schools in the bottom school SES quintile and 5 of 71 schools in the second bottom school SES quintile are private (Perry, Lubienski, & Ladwig, 2016).

Public schools receive most of their funding from state departments of education. They are typically funded on a per-pupil basis, using formulas that provide base, per capita and equity loadings. This means that while there are some variations by state and territory, generally, public schools receive similar amounts of public funding based on student enrolments and location (rural or urban), with some schools that enrol a larger number of high-need students receiving additional funding.

Non-systemic private schools receive most of their funding from private sources, namely fees and charges that are paid by the families of enrolled students. Fees can range from a low of \$2,000 AUD (approx. 1,250 Euro and \$1,425 USD) for a Catholic primary school in a working-class, outer suburb of a capital city, to a high of \$25,000 (15,700 Euro and \$17,750 USD) for a socially elite private school in central location. In addition, private schools in Australia receive public subsidies from federal and state governments as well. The amount of funding varies by school but all private schools receive something, even private schools that charge very high fees. For example, data from the MySchool website show that one prestigious private Anglican school in an inner city community of capital city received approximately \$23,200 AUD per pupil in fees and received approximately \$2,600 per student from federal funds and \$2,100 per student in state funds; this equates to approximately 9% of their gross per-pupil funding comes from federal funds, 7% from state funds, with the remaining 84% from private funds (primarily fees). By contrast, a Catholic secondary school in an outer suburb of a capital city, received approximately \$4,150 AUD per pupil in fees, \$6,950 from federal funds, and \$3,250 from state funds, representing 47% from federal funds, 22% from state funds, and 28% from private sources. These amounts of public funding represent 80–90% of the national government school re-

38 source standard. Some private schools can receive more funds from public sources than equivalent public schools located in the same areas. Rather than using these public funds to make their schools more accessible to lower-income families, private schools have tended to use public subsidies to improve their facilities and resources (Ryan & Watson, 2004; Watson & Ryan, 2010).

Opportunities exist families to select a school of their choice. Private schools are often a sought after choice among middle class parents. Demand is high and for a long time enrolment drift from public to private has been a trend as aspirational families work to position their children for future educational and career opportunities. School choice also exists within the public sector. All students are guaranteed a place at their local public primary and secondary school. Students may apply for admission to any public school in the state, however. Schools that are under-enrolled often admit students who reside outside the school's catchment area. While securing a spot at a non-local public school is fairly common, it is more difficult with secondary schools, especially those that have high rankings on the league tables of ATAR scores and graduation rates that are routinely reported in local media.

In an effort to compete with private schools for academically strong students, public schools and public education systems are increasingly using selective admissions to enrol gifted and talented students who reside outside the catchment zone. These selective admissions are typically for academic, artistic or sporting talent and are very competitive. At one sought-after Perth public high school, for example, over 200 students competed for 32 spots in the school's visual arts program in (Applecross Senior High School, 2016). Selective entry to public schools is especially common in New South Wales, where it is used to admit all students in 17 high schools and a subset of students in another 25 schools (Department of Education and Training, 2013). In Victoria, five schools enrol their whole intake through selective entry, while most secondary schools now enrol annually a proportion of their intake as academically selected students. In Western Australia, there is just one public school that admits all students through an academically selective entry process, but other schools have selective admissions processes for a smaller number of students. Data from PISA show that approximately 25% of students in Australia attend a high school where a student's academic record is always considered for admission (OECD, 2010a). Selective entry is not common in the private sector, although the high fees at many of these schools make them financially selective.

The Australian education system is characterised by high levels of choice and competition. The majority of high school students do not attend their local public high school. As already mentioned, 41% of secondary students attend a private school (ABS, 2016). Further insight about the extent of choice and competition in the Australian education system can be gleaned from the nationally representative PISA dataset. Only 29% of students attended a high school that requires residence in a particular area, and 88% of students attended a high school that competes with two or more other schools for students (OECD, 2010a, 2010b).

3 Curricular differentiation and stratification in Australia

Curricular differentiation and stratification have not been studied extensively in Australia (Council of Australian Governments, 2008; Fenwick, 2012). The fact that they have not been a topic of much research interest suggests that they are not seen as a major problem or challenge. Rather, it is likely that the processes, forms and outcomes of curricular differentiation and stratification that are common in Australia are seen as normal and natural by both the lay public as well as educational researchers. We will develop this line of thought later in the paper. In this section, we describe how curricular differentiation and can occur both within and between schools, using the typology developed by LeTendre and colleagues.

3.1 School type (Type 1)

Similar to other comprehensive education systems, this type of formal and overt differentiation of curriculum by school type is rare in Australia. Unlike some European countries, most secondary schools in Australia are comprehensive in that they all offer the same school certificate programs.

3.2 Course of study (Type 2)

Curricular differentiation that is structured by course of study occurs in the last two years of secondary school (Years 11 and 12). As conceptualised by LeTendre and colleagues, this form of curricular differentiation “involves the provision of more than one formal path that students may follow within a given school or school type... [and comprises] a distinct core of academic classes”. In Years 7–10 it is common for secondary school students to study a selection of subjects from a range of key learning areas, including English, mathematics and science, along with a range of other subjects. In Years 11 and 12, however, students choose a course of study, either academic or vocational. Details about these courses of study vary by state. In Victoria, for example, students can choose the Victorian Certificate of Education (VCE), which is comprised of academic subjects and provides pathways to further study or direct entry to the workforce, or the Victorian Certificate of Applied Learning (VCAL), which is comprised vocational subjects and some general skill subjects. Most students choose VCE (VCAA, 2016). In Western Australia, there is just one school leaving certificate, but there are two main pathways to achieving it. The first pathway is comprised of mainly ATAR-level academic subjects and leads to an ATAR score that can be used to apply for admission to a university. The second pathway includes a vocational certificate plus core academic subjects (numeracy, literacy), some or all of which can be at a lower level of rigor.

3.3 Stream (Type 3)

Streaming or tracking occurs in some Australian high schools. It is most likely to occur in lower secondary, i.e. Years 7–10, and before the Type 2 curricular differentiation that occurs in Years 11–12. It is rare in primary schools. Typically it involves an academic extension track, and then a general track for all other students. Students are selected into the program based on previous academic performance and perhaps with the use of an aptitude test. Less commonly, schools may also have selective tracks for the visual and/or performing arts, or even less commonly, for a particular sport. For sport streams, a school would typically have a specialist and selective program for just one sport. As described earlier, some public schools use selective academic, art or sport programs for enrolling talented students who reside outside the school's catchment zone. Students who are admitted to a school based on their acceptance to a selective program are expected to participate in the program for the duration of their stay at the high school. In some instances, out-of-area students can lose their place at the school if they leave the specialist program.

3.4 Ability grouping (Type 4)

Ability grouping can occur within classrooms or between classrooms in the same grade. The degree to which it is practiced in primary schools in Australia is not well understood and has not been the subject of much (if any) research interest. Nevertheless, ability grouping within classrooms is common, especially in the core subjects of literacy and numeracy (Council of Australian Governments, 2008), but certainly not ubiquitous. Anecdotally, it appears that whether it is practiced or not in primary schools varies by teacher. If it is practiced, it occurs within classrooms, not between them.

Ability grouping is widespread in lower secondary schools (Years 7–10) in Australia, especially in math (Zevenbergen, 2005). It is often practiced between classrooms. In some schools students can be grouped by aptitude into separate classrooms for selected subjects (such as math, English and science), but approaches vary across schools. One approach is to create one or possibly two extension classrooms for each subject and year group, with the majority of students placed in general/mixed-ability classrooms. Another approach is to create multiple ability grouped classrooms for each subject and year; for example, there could be three or four levels of math for each year. In both approaches, placements are usually fluid, with some students moving into and out of ability grouped classrooms depending on their performance in the given subject. A student may be placed in one or more of these extension classes, but the majority of students would not be placed in any. As is obvious from our description, there is no single way in which ability grouping in lower secondary schools is practiced. Based on our lived experience working with schools and state systems, we posit that the first approach – one extension class for a small group of top-performing students plus general/mixed-ability classrooms for

all other students – is more typical than the multi-level ability grouping approach. This is hypothesis, however, since to the best of our knowledge, no systematic empirical investigation has been conducted in Australia about the extent and nature of ability grouping in lower secondary schools. Lamb and Fullarton (2002) reported that approximately one half of Australian Year 8 math classrooms that participated in the Third International Mathematics and Science Survey (TIMSS) in 1996 were tracked. This figure could reflect a scenario in which all schools have one tracked classroom in mathematics and some schools have more than one. It was also twenty years ago, however.

Before the introduction of the Australian national curriculum began in 2012, some state curriculum authorities created multiple syllabi for English and mathematics to reflect different levels of difficulty for lower secondary, particularly for Year 9 and/or Year 10. For example, in a study of learning opportunities in Tasmania by Lamb and colleagues (2001), students were grouped into three levels for math and for English which were standardised across all schools in the state. Zevenbergen (2005) also reported multiple mathematics tracks in her study of Year 9 and Year 10 students in Queensland. As in Tasmania, these varying tracks were standardised across the state. Standardised ability grouping is no longer recommended practice with the introduction of the national curriculum. This may be a positive move since both Zevenbergen (2005) and Lamb et al. (2001) found that it was associated with unequal learning opportunities for students from lower socioeconomic backgrounds. Similar to studies from other national contexts, they found that students from lower SES backgrounds were over-represented in the lowest track and under-represented in the highest track.

Finally, grouping occurs in many subjects in Years 11 and 12, informally in many instances through the actions of teacher advice and recommendations and formally through school rules on subject entry and enrolment. This form of grouping is not necessarily prescribed by curriculum authorities, but promoted through guidelines and the actions of schools. The curriculum in Years 11 and 12 in most states and territories is differentiated in that some subjects and courses are academic preparatory leading to university and some are not. Consistent with the international literature, lower SES students tend to be over-represented in the lowest tracks and under-represented in the highest tracks (Fenwick, 2012; Teese, 2007).

3.5 Geographic (Type 5)

The final type of curriculum differentiation in LeTendre et al.'s typology comprises differences that occur between schools based on their geographic location, size, socioeconomic composition, sector or funding base. This form of curricular differentiation is unintended, which makes it different from between-school curricular differentiation based on school type (Type 1).

Curricular differentiation between primary schools is rare, at least in the subjects prescribed in the Australian national curriculum. It could occur in other subjects,

42 such as foreign languages. The national curriculum includes languages other than English, but it is not clear that all primary schools are required to offer one or more foreign languages. Rather, it is up to the state curriculum authorities to decide. Schools in Victoria are urged to offer one or more foreign languages (Victoria State Government Education and Training, 2016). In Western Australia, for example, the curriculum authority is requiring primary schools to offer one or more foreign languages from 2018. Anecdotally, we know that some primary schools do not offer foreign language(s). It is likely that larger and/or well-resourced primary schools are better placed to offer one or more foreign languages compared to other schools. As with ability grouping, however, the nature and extent of curricular differentiation in foreign languages between primary schools has not been studied in Australia.

Curricular differentiation between secondary schools is substantial. This is especially the case for Years 11 and 12, when the courses of study become more specialised and numerous. As discussed earlier, the number of Year 11 and 12 courses developed by each state's curriculum authority can be large. It is difficult for many schools to offer the full range of subjects, because of small school size, or lack of facilities and resources, as well as low demand. Schools decide which courses they offer, and they typically base their decision on student demand, the school's perception of appropriate pathways for its students, and the school budget and staffing resources (Perry et al., 2015). Subjects are generally not mandatory, and therefore schools are not required to offer specific subjects, though English is a compulsory subject in most states and territories. While not compulsory in most states and territories, mathematics is taken by many students. Some schools, under the weight of low demand, do not offer the most advanced options in maths. Enrolments in ATAR subjects can vary by school. The evidence for between-school differentiation is largely anecdotal, but research by Perry and Southwell (2014) has uncovered very large inequalities in the number of advanced (ATAR) level subjects offered by schools in one Australian, the capital city. They examined curricular offerings in Year 12 at all Perth metropolitan schools ($n = 121$ schools) and found the number of ATAR subjects offered is strongly related to the size, sector and socioeconomic composition of the school. Only 10% of schools in the lowest socioeconomic quintile offered ATAR-level English literature, chemistry, physics and calculus, compared to nearly 100% of schools in the highest socioeconomic quintile. Research by the federal government (Human Rights and Equal Opportunity Commission, 2000) also found large differences in the number of academic courses on offer between metropolitan and rural schools.

4 Discussion

Curricular differentiation occurs in both primary and secondary schools in Australia, mainly in the form of ability grouping. Differentiation in primary schools is not extensive and it is likely to be less than in the United States and possibly less than in

other comprehensive education systems as well. Differentiation in lower secondary (Years 7–10) is common, but in most instances appears to be implemented in a way to provide opportunities for extension for highly capable and motivated students. Academic selection can occur at this level, with a proportion of students chosen through success on aptitude tests and grouped together for their classes. Generally, though, the majority of students at this level are grouped in mixed-ability classes. It appears that the forms of rigid ability grouping that Gamoran (2000) and Hallinan (2000) caution against are not common in Australian schools, but further research is needed to test this claim.

Curricular differentiation is more problematic in the final two years of secondary schooling. Subject choice, school rules around subject selection, and the actions of teacher and family recommendations work to stratify enrolments across subjects. Research by Teese and colleagues (2007; Teese & Polesel, 2003), Lamb et al. (2001; 2015) and Fenwick (2012) has clearly shown that students from lower SES backgrounds are less likely to study the most advanced subject offerings. While it is normal that individual students differ in terms of their capabilities, interests and motivation, consistent differences between groups of students are a concern because they suggest that structural forces are reproducing educational inequalities (Portes, 2005). Research by Gordon and Nicholas (2013) has confirmed anecdotal evidence that some students are counselled by teachers and curricular leaders to not take advanced academic subjects such as calculus for fear of depressing the school's average ATAR scores. As described earlier, school academic performance on a variety of measures, including ATAR scores, is regularly reported in the popular media in the form of league tables. With the high level of choice and competition in the Australian education system, it is tempting for schools to engage in practices that present their school in a favourable light even if harmful to individual students.

The most problematic form of curricular differentiation in Australia appears to be the incidental form that occurs between schools based on their location or socioeconomic composition. While the empirical evidence is emerging, it appears that there are very large inequalities in access to advanced academic curricula between schools of different socioeconomic compositions for the final two years of secondary schooling. These two years play an important role in determining students' opportunities for further study at university. Opportunities to study advanced academic curricula at low SES public schools are very limited. For students whose local public school does not offer a solid range of advanced academic curricula, options include paying fees to attend a private school, or trying to gain access to a different public school. In rural areas, there might not even be a public school nearby that provides a decent range of advanced academic curricula. Because of these inequities, we argue that Type 5 curricular differentiation in Australia is actually curricular stratification.

The Australian case raises questions about the underlying reasons behind incidental curricular stratification between schools. Certainly it occurs in other comprehensive education systems, especially the United States (LeTendre et al., 2003). Lower SES schools often have fewer advanced academic curricular offerings and

44 more vocational and/or remedial offerings compared to other schools (Anyon, 1981; Rumberger & Palardy, 2005; Rumberger & Thomas, 2000). More recently, Klugman (2013) and Barnard-Brak, McGaha-Gamett and Burley (2011) have shown that lower SES schools typically offer fewer Advanced Placement courses (a standardised, externally assessed program that can lead to advanced standing in university) than higher SES schools. While between-school inequalities in the United States are significant, we argue that they are of a magnitude lower than the between-school inequalities in Australia. Regardless of whether a high school in the United States offers an AP course in any given subject or not, it would be uncommon for a high school to not offer physics or calculus or English literature, for example. And yet these subjects are not offered in all Australian high schools, and certainly not in many low SES schools.

The Australian education system appears to be a strange hybrid. It is not fully academically divided like the selective systems of Europe, but the degree of incidental between-school curricular stratification calls into question the degree to which it is comprehensive. Rather, it is increasingly becoming a financially selective system, where money buys access to rigorous, high quality academic curriculum. While cultural values and historical legacies likely play a role, it is also likely that high levels of school autonomy, accountability, decentralization, competition and choice have exacerbated inequalities related to curricular stratification via increased social segregation between schools. These marketization policies in turn interact with standardised and formal courses of study in upper secondary school. As the main pathway for allocating opportunities for further study, these courses of study are a high-stakes enterprise. They are also a form of educational currency: created by state curriculum authorities, recognised by all stakeholders, exploited by schools to create a market advantage, and consumed by families as a mechanism for securing educational advantage.

5 Conclusion

Our aim in this paper has been to contribute to the development a cross-national, comparative framework about curricular differentiation and stratification. Much of the literature about curricular differentiation and stratification comes from the United States. Understanding how it occurs in other national contexts can deepen our theoretical understanding of the structures, policies and values that mediate these processes. We hope that our analysis of the Australian case will open new lines of research about the structures and policies that underpin curricular differentiation and stratification generally and between-school inequalities in access to academic curricula in particular. Uncovering the reasons why a prosperous, highly developed country such as Australia has large curricular inequalities between schools could deepen insight about the impact of standardised curricular structures in competitive, marketized education systems.

As with any market, regulation is essential for ensuring both efficiency and equity. The Australian case suggests that regulation may be required even in comprehensive education systems that do not have any formal structures for differentially allocating curriculum opportunities between schools. Curriculum structures are highly regulated in Australia, but students' curricular opportunities in upper secondary education, the period that most closely determines pathways for further study, are surprisingly unregulated. Schools are not required to offer any particular curricular subjects, and public education authorities are not required to guarantee students access to them either.

Rather than trust the market to provide equitable access, we recommend developing a regulatory framework that ensures that all students, regardless of where they live or how much money their parents earn, have an opportunity to access high quality academic curricula without having to pay a fee. Similarly, we support the development of high-quality vocational education offerings that are widely available to students. To reduce incidental, between-school curricular stratification, a comprehensive strategy will be needed. This strategy should include regulatory frameworks about access to academic and vocational curricula, as well as careful consideration of the policies and structures that drive between-school curricular stratification.

References

- Australian Bureau of Statistics. (2016). *4221.0 – Schools, Australia, 2015*. Canberra: Author.
- Australian Curriculum, Assessment and Reporting Authority. (2016). *Australian curriculum*. Retrieved February 1, 2016, from <http://www.australiancurriculum.edu.au/>
- Anderson, D. (1992). The interaction of public and private school systems. *Australian Journal of Education*, 36(3), 213–236.
- Anyon, J. (1981). Social class and social knowledge. *Curriculum Inquiry*, 11(1), 235–246.
- Applecross Senior High School. (2016). *Gifted and talented program*. Retrieved February 15, 2016, from <http://www.applecross.wa.edu.au/gifted-talented-program>
- Barnard-Brak, L., McGaha-Gamett, V., & Burley, H. (2011). Advanced Placement course enrollment and school-level characteristics. *National Association of Secondary School Principals Bulletin*, 95(3), 165–174.
- Board of Studies Teaching and Educational Standards. (2016). *HSC syllabuses*. Retrieved February 3, 2016, from http://www.boardofstudies.nsw.edu.au/syllabus_hsc/
- Burris, C. C., Welner, K., & Bezosa, J. W. (2009). *Universal access to a quality education: Research and recommendations for the elimination of curricular stratification*. Boulder, CO: Education and the Public Interest Center.
- Council of Australian Governments. (2008). *National numeracy review report*. Canberra: Author.
- Department of Education and Training. (2013). *Selective high schools entry in year 7 2013*. Sydney: Public Schools NSW.
- Dupriez, V., Dumay, X., & Vause, A. (2008). How do school systems manage pupils' heterogeneity? *Comparative Education Review*, 52, 245–273.
- Fenwick, L. (2012). Limiting opportunities to learn in upper-secondary schooling: Differentiation and performance assessment in the context of standards-based curriculum reform. *Curriculum Inquiry*, 42(5), 629–651.
- Finnish National Board of Education. (2016). *Upper secondary education and training*. Retrieved February 19, 2016, from http://www.oph.fi/english/education_system/upper_secondary_education_and_training

- 46 Gamoran, A. (1987). The stratification of high school learning opportunities. *Sociology of Education*, 60(3), 135–155.
- Gamoran, A. (2000). Is ability grouping equitable? In R. Arum & I. R. Beattie (Eds.), *The structure of schooling: Readings in the sociology of education* (pp. 234–240). Mountain View, CA: Mayfield Publishing.
- Gordon, S., & Nicholas, J. (2013). Prior decisions and experiences about mathematics of students in bridging courses. *International Journal of Mathematical Education in Science and Technology*, 44(7), 1081–1091.
- Grubb, W. N. (1985). The convergence of educational systems and the role of vocationalism. *Comparative Education Review*, 29(4), 526–548.
- Hallinan, M. T. (2000). Tracking: From theory to practice. In R. Arum & I. R. Beattie (Eds.), *The structure of schooling: Readings in the sociology of education* (pp. 218–224). Mountain View, CA: Mayfield Publishing.
- Hanushek, E. A., & Wößmann, L. (2006). Does early tracking affect educational inequality and performance? Differences-in-differences evidence across countries. *Economic Journal*, 116(510), C63–C76.
- Higley, J., Deacon, D., & Smart, D. (1979). *Elites in Australia*. London: Routledge & Kegan Paul.
- Human Rights and Equal Opportunity Commission. (2000). *National inquiry into rural and remote education*. Sydney: Author.
- Klugman, J. (2013). The Advanced Placement arms race and the reproduction of educational inequality. *Teachers College Record*, 115(5), 1–34.
- Lamb, S., & Fullarton, S. (2002). Classroom and school factors affecting mathematics achievement: A comparative study of Australia and the United States using TIMSS. *Australian Journal of Education*, 46(2), 154–173.
- Lamb, S., Hogan, D., & Johnson, T. (2001). The stratification of learning opportunities and achievement in Tasmanian secondary schools. *Australian Journal of Education*, 45(2), 153–167.
- Lamb, S., Jackson, J., Walstab, A., & Huo, S. (2015). *Educational opportunity in Australia 2015: Who succeeds and who misses out*. Melbourne: Mitchell Institute and Centre for International Research on Education Systems, Victoria University.
- Lessard, V., Larose, S., Duchesne, S., & Feng, B. (2014). Tracking in high school mathematics: Individual, social, and school-based determinants in an education reform context. *Journal of Educational and Developmental Psychology*, 4(2), 102–116.
- LeTendre, G. K., Hofer, B. K., & Shimizu, H. (2003). What is tracking? Cultural expectations in the United States, Germany and Japan. *American Educational Research Journal*, 40(1), 43–89.
- Mons, Nathalie. 2007. *Les nouvelles politiques éducatives: La France fait-elle les bons choix?* Paris: Presses Universitaires de France.
- Oakes, J. (1990). *Multiplying inequalities: The effects of race, social class, and tracking on opportunities to learn mathematics and science*. Santa Monica, CA: RAND Corporation.
- Orfield, G. (1996). *Dismantling desegregation: The quiet reversal of Brown v. Board of education*. New York: New Press.
- Organization for Economic Cooperation and Development. (2010a). *PISA 2009 results: Overcoming social background – equity in learning opportunities and outcomes (Vol. 2)*. Paris: Author.
- Organization for Economic Cooperation and Development. (2010b). *PISA 2009 results: What makes a school successful? Resources, policies and practices (Vol. 4)*. Paris: Author.
- Perry, L. B., Lubienski, C., & Ladwig, J. G. (2016). How do learning environments vary by school sector and socioeconomic composition? Evidence from Australian students. *Australian Journal of Education*, (3), 175–190.
- Perry, L. B., Lubienski, C., & Ladwig, J. G. (2015). *Opportunity to learn high status academic curricula in Western Australian secondary schools*. Paper presented at the Australian Association for Research in Education, Fremantle.
- Perry, L. B., & Southwell, L. (2014). Access to academic curriculum in Australian secondary

- schools: A case study of a highly marketised education system. *Journal of Education Policy*, 29(4), 467–485.
- Portes, P. R. (2005). *Dismantling educational inequality: A cultural-historical approach to closing the achievement gap*. New York: Peter Lang.
- Ramirez, F. O., & Meyer, J. W. (2002). National curricula: World models and national historical legacies. In M. Caruso & H.-E. Tenorth (Eds.), *Comparing educational systems and semantics* (pp. 91–107). Frankfurt am Main: Peter Lang.
- Rumberger, R. W., & Palardy, G. J. (2005). Does segregation still matter? The impact of student composition on academic achievement in high school. *Teachers College Record*, 107(9), 1999–2045.
- Rumberger, R. W., & Thomas, S. L. (2000). The distribution of dropout and turnover rates among urban and suburban high schools. *Sociology of Education*, 73(January), 39–67.
- Ryan, C., & Watson, L. (2004). *The drift to private schools in Australia: Understanding its features*. Canberra: Centre for Economic Policy Research, Australian National University.
- SCASA. (2016). *Syllabus and support materials*. Retrieved February 3, 2016, from <http://wace1516.scsa.wa.edu.au/syllabus-and-support-materials/science>
- Schmidt, W. H., Burroughs, N. A., Zoido, P., & Houang, R. T. (2015). The role of schooling in perpetuating educational inequality: An international perspective. *Educational Researcher*, 44(7), 371–386.
- Tate, W. F. (1997). Race-ethnicity, SES, gender, and language proficiency trends in mathematics achievement: An update. *Journal for Research in Mathematics Education*, 28(6), 652–679.
- Teese, R. (2007). Structural inequality in Australian education. In R. Teese, S. Lamb & M. Duru-Bellat (Eds.), *International studies in educational inequality, theory and policy* (Vol. Two, pp. 39–62). Dordrecht: Springer.
- Teese, R. (2011). *From opportunity to outcomes. The changing role of public schooling in Australia and national funding arrangements*. Melbourne: Centre for Research on Education Systems, University of Melbourne.
- Teese, R., & Polesel, J. (2003). *Undemocratic schooling: Equity and quality in mass secondary education in Australia*. Melbourne: Melbourne University Publishing.
- VCAA. (2016). *Victorian certificate of education*. Retrieved March 15, 2016, from <http://www.vcaa.vic.edu.au/Pages/vce/index.aspx>
- Victoria State Government Education and Training. (2016). *Languages policy and legislative requirements*. from <http://www.education.vic.gov.au/school/teachers/teachingresources/discipline/languages/Pages/research.aspx>
- Watson, L., & Ryan, C. (2010). Choosers and losers: The impact of government subsidies on Australian secondary schools. *Australian Journal of Education*, 54(1), 86–107.
- Werblow, J., Urlick, A., & Duesbery, L. (2013). On the wrong track: How tracking is associated with dropping out of high school. *Equity & Excellence in Education*, 46(2), 270–284.
- Zevenbergen, R. (2005). The construction of a mathematical habitus: Implications of ability grouping in the middle years. *Journal of Curriculum Studies*, 37(5), 607–619.

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Trends in Educational Fluidity after the Fall of Socialism in the Czech Republic¹

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Abstract: The aim of this paper is to identify the trends in educational fluidity after the fall of socialism in 1989 in the Czech Republic. The data are based on 27 sample surveys carried out from 1990 to 2009, including information on the child's and his father's education. The trends in educational fluidity are analysed both in view of the years and with respect to the birth cohorts, i.e. on the grounds of two effects: unequal educational odds (according to the socio-economic origin) and the "differentiation" effect. Unequal educational odds are related to the expansion of the Czech education system while the differentiation effect is given by social homogeneity of educational groups. The findings show that despite expansion of educational opportunities the fluidity in education has not been increasing in Czech society. The period between 1990 and 2005 saw even a decline in educational odds depending on the respondents' educational origin. Only from 2006, this tendency started to fall. In our view, the development of educational fluidity was caused primarily by socio-political transition of Czech society rather than by cohort replacement.

Keywords: educational fluidity, cohort analysis, educational inequality, measures of inequality

So far, intergenerational fluidity in education – a relative educational mobility, i.e. change in the education attained by children as compared to their parents² – has been a rather underanalysed topic in social stratification research. It even seems to be neglected compared to intergenerational social fluidity.³ The concept of educational fluidity is based on the concept of social fluidity as described by Erikson and Goldthorpe (1992) and Breen (2004); but concerns education rather than labour market position (Breen & Jonsson, 2005).

Social stratification researchers see the education attained as a prerequisite for a professional position or the result of the socio-economic position of a family rather than in relation to the parents' education. In the first case, they use education as a variable to control the relationship between the professional position of parents and their children (social fluidity analysis) and show to what extent such a relation is mediated by education – whether it is weakened or not. If this is the case, there is a variable determining and, at the same time, explaining the position on the labour

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² The change is relative which means that the (upward or downward) shift between the parents' and their children's education is controlled in terms of changes in the education structure. Relative educational mobility is a synonym for fluidity in education.

³ Intergenerational social fluidity means the relative difference between the social classes of parents and their children.

50 market (cf. Blau & Duncan, 1967; Erikson & Goldthorpe, 1992; Breen, 2004). In the latter case, they analyse the attained education with respect to social origin. They reflect unequal educational odds with respect to social origin and refer to open and closed education systems of nation states (Mare, 1980, 1981; Hauser et al., 1983; Rafferty & Hout, 1993; Breen & Jonsson, 2000; Lucas, 2001).

Intergenerational fluidity in education indicates whether an education system is closed or open. When analysing its development, we can answer questions concerning the rate of educational reproduction – whether and to what extent the educational status is transmitted from parents to their children and how the parents' education influences the education of their children. These are burning questions for the Czech Republic after 1989 as Czech society has undergone major political, economic and social changes, changing both the importance of education for social processes and the fundamental trends in educational status transmission.

The aim of this paper is to identify the development of fluidity in education in the Czech Republic after the fall of socialism in 1989 and to provide an explanation. Given the continuous nature of historical development whereas each development phase is related to a preceding one, let us have a brief look at the analyses on unequal education odds carried out in Czech sociology in the past few years. First part of this paper shows there is a consensus on the development of educational inequalities before 1989 in Czech sociology: the period of socialism did not significantly weaken the relation between the education of parents and their children (Matějů, 1993; Hanley & McKeever, 1997; Wong, 1998; Hanley, 2001).

Later on, we present analyses on unequal educational odds carried out in the Czech Republic after 1989. The inconsistent conclusions of these analyses have motivated us to try to once again reconstruct the development of fluidity in education after 1989.⁴ In the analytical part, we have innovated the approach to this topic. Our innovation is primarily based on the fact that we use all available data sources in which fluidity in education in Czech society can be identified from 1990 to 2009 (27 surveys in total). Another innovation involves the analysis of the development of fluidity in education in view of the cohorts and the respective periods. We believe that the cohort effect must be viewed separately from the time effect. Our data from several moments in time (years) enable such a differentiation, providing a completely new view on the post-1989 development of fluidity in education in the Czech Republic.

As we have come to the conclusion that the impact of cohort differences on the development of fluidity in education is not as significant as the differences in the analysed years from 1990 to 2009 – i.e. Czech society after 1989 has experienced a significant transition influencing changes in fluidity in education – we interpret the development of fluidity in education using two “external” effects: unequal educa-

⁴ Previous version of this text was aimed at Czech readership and was published in the *Czech Sociological Review* (Katrňák & Simonová, 2011). The current version is – compared to its predecessor – written in a more accessible fashion, includes the latest research findings concerning the topic in question, and is more closely linked to education policy.

tional odds and the “differentiation effect”. The test of both effects in relation to the development of fluidity in education is the subject of our final analysis.

In the conclusion, we summarise our findings, setting them in the 1990–2009 transition context. We believe that this analysis will explain the so far contradictory conclusions concerning the development of fluidity in education in the Czech Republic in the past 20 years, contributing to the discussion on the development of educational odds.

1 Unequal educational odds after the fall of socialism in 1989

To date, analyses focusing on the development of educational odds after 1989 have presented different results, either stability of educational inequalities, increase in unequal educational odds or decrease in inequalities when it comes to the access to higher education.

The first of these analyses showed that after 1989 the unequal odds in terms of access to university education did not see any major changes compared to the previous cohorts. For the cohort entering university after the fall of socialism, the effect of the father's education returned to the level reported for the 1948–1969 period (Simonová, 2003). The second analysis (Matějů et al., 2007) showed that the educational odds of children of unskilled and semi-skilled workers have dropped significantly after 1989 compared to children from other social classes. This means that the influence of the father's socio-economic position on the education of his child increased. However, the effect of the parents' education on their child's education remained unchanged.

According to the analysis by Simonová and Soukup (2009), both the odds of entering university and the odds of passing from an elementary to a secondary school with a school-leaving certificate increased among the 1955–2002 cohorts. For students whose fathers had university education, the odds of attaining university education were almost seven times higher than for students whose fathers had not completed secondary education (without school-leaving certificate) and approximately four times higher than for students whose fathers had completed it (Simonová & Soukup, 2009).

Koucký, Bartušek and Kovařovic (2010)⁵ say that the inequality index of access to tertiary education was far below the European average in the 1950s in the Czech lands. In the 1960s inequalities rose and reached a level slightly below the European average. This level dropped significantly again in the 1970s when again children from “blue-collar” classes were given preference in admission to higher education institutions. In the following two decades, i.e. 1980–90 and 1990–2000, the level of

⁵ The authors used the Inequality index which has been constructed as a well-known and often used measure of inequality, the Gini inequality index (perfect equality in access to tertiary education is represented by the value 0, perfect inequality by the value 100).

52 inequalities increased again closely above the European average. After 2000, in the context of a quantitative expansion in the number of new graduates, inequalities in access to tertiary education have decreased again in the CR and reached a level below the European average.

Analysing intergenerational mobility and fluidity in education in the Czech Lands during the 20th and 21st centuries, Simonová (2011) showed that during the entire nineteen-hundreds there was a steady increase in the share of persons attaining higher education than their parents. This was mostly due to the expansion of educational systems that occurred after WWII across the developed world. However, the trend slowed down in birth cohort 1969–1989 and did not recover until 2003 (last year in the analysis). The author suggested that this was a result of both slow development of educational opportunities, and weakening of the role education played in life success under state socialism (a trend that likely continued for some time after the regime's fall). The analysis of educational fluidity then showed that the association between parental and offspring education had remained stable since the 1970s, an exception being mothers and their daughters. Among women, in fact, educational reproduction weakened between 1948 and 2003, whereas for men the trend was stagnant since 1969 and continued to be so after 1989.

The newest debates within the sociology of education focus on the possibility that the declining inequality in access to higher education gives rise to qualitative inequalities, i.e., that differences between schools start to appear that are based on quality (meaning the extent into which a school is demanding and academically oriented) and that schools of different quality cater to – or are easier to access by – children from different social strata (with higher-quality schools being easier to access for children from higher strata and vice versa). Therefore, it should be acknowledged that decline in educational inequalities pertaining to a particular level within the system of education might be accompanied by differentiation to better and worse schools at this very level. For more see Lucas (2001); for an application within the Czech context concerning secondary education, see Katrňák, Simonová and Fónadová (2016).

So, why do several analyses on the same topic focusing on the same period produce different results? In our opinion, there are several reasons. First, these analyses were conducted using sets of data collected in different years after 1989. The question is how long it took for the social, political and economic changes after 1989 to affect the educational odds to an identifiable extent. Second, all these analyses examined the development of educational inequalities among cohorts. This means that the differences between the years were identified on the grounds of differences between the cohorts born in different years. This can distort the results because the cohort effect (the influence of the time period when a group of young people passes through the education system) and the effect of years (the influence of the period when the data are collected) on the educational odds may vary. Last but not least, the intervals of years used in these analyses were defined in a different way, which can also distort the results given that the effect of time (years) is not controlled.

2 Methodology – two perspectives in one set of data

The representatives of the cohorts born in different years have a different historical experience. They represent different social phenomena as they grew up in different historical eras (Glenn, 1977, 2005). One cohort replaces another one in time. Sociologists describing this phenomenon use the term “cohort replacement”. Where the cohort effect is not separated from the effect of time (years) and the effect of age (biological aging) in the analysis, the effects of all three variables are interrelated and it is not clear whether the years of data collection, cohort replacement or biological aging of people influence the changes in fluidity in education.

In our analysis, we do not take the age into account. This is due to three reasons. First, we assume that most people complete their education by the age of 25 and do not change it later. Second, we believe that where such a change occurs at a later age, it results from other social factors rather than age. And, last but not least, we are convinced that such a change is primarily influenced by the time period – i.e. the overall social changes which enable to attain education at a later age.

The effect of time (years) influences all social groups. Where the society undergoes some economic, social, political or cultural changes, these changes affect the society as a whole rather than selected age, social or economic segments. The effect of time in the analysis of fluidity in education means that the social processes occurring in a society are so significant that they can influence most cohorts rather than only those completing their education at the time in question. Such processes can involve, for example, a massive expansion of education, induced by economic and political incentives, penetrating the society as a whole.

Cohort replacement forms the core of the cohort effect. According to many sociologists, it is the reason for social changes in stable democracies. Western democratic societies keep changing by replacing previously born cohorts with cohorts born at a later time. According to Ryder (1965), cohort (composition) replacement has to be taken into account when explaining the development of most social phenomena unless there is a sudden (revolutionary) social and cultural turn.

Our data include 18 cohorts and 5 periods.⁶ We are interested in whether the development of fluidity in education is influenced by the differences between the cohorts or time periods. If the cohort effect influences the development of fluidity in education more significantly than the effect of years, this means that each later-born cohort differs from the previously born cohort in terms of fluidity in education. Cohort replacement – replacement of previously born cohorts by later-born cohorts – leads to changes in fluidity in education in time. If the effect of years influenced educational mobility in our analysis more significantly than the cohort effect, it would mean that the period under consideration (1990 to 2009) was such

⁶ To ensure sufficient number of respondents in the individual cells of our mobility tables (i.e., to make the analysis possible) we created five four-year time periods. In our view, this did not alter the description of the development of educational fluidity as a change is expected to occur over longer periods of time, not annually.

54 a “turbulent” era that it did not only affect the latest-born cohorts in the education system but the educational odds of a much larger segment of society.

3 Data and variables

The data was sourced from all available sample surveys carried out in the Czech Republic from 1990 to 2009, including information on the child’s (respondent’s) and his father’s education. There are 27 field surveys in total. In most cases, random (multilevel, stratified) samples were used, representative of Czech society at the time of data collection. In three cases, quota (quasi-representative) samples were used. Since we are interested in the highest completed level of education, we have limited our analysis to the age of 25–80 years.⁷ The overall size of the analysed data amounts to 41,906 respondents. Weighting was applied wherever possible.

The variables we work with are the father’s and the respondent’s education. The father’s education indicates the respondent’s educational origin. The difference between the education attained by a father and a respondent reveals educational reproduction (where the father and his child have the same education), upward educational mobility (where the child has higher education than his/her father) or downward educational mobility (where the child attains lower education than his/her father). In both cases, we use four levels of the highest education attained (elementary education, apprentice training, secondary education and university education).

In terms of years, the data were aggregated into five four-year periods. Each of these periods reflects a different time of the political, economic and cultural transition of Czech society. In each four-year period, 14 age groups were identified on the grounds of the four-year terms. Deducting the age of the age groups from the respective periods, 18 cohorts born between 1910 and 1981 were defined. The oldest cohort were born from 1910 to 1913, the second one from 1914 to 1917 and the youngest cohort were born from 1978 to 1981 (Table 1).

Since our data are limited by the respondents’ age of 25 to 80 years, all birth cohorts are not represented in all periods. For example, cohort 1 (born from 1910 to 1913) is only represented in the 1990–1993 period while cohort 14 (born from 1962 to 1965) is represented in all analysed periods. This means that our data do not have a square form when analysing the relationship between the father’s and the respondent’s education and when separating the cohort effect from the effect of time of data collection. The basic contingency table which we analyse is a 4×4 table (father’s education \times respondent’s education). When analysing the relationship in this table according to 5 periods and 18 cohorts at one time, the number of analysed table fields amounts to 1,440 with 320 fields accounting for a structural zero.⁸

⁷ We assume that after the age of 25 most people have finished their education trajectory.

⁸ A structural zero means that no case exists for a given combination of variables.

Table 1 Relationship between periods (years), age groups and birth cohorts

Age groups	Years (period)									
	1990–1993		1994–1997		1998–2001		2001–2004		2005–2009	
25–28	14	<i>1962–1965</i>	15	<i>1966–1969</i>	16	<i>1970–1973</i>	17	<i>1974–1977</i>	18	<i>1978–1981</i>
29–32	13	<i>1958–1961</i>	14	<i>1962–1965</i>	15	<i>1966–1969</i>	16	<i>1970–1973</i>	17	<i>1974–1977</i>
33–36	12	<i>1954–1957</i>	13	<i>1958–1961</i>	14	<i>1962–1965</i>	15	<i>1966–1969</i>	16	<i>1970–1973</i>
37–40	11	<i>1950–1953</i>	12	<i>1954–1957</i>	13	<i>1958–1961</i>	14	<i>1962–1965</i>	15	<i>1966–1969</i>
41–44	10	<i>1946–1949</i>	11	<i>1950–1953</i>	12	<i>1954–1957</i>	13	<i>1958–1961</i>	14	<i>1962–1965</i>
45–48	9	<i>1942–1945</i>	10	<i>1946–1949</i>	11	<i>1950–1953</i>	12	<i>1954–1957</i>	13	<i>1958–1961</i>
49–52	8	<i>1938–1941</i>	9	<i>1942–1945</i>	10	<i>1946–1949</i>	11	<i>1950–1953</i>	12	<i>1954–1957</i>
53–56	7	<i>1934–1937</i>	8	<i>1938–1941</i>	9	<i>1942–1945</i>	10	<i>1946–1949</i>	11	<i>1950–1953</i>
57–60	6	<i>1930–1933</i>	7	<i>1934–1937</i>	8	<i>1938–1941</i>	9	<i>1942–1945</i>	10	<i>1946–1949</i>
61–64	5	<i>1926–1929</i>	6	<i>1930–1933</i>	7	<i>1934–1937</i>	8	<i>1938–1941</i>	9	<i>1942–1945</i>
65–68	4	<i>1922–1925</i>	5	<i>1926–1929</i>	6	<i>1930–1933</i>	7	<i>1934–1937</i>	8	<i>1938–1941</i>
69–72	3	<i>1918–1921</i>	4	<i>1922–1925</i>	5	<i>1926–1929</i>	6	<i>1930–1933</i>	7	<i>1934–1937</i>
73–76	2	<i>1914–1917</i>	3	<i>1918–1921</i>	4	<i>1922–1925</i>	5	<i>1926–1929</i>	6	<i>1930–1933</i>
77–80	1	<i>1910–1913</i>	2	<i>1914–1917</i>	3	<i>1918–1921</i>	4	<i>1922–1925</i>	5	<i>1926–1929</i>

Note: Bold numbers in each field designate the cohort, numbers in italics identify when the cohorts for a specific period were born.

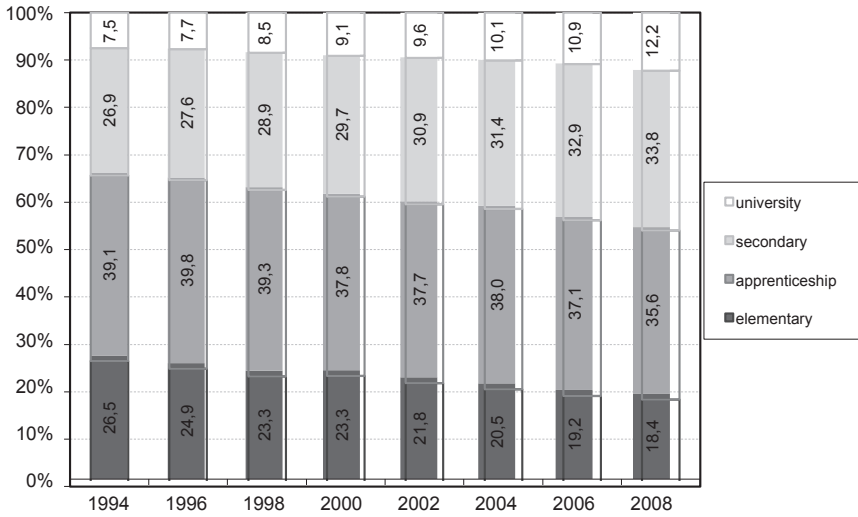
Source: *Czech Statistical Office data* from 1994 to 2008 (weighted data).

4 Starting point of the analysis – educational structure and absolute educational mobility

Since 1989, the educational structure of Czech population has been changing. The number of people attaining the lowest education levels has been falling, while the number of people with secondary and university education has been increasing (Chart 1). This trend has been observed in most European populations where more and more people are attaining higher education levels (OECD 2014).

So do the data on the development of the education structure in the Czech Republic correspond to the development of (absolute) educational mobility? Chart 2 shows that this is not the case. While the share of people on higher education levels increased in the period under consideration, the share of people showing upward educational mobility remained unchanged.⁹

⁹ The fact that upward educational mobility did not change despite increased percentage of persons attaining higher educational levels might be attributed to demographical and structural causes – while the ever-growing generation of parents enjoyed increased number of places in schools, thereby attaining more education, the offspring generation witnessed slowly expanding system of education which brought to light the stagnation of upward educational mobility.



Source: Czech Statistical Office data from 1994 to 2008 (weighted data).

Chart 1 Educational structure development in the Czech Republic from 1994 to 2008 (in %)

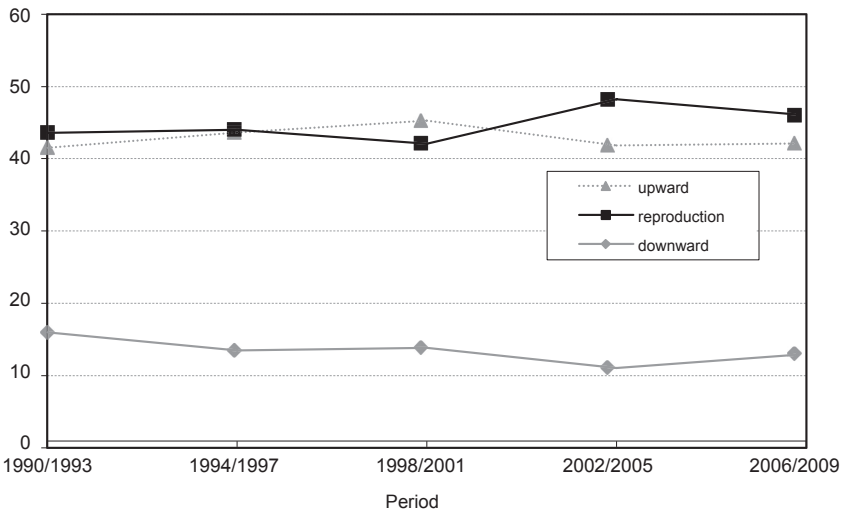


Chart 2 Educational mobility in the Czech Republic from 1990 to 2009 (25–80 years of age)

Chart 3 shows the same data in view of the defined cohorts forming the education structure from 1990 to 2009. In all cohorts, educational reproduction and upward educational mobility outweigh downward educational mobility. The share of respondents who attained the same education as their fathers dropped from the oldest cohorts to the cohorts born by the early 1950s. On the contrary, the share of those respondents who attained higher education than their fathers increased.

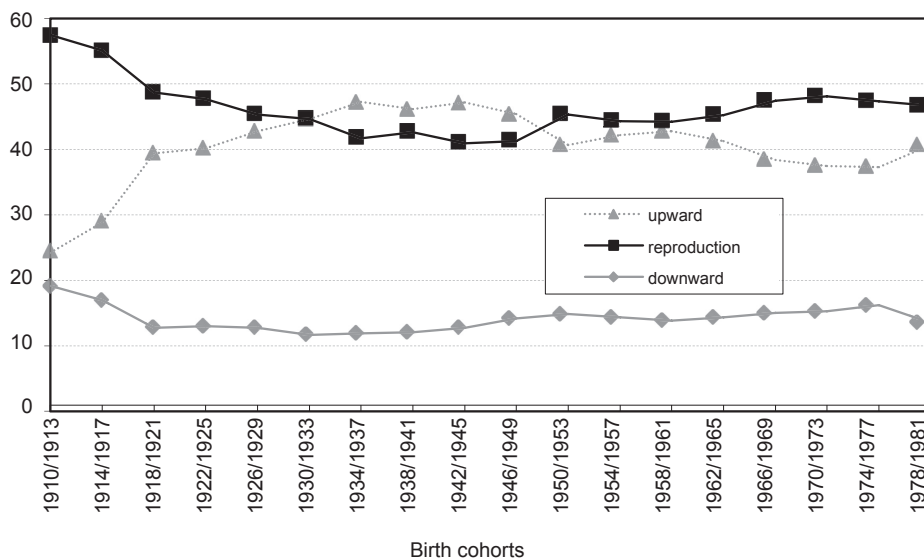


Chart 3 Educational mobility in cohorts born from 1910/1913 to 1978/1981 (in %)

The youngest cohorts who received education from 1990 to 2009 experience a slight drop in educational reproduction.

The conclusions of the data analysis in view of cohorts (on the absolute level) go hand in hand with the previous findings concerning the development of educational odds in pre-socialist and socialist Czechoslovakia. In the cohorts passing through the education system in the first two decades of socialist Czechoslovakia (from 1950 to 1970, cohorts born from 1937 to 1949) a lower level of educational reproduction can be expected than in later-born cohorts for which inequalities concerning the access to education grew (Matějů, 1993; Hanley & McKeever, 1997; Simonová 2003).

5 Analysis of the fluidity in education from 1990 to 2009

We divided the analysis of fluidity in education into two parts. In the first part, we deal with the development of fluidity in education according to respondents' cohorts born in different years (from 1910/1913 to 1977/1981), controlling this development for the respondents' sex. After that, we analyse the development of fluidity in education in the years which our data come from (from 1990 to 2009), also controlling this development for the respondents' sex.

In the second part of the analysis, we focus on an explanation of the development of fluidity in education using two effects. The first one is the effect of *unequal educational odd*; the second one is the *differentiation effect*. We assume that, provided fluidity in education dropped in the analysed years, unequal educational odds ac-

58 cording to socio-economic origin must have increased too. This means that we test whether the effect of socio-economic origin on the attained education increases in those years when fluidity in education declines.

5.1 Analysis part I: Development of fluidity in education – cohort or period effect?

Table 2 shows estimated log-linear models for a four-way table with the following variables: father's education, respondent's education, specific cohort and sex ($F \times R \times C \times S$; table dimensions: $4 \times 4 \times 18 \times 2$). Model 1 assumes no relationship between father's education and respondent's education if the specific cohort and sex variables are controlled. Model 2 is a model of constant fluidity in education: fluidity in education for all cohorts as well as for both sexes is the same. Model 3 presumes that fluidity in education log-multiplies according to cohorts but independently of sex.¹⁰ Model 4 assumes that fluidity in education differs by sex but not by cohort. Finally, model 5 builds on the assumption that fluidity in education changes both according to respondent's cohorts and sex.

Table 2 Estimated log-linear models according to cohort and sex (25–80 years of age)

Models	Model description	L^2	Δ	df	BIC
1) $CSF\ CSR$	F and R independence model	8691.54	16.25%	324	5236
2) model 1 + FR	FR constant association model	491.25	3.15%	315	-2868
3) model 1 + $FR^*\varphi C$	Log-multiplicative development of FR association according to C	444.18	2.96%	298	-2734
4) model 1 + $FR^*\varphi S$	Log-multiplicative development of FR association according to S	491.25	3.15%	314	-2858
5) model 1 + $FR^*\varphi CS$	Log-multiplicative development of FR association according to C and S	427.35	2.88%	280	-2559

Note: C – cohort, S – sex, F – father's education, R – respondent's education, BIC is the Bayesian information criterion ($BIC = L^2 - (df) \ln N$) where N is the total number of cases; Δ is the difference index showing the difference of incorrectly classified cases in the estimated model.

According to the BIC criterion we should interpret our data based on model 2 whereas traditional statistical criteria would suggest model 5 for our data interpretation. Model 2 assumes that fluidity in education undergoes no significant change according to cohorts or according to sex. Chart 4 shows estimated phi parameters of model 5 for fluidity in education of men and women in individual cohorts. Each cohort and sex is given a phi parameter estimate interpreted in relation to the first parameter (men born between 1910 and 1913), which is set on 1. The higher the phi

¹⁰ For a log-multiplicative model and change in the size of association between two variables according to a third variable, cf. Xie (1992) or Powers and Xie (2009).

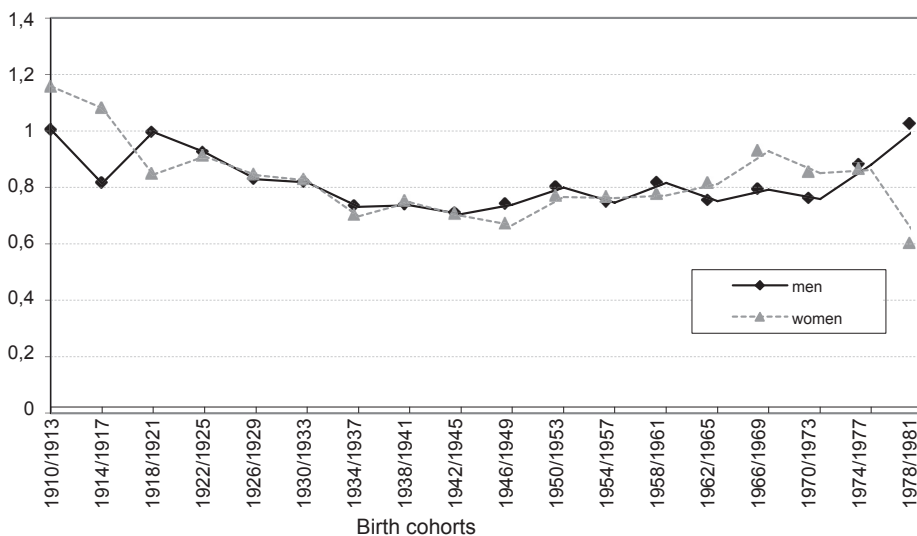


Chart 4 Fluidity in education according to cohort and sex in the Czech Republic (25–80 years of age)

parameter, the lower the fluidity in education, and vice versa. Sex differences in fluidity in education by cohort (with the exception of the three oldest cohorts and the youngest cohort) are insignificant. We can therefore accept model 2 assumption of no difference in fluidity in education between sexes in the view of cohorts. In terms of development, model 2 also predicts no significant differences among cohorts. Thus, we claim that fluidity in education does not change in any significant way among cohorts in the 1990–2009 period.

Table 3 Estimated log-linear models for the development of fluidity in education according to period and sex in the Czech Republic (25–80 years of age)

Models	Model description	L^2	Δ	df	BIC
1) $PSF\ PSR$	F and R independence model	10 308.82	17.93%	90	9348
2) model 1 + FR	FR constant association model	307.48	2.81%	81	-557
3) model 1 + $FR^*\varphi P$	Log-multiplicative development of FR association according to P	186.70	1.89%	77	-634
4) model 1 + $FR^*\varphi S$	Log-multiplicative development of FR association according to S	301.66	2.82%	80	-552
5) model 1 + $FR^*\varphi PS$	Log-multiplicative development of FR association according to P and S	175.97	1.96%	72	-592

Note: C – cohort, S – sex, F – father's education, R – respondent's education, BIC is the Bayesian information criterion ($BIC = L^2 - (df) \ln N$) where N is the total number of cases; Δ is the difference index showing the difference of incorrectly classified cases in the estimated model.

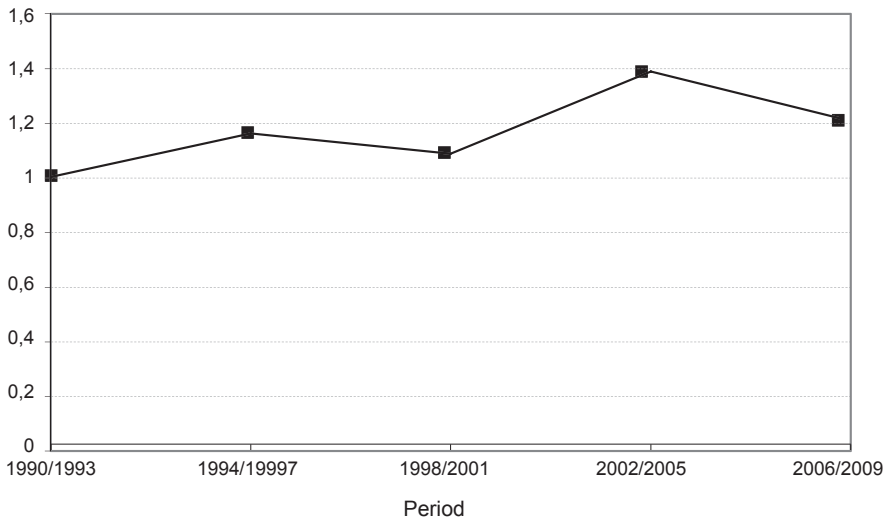


Chart 5 Development of fluidity in education according to period in the Czech Republic (25–80 years of age)

In our next step, we have estimated the same log-linear models, however, instead of a cohort perspective we have chosen a time-period perspective. Table 3 shows the estimated log-linear models for a 4×4 table which includes variables of fathers' education, respondent's education, period and sex ($F \times R \times P \times S$; table dimensions: $4 \times 4 \times 5 \times 2$). In this case, we should prefer model 3 for our data interpretation according to the *BIC* statistics, supposing a change in fluidity in education by period, not by sex. The chi-square test based on comparing L^2 and df of this model with model 5 shows that model 3 is not statistically different from model 5 (chi-square = 10.73, $df = 5$). Nevertheless, model 4 differs statistically in quite a significant way from model 5. Therefore, we prefer model 3 to model 5 for our data interpretation. On the basis of this model, *educational fluidity is the same for both sexes in the 1990–2009*.

Chart 5 shows the developments in fluidity in education in time based on model 3. Similarly to the cohort approach, an estimate of one phi parameter is provided for each period and it is interpreted in relation to the first parameter set to 1 (the 1990–1993 period). Even in this case, the higher the phi parameter the lower fluidity in education. This data allows us to claim that *fluidity in education in the Czech Republic decreased between 1990 and 2005 and went up again only in the post-2005 period. The post-1989 period is not a period of growth in educational odds determined by educational origin*.

The last question we asked in the first part of our analysis is whether the cohort effect on fluidity in education is insignificant even when the period effect is controlled. In other words: which of these effects has a greater impact on fluidity in education? Is it cohort replacement, or rather the change Czech society has been undergoing since 1989? In order to answer this question we need to control the fluidity

in education developments both for cohorts and periods. We have not included sex in this analysis since the two previous analyses have shown that it is not necessary to account for sex in studying fluidity in education in the Czech Republic. In this case (table 4), we analysed a 4×4 table with the following variables: father's education, respondent's education, periods and cohorts ($F \times R \times P \times C$; table dimensions $4 \times 4 \times 5 \times 18$).

Table 4 Estimated log-linear models for the development of fluidity in education according to cohort and period in the Czech Republic (25–80 years of age)

Models	Model description	L^2	Δ	df	BIC
1) <i>PCF PCR</i>	<i>F</i> and <i>R</i> independence model	8896.88	16.37%	810	256
2) model 1 + <i>FR</i>	<i>FR</i> constant association model	836.34	4.30%	801	-7708
3) model 1 + <i>FR</i> * φ <i>P</i>	Log-multiplicative development of <i>FR</i> association according to <i>P</i>	713.18	3.88%	797	-7789
4) model 1 + <i>FR</i> * φ <i>C</i>	Log-multiplicative development of <i>FR</i> association according to <i>C</i>	811.77	4.24%	784	-7552
5) model 1 + <i>FR</i> * φ <i>PC</i>	Log-multiplicative development of <i>FR</i> association according to <i>P</i> and <i>C</i>	635.89	3.57%	712	-6959
6) model 3 + <i>FR</i> * φ <i>P</i> (linear)	Linear development of <i>FR</i> association according to <i>P</i>	760.28	4.00%	800	-7774
7) model 3 + <i>FR</i> * φ <i>P</i> (quadratic)	Quadratic development of <i>FR</i> association according to <i>P</i>	756.12	3.99%	799	-7767

Note: *C* – cohort, *S* – sex, *F* – father's education, *R* – respondent's education, BIC is the Bayesian information criterion ($BIC = L^2 - (df) \ln N$) where N is the total number of cases; Δ is the difference index showing the difference of incorrectly classified cases in the estimated model.

Model 1 builds on the assumption that the association between the education of the father and the respondent disappears when both the cohort and period variables are controlled. Model 2 assumes that this association is constant across all cohorts and periods. According to model 3, *the association between father's and respondent's education changes only with respect to the period, and not in relation to cohorts*. Model 4 suggests that this association changes only in relation to cohorts, and not periods. Finally, model 5 posits that the association between father's and respondent's education changes both in relation to the period and cohort. Again, we prefer model 3 for the interpretation of our data: *cohort differences are not as significant for the fluidity in education development as are temporal differences. The time-period effect related to the post-1989 society transformation has a stronger impact on fluidity in education than the cohort effect referring to cohort replacement*. This conclusion is consistent with the cohort replacement premise: a cohort effect shows only in stable democratic societies which do not undergo significant social, economic or political changes. And that was not the case of Czech society between 1990 and 2009.

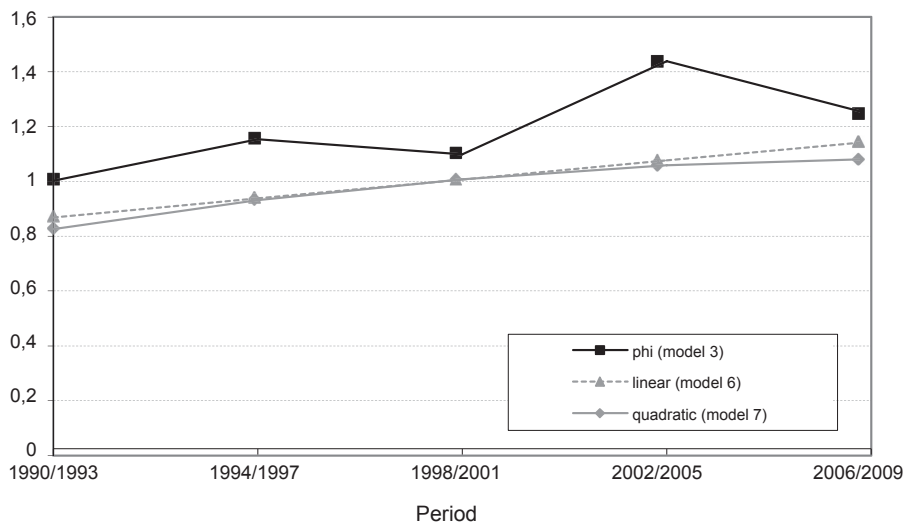


Chart 6 Development of fluidity in education according to period in the Czech Republic (25–80 years of age)

We prepared two more estimated models for fluidity in education developments by period and not by cohort. Our first premise was that of a linear (model 6) and quadratic (model 7) development of fluidity in education over time. Both of these models are based on model 3 but are much more economic than this model and their *BIC* criterion is lower than the *BIC* criterion of models 4 and 5.

The phi parameter estimates for models 3, 6 and 7 are shown in Chart 6. In model 3, an estimate of one phi parameter is made for each period and both are interpreted with respect to their first parameter set on 1 (the 1990–1993 period). In model 6, estimates for only two parameters (a , b) are made in an equation describing the linear trend ($Y = a + bX$, where X represents years and each Y demonstrates a linear trend). In model 7, estimates of three parameters (a , b , c) were made for an equation of a quadratic trend ($Y = a + bX + cX^2$, where X represents years and each Y shows the quadratic trend line). One rule guides all models: the higher the phi parameter, the lower fluidity in education.

All three curves suggest diminishing fluidity in education in the post-1989 period whereas model 3 curves (one phi parameter for each year) and model 7 curves (quadratic development model based on three parameters) suggest the change of the trend post 2005. Hence, we may conclude that in spite of accounting for cohorts in our data the development in fluidity in education remains practically the same as when disregarding the cohorts completely. The cohort effect on the temporal change in fluidity in education is insignificant compared to the period effect. *It is mainly societal transformation – a transformation of society concentrated in a relatively short period of several years, which influences how fluidity in education develops.*

5.2 Analysis Part II: Explanation by unequal educational odds and differentiation effect

The second part of our analysis focuses on explaining the attenuating fluidity in education between 1990 and 2005 and on changing this trend in the 2006–2009 period. First, we focus on educational odds. When fluidity in education goes down, hereby reinforcing the effect of father's education on his child's education, one of the causes of this phenomenon should be increasingly unequal educational odds dependent on socio-economic origin (Vallet 2004). We presume that a child's socio-economic environment should have an increasingly stronger effect on his/her education. Socio-economic environment of the respondent's origin is indicated by the father's international socio-economic index (ISEI) which we categorised in quintiles. Thus, we analysed a three-dimensional table with the following variables: father's ISEI, respondent's education and period ($O \times R \times P$; table dimensions: $5 \times 4 \times 5$). This analysis was limited to respondents between 25 and 40 years of age only, again regardless their sex.

Table 5 shows estimated log-linear models for the educational odds development according to socio-economic origin. According to model 1, there is no association between the father's ISEI and respondent's education (controlled for all periods). According to model 2, this association is constant in all the three periods and according to model 3 it has been estimated using one parameter for each period (modelled as a multiplicative variable using phi parameters). Models 4 and 5 are based on model 3, nevertheless, they model the association between the father's ISEI and respondent's education in various periods both in a linear (model 4) and in a quadratic way (model 5). Both of these models are more economic than model 3. They include fewer parameters describing the development of the relationship between the father's ISEI and respondent's education. Model 4 describes this relationship using two parameters (the equation for the linear relationship is $Y = a + bX$, where X represents years and a and b were estimated from the data). Model 5 describes the relationship using three parameters (equation for the quadratic relationship is $Y = a + bX + cX^2$, where X are years and a , b and c were estimated from the data).

Table 5 Estimated log-linear models for the development of educational odds according to socio-economic origin in the Czech Republic between 1990 and 2009 (25–40 years of age)

Models	Model description	L^2	Δ	df	BIC
1) <i>PO PR</i>	<i>O</i> and <i>R</i> independence model	1921.75	15.33%	60	1356
2) model 1 + <i>OR</i>	<i>OR</i> constant association model	69.80	2.33%	48	-361
3) model 1 + <i>OR</i> * φ <i>P</i>	Log-multiplicative development of <i>OR</i> association according to <i>P</i>	54.15	2.06%	44	-383
4) model 3 + <i>OR</i> * φ <i>P</i> (linear)	Linear development of <i>OR</i> association according to <i>P</i>	68.57	2.34%	47	-375

Note: *P* – period, *O* – father's social class, *R* – respondent's education, BIC is the Bayesian information criterion ($BIC = L^2 - (df) \ln N$) where N is the total number of cases; Δ is the difference index showing the difference of incorrectly classified cases in the estimated model.

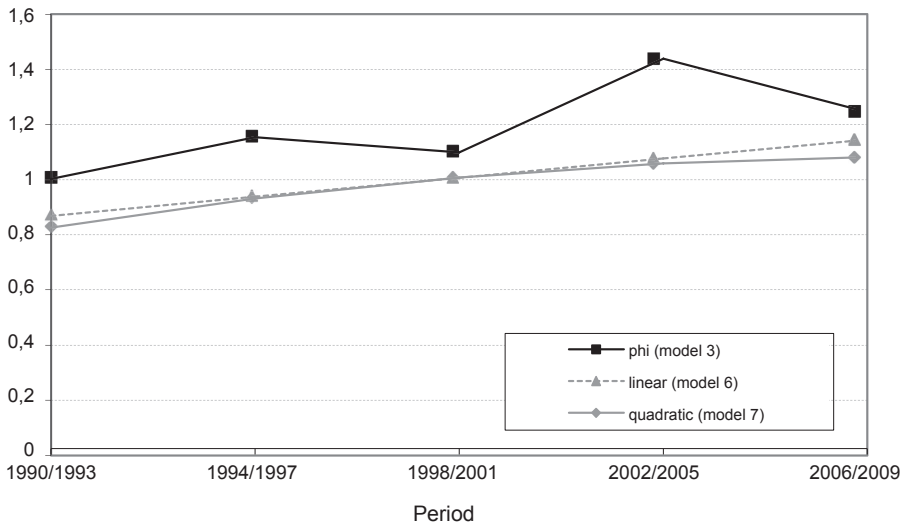


Chart 7 Development of unequal educational odds according to the father's socio-economic status in the Czech Republic between 1990 and 2009 (25–40 years of age)

Chart 7 shows estimated phi parameters of model 3 and the linear and quadratic development of the relationship between the father's ISEI quintiles and respondent's education based on models 4 and 5. All curves have a very similar progression to the curves illustrating the development of fluidity in education in Analysis I. *The influence of the father's ISEI on the respondent's education gets stronger between 1990 and 2005 while we are witnessing the weakening of this trend nowadays. Unequal educational odds increase as fluidity in education in Czech society diminishes (cf. Chart 6). The reinforcing effect of socio-economic origin "intermediates" the relationship between the father's and child's education, being one of the causes of a decreased fluidity in education in Czech society between 1990 and 2005. In the 2006–2009 period, the association between the father's ISEI and child's education grows weaker. A similar development can be seen in fluidity in education. Unequal educational odds dependent on socio-economic status did not grow in Czech society in that period, translating into a growing fluidity in education (even though it is not clear yet whether this is a beginning of a long-term trend or a mere temporary statistical deviation).*

A second reason we are testing as a potential cause for a diminishing fluidity in education between 1990 and 2005 and its subsequent increase is the "differentiation" effect. We suppose that if the Czech education system in the past 20 years did not offer enough study opportunities, these places were occupied mainly from the highest social levels down. We base this premise of ours on the MMI (*maximally maintained inequality*) theory according to which the limited number of positions in the highest levels of the education system is based on the social origin in a top-down way (Raftery & Hout, 1993).

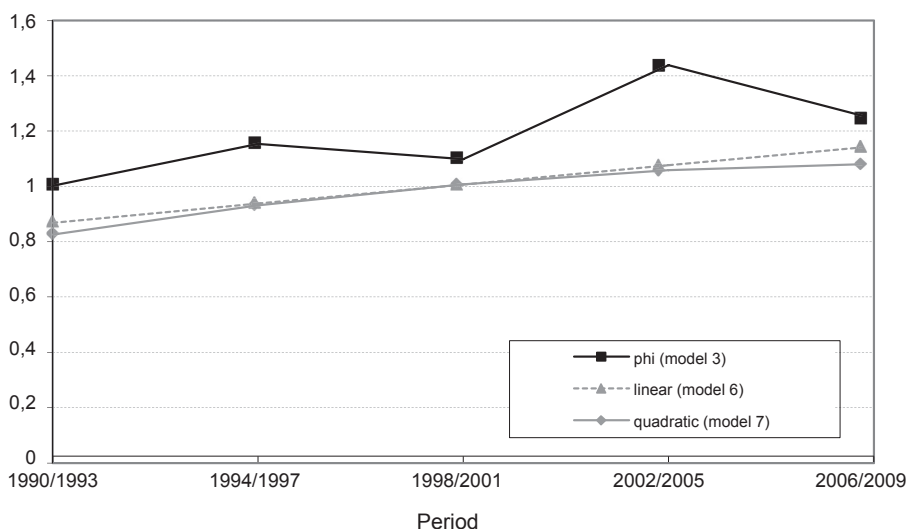
Table 6 Estimated log-linear models for the development of fluidity in education according to socio-economic origin in the Czech Republic between 1990 and 2009 (25–40 years of age)

Models	Model description	L^2	Δ	df	BIC
1) <i>POF POR</i>	<i>F</i> and <i>R</i> independence model	1115.61	9.93%	225	-999
2) model 1 + <i>FR</i>	<i>FR</i> constant association model	291.34	4.44%	216	-1603
3) model 1 + <i>FR</i> * φ <i>PO</i>	Log-multiplicative development of <i>FR</i> association <i>FR</i> according to <i>PO</i>	201.27	3.40%	192	-1739

Note: *P* – period, *O* – father’s social class, *F* – father’s education, *R* – respondent’s education, BIC is the Bayesian information criterion ($BIC = L^2 - (df) \ln N$) where N is the total number of cases; Δ is the difference index showing the difference of incorrectly classified cases in the estimated model.

We test the *differentiation effect* as a development of social fluidity in time in each category of socio-economic origin. We are interested in which social strata (ISEI father quintiles) social fluidity weakened between 1990 and 2005 or grew stronger between 2006 and 2009. We analyse a 4×4 table composed of the following variables: father’s ISEI, father’s education, respondent’s education and period ($O \times F \times R \times P$; table dimensions: $5 \times 5 \times 4 \times 4$). Again, we analyse only respondents between 25 and 40 years of age and pay no attention to sex (Table 6).

Model 1 presumes that by introducing father’s ISEI the relationship between father’s and respondent’s education in time disappears. According to model 2 this relationship is constant in all father’s ISEI quintiles and periods. According to model 3 the relationship in father’s ISEI quintiles and periods differ – for each quintile and

**Chart 8** Development of fluidity in education according to socio-economic origin (ISEI father quintiles) in the Czech Republic between 1990 and 2009 (25–40 years of age)

66 each period the relationship is expressed by a phi estimate (Xie 1992). Our data interpretation is based on model 3.

Chart 8 shows the development of fluidity in education according to socio-economic origin between 1990 and 2009. A lower father's ISEI quintile translates into lower fluidity in education. The same applies to the entire monitored period of 1990–2009. Thus, *the vast majority of children of parents from the lowest social strata are the ones achieving the same low education as their parents*. Educational level differentiation – social homogeneity – grows mainly in lower educational levels. There is no dramatic change of the situation in higher educational levels.

6 Conclusion

The objective of this paper was to identify and explain the post-1989 development of fluidity in education in the Czech Republic. Seeking to identify the cause of the described developments we identified two effects corresponding with the development of fluidity in education in a given period. First, we tested the influence of socio-economic origin on respondent's education. We demonstrated that this effect was growing until 2005 and started to decrease between 2006 and 2009. It is the unequal educational odds effect on education dependant on father's social strata. We are inclined to explain this development by the initially slow increase in number of places at higher education following the end of the socialist regime and a subsequent break and rapid increase in educational opportunities at the turn of the new century. As it was shown elsewhere, "between 1990 and 2003 there was an increase in downward mobility which might be attributed to a small number of places at universities. It does not mean that the system did not expand after 1989, but the expansion wasn't as substantial as it could appear" (Simonová 2011, p. 141).

We identified the same trend also in terms of social homogeneity of educational groups (differentiation effect). Social homogeneity of educational groups increased between 1990 and 2005 – the same social layers achieved respective levels of education. On the contrary, social homogeneity of educational groups dwindled between 2006 and 2009 – levels of education were more diverse in terms of socio-economic origin. Our conclusions show that the lower the socio-economic origin of fathers the lower the level of education achieved by respondents and the greater the social homogeneity of this group.

The post-1989 expansion in education in the Czech Republic was not as extensive until 2005 as to decrease the influence of educational origin on the education achieved by respondents. Prior to 1989, the centrally-controlled education system often "forced" children of educated parents to finish their schooling with a certificate of apprenticeship while children of parents with apprentice training who were loyal to the pre-1989 regime were allowed to go on and graduate from university. This helped to maintain a stable level of unequal educational odds dependent on

socio-economic status. Fluidity in education has not changed in any significant way, as showed by cohort perspective.

After 1989, it was only logical that the level of educational inequalities was set to increase while fluidity in education weakened. Children of educated parents were not limited by anyone and children of parents with certificate of apprenticeship were not helped in any special way to earn their university diplomas. Children of blue-collar workers were the majority of children with a certificate of apprenticeship and children of educated parents were the majority of students enrolling in universities. It was only after a restructuring took place between 1990 and 2005 – as evidenced by our analysis – that fluidity in education increased. No sooner than in the 2006–2009 period did the wider offer of education (more secondary schools and universities) and the lower demand for education (due to saturated demand in older cohorts or due to a lower number of young people in the cohorts born after 1989) change the development of fluidity in education.

In the context of this change the effect of time on fluidity in education should be gradually replaced by the cohort effect. Social, political and economic changes between 1990 and 2005 were so radical that the cohort effect proved insignificant in our analysis. Our assumption is that the social structure of Czech society is so consolidated nowadays that any education system expansion will only affect new cohorts respectively. If this expansion continues we should be able to see greater fluidity in education in each new cohort. Socio-economic origin should play an increasingly smaller role in education attainment in young people. We believe that this is going to be the case and that fluidity in education in the Czech Republic will grow due to cohort replacement.

All in all, post-1989 developments in educational mobility, fluidity, and the inequalities in the access to education reflect a *decline in educational reproduction*, although not a particularly stark one. Educational climate existing within the family of origin tends to influence the selection of secondary school which then has an important effect on further educational career, especially tertiary enrolment and graduation. Educational policy should take as a warning the fact *the vast majority of children of parents from the lowest social classes are the ones achieving the same low education as their parents*, resulting in an intergenerational reproduction of social strata with the lowest levels of educational attainment.

References

- Blau, P. M., & Duncan, O. D. (1967). *The American occupational structure*. New York, London, Sydney: John Wiley & Sons.
- Breen, R. (Ed.). (2004). *Social mobility in Europe*. Oxford: Oxford University Press.
- Breen, R., & Jonsson, J. O. (2000). Analyzing educational careers: A multinomial transition model. *American Sociological Review*, 65(5), 754–772.
- Breen, R., & Jonsson, J. O. (2005). Inequality of opportunity in comparative perspective: Recent research on educational attainment and social mobility. *Annual Review of Sociology*, 31, 223–243.

- 68 Erikson, R., & Goldthorpe, J. H. (1992). *The constant flux. A study of class mobility in industrial societies*. Oxford: Clarendon Press.
- Glenn, N. D. (1977). *Cohort analysis*. London: Sage.
- Glenn, N. D. (2005). *Cohort analysis* (2nd ed.). London: Sage.
- Hanley, E. (2001). Centrally administered mobility reconsidered: The political dimension of educational stratification in state-socialist Czechoslovakia. *Sociology of Education*, 74(1), 25–43.
- Hanley, E., & McKeever, E. M. (1997). The persistence of educational inequalities in state-socialist Hungary: Trajectory maintenance versus counterselection. *Sociology of Education*, 70(1), 1–18.
- Hauser, R. M., Tsai, S. L. & Sewell, W. H. (1983). A model of stratification with response error in social and psychological variables. *Sociology of Education*, 56(1), 20–46.
- Katrňák, T., & Simonová, N. (2011). Intergenerační vzdělanostní fluidita a její vývoj v České republice v letech 1989 až 2009 [Intergenerational educational fluidity and its trends in the Czech Republic between 1990 and 2009]. *Sociologický časopis*, 47(2), 207–242.
- Katrňák, T., Simonová, N., & Fónadová, L. (2016). From quantitative to qualitative differences: Testing MMI and EMI in the Czech secondary school system in the first decade of the 21st century. *Research in Social Stratification and Mobility*, 46(B), 157–171.
- Koucký, J., Bartušek, A., & Kovařovic, J. (2010). *Who gets a degree? Access to tertiary education in Europe 1950–2009*. Prague: Charles University in Prague, Faculty of Education.
- Lucas, S. R. (2001). Effectively maintained inequality: Education transitions, track mobility, and social background effects. *American Journal of Sociology*, 106(6), 1642–1690.
- Mare, R. D. (1980). Social background and school continuation decisions. *Journal of the American Statistical Association*, 75(370), 295–305.
- Mare, R. D. (1981). Change and stability in educational stratification. *American Sociological Review* 46(1), 72–87.
- Matějů, P. (1993). Who won and who lost in a socialist redistribution in Czechoslovakia? In Y. Shavit & H. P. Blossfeld (Eds.), *Persistent inequality. Changing educational attainment in thirteen countries* (pp. 251–271). Boulder, CO, San Francisco, Oxford: Westview Press.
- Matějů, P., Řeháková, B., & Simonová, N. (2007). The Czech Republic: Structural growth of inequality in access to higher education. In Y. Shavit, R. Arum, & A. Gamoran (Eds.), *Stratification in higher education: A comparative study* (pp. 374–399). Stanford: Stanford University Press.
- OECD. (2014). *Education at a glance 2014: OECD indicators*. OECD Publishing. <http://dx.doi.org/10.1787/eag-2014-en>
- Powers, D. A., & Xie, Y. (2000). *Statistical methods for categorical data analysis*. London: Academic Press.
- Raftery, A. E., & Hout, M. (1993). Maximally maintained inequality: Expansion, reform, and opportunity in Irish education, 1921–75. *Sociology of Education*, 66(1), 41–62.
- Simonová, N. (2011). *Vzdělanostní nerovnosti v české společnosti. Vývoj od počátku 20. století do současnosti [Educational inequalities in Czech society. Development from the early 20th century to the present day]*. Praha: Slon.
- Ryder, N. B. (1965). The cohort as a concept in the study of social change. *American Sociological Review*, 30(6), 843–861.
- Simonová, N. (2003). The evolution of educational inequalities in the Czech Republic after 1989. *British Journal of Sociology of Education*, 24(4), 469–483.
- Simonová, N., & Soukup, P. (2009). Reproduction of educational inequality in the Czech Republic after the Velvet revolution in the European context. In R. Becker & A. Hadjar (Eds.) *Expected and Unexpected Consequences of the Educational Expansion in Europe and USA* (pp. 133–151), Stuttgart, Wien, Bern: Haupt.
- Vallet, L. A. (2004). Change in intergenerational class mobility in France from the 1970s to the 1990s and its explanation: An analysis following the CASMIN approach. In R. Breen (Ed.), *Social Mobility in Europe* (pp. 115–149). Oxford: Oxford University Press.

- Wong, R., & Sin-Kwok. (1998). Multidimensional influences of family environment in education. The case of socialist Czechoslovakia. *Sociology of Education*, 71(1), 1–22.
- Xie, Y. (1992). The log-multiplicative layer effect model for comparing mobility tables. *American Sociological Review*, 57(3), 380–395.

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Head Teacher's Social Support, Personality Variables and Subjective Well-Being of Slovak Primary Teachers¹

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Abstract: The aim of this study was to explore the relationship between the supportive behaviour of a head teacher and selected personality traits in relation to the emotional and cognitive component of subjective well-being of primary school teachers. It has been assumed that personality traits will be significantly related to the well-being and that the dominant-cooperative supportive behaviour of the head teacher will be significantly related to satisfaction with work. We used the Scale of Emotional Habitual Well-Being (Džuka & Dalbert, 2002), Life Satisfaction Questionnaire (Rodná & Rodný, 2001), IASR-B5 (Trapnell & Wiggins, 1990) and the SAS-C (Trobst, 2000). The sample consisted of 256 (85.74% women) primary school teachers. Multiple linear regression analysis was used to analyse the data. The dominant-cooperative supportive behaviour of the head teacher was related to the cognitive component of subjective well-being, especially to satisfaction with work. The personality traits of neuroticism, extraversion and dominance were related to variables representing subjective well-being. The supportive behaviour of the head teacher, defined as their active engagement, interest, decisiveness, giving of advice, emotional support and providing relevant information, was found to be associated with teachers' well-being. Increasing the physical and psychological health of teachers, as well as their subjective well-being are key issues in improving the overall atmosphere in schools.

Keywords: teachers, subjective well-being, personality traits, supportive behaviour

The main function of school as an institution is not only to pass on knowledge and provide education but also to contribute to the personality development and socialization of young generations. School as a cultural institution also serves as a mediator of cultural values and can be regarded as the most successful of institutions in the history of culture (Janík & Slavík, 2009). In order to serve this important function well, an open climate is one of the essential conditions in order for schools to fulfil their purpose.

So far, most of the research addressing well-being in schools has focused on the well-being of students. Recently, much more attention has been paid to teachers and their satisfaction and well-being (Konu, Viitanen, & Lintonen, 2010; Ross, Romer, & Horner, 2012). After all, it is difficult to separate the well-being of students and the well-being of teachers because they are positively related (Bakker, 2005). The contribution of teachers to the overall atmosphere in schools is undeniably substantial.

The well-being of teachers is related to and caused by numerous factors such as quality of the physical environment, organizational conditions, social relationships, opportunities for personal growth and the opportunity to take part in and actively

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72 participate in resolving issues related to school management. It is also important to mention the financial, as well as the intangible rewards, that teachers receive for their work. Regarding social relationships and interpersonal factors, which are important for well-being, it is important to emphasize the significance of teachers' relationship with their school management and their head teacher in particular. Lastly, it is important to mention that every teacher stands as a unique individual and naturally reacts differently to all the previously mentioned conditions. Individual coping strategies for dealing with problems are determined by personal and interpersonal traits which also deserve detailed attention when exploring well-being.

1 Theoretical background

1.1 The theoretical concepts of well-being

Two main perspectives on subjective well-being can be found in the current literature. The first perspective, called the eudaimonic perspective, defines well-being in terms of self-realization of one's potential and talents. This perspective has been adopted in the work of Ryff and Keys and serves as the foundation for their concept of psychological well-being (Keyes, 2006; Ryff & Keyes, 1995).

The second perspective on subjective well-being, which constitutes the theoretical background to this study, has its roots in hedonism and is focused mainly on a subjective experience of satisfaction with life. From a psychological point of view, this perspective can be defined as a human striving to act in ways which lead to experiencing as much pleasure and as little suffering as possible. From the hedonistic point of view, subjective well-being consists of two components – cognitive and emotional. The emotional or affective component can be further divided into positive and negative affectivity and the cognitive (evaluative) component is defined by an overall satisfaction with life, as well as satisfaction with different life domains (Džuka, 2004).

One of the important domains of life satisfaction is represented by work satisfaction. Warr (2003) proposes a taxonomy of different characteristics of the work environment which, according to the findings of many researchers, are related to subjective well-being. These characteristics do not only include the conditions of a particular environment but also other aspects such as an opportunity for self-realization, participation in decision-making, autonomy, variability, income, security, occupational status and quality of social interactions, which include social support and support from a superior.

Determinants of well-being. Determinants influencing subjective well-being can be generally divided into external (related to the environment in which one lives) and internal (related to the personality structure of an individual). External factors are represented by life conditions, socio-economic status, social ties, work conditions etc. (Ryff & Heidrich, 1997).

External factors. Socio-economic and demographic factors such as gender, age, level of education, family status, state of health, employment, living conditions and religion explain approximately 5–20% of variance in well-being (Campbell, Converse, & Rodgers, 1976, as cited in Diener, Lucas, & Scollon, 2006). Ruini et al. (2003) conclude that, in general, women report lower subjective well-being (except for in the domain of positive social relationships) and a higher level of distress and personality disorders than men.

The association between age and subjective well-being is not clear. Some components of well-being are positively related to age, some are related negatively and some have not been found to be associated with age at all. Ryff and Keyes (1995) explored the relationship between well-being and age on a representative sample of US residents and found that well-being correlated with age but this correlation was rather complex. Certain aspects of well-being were found to decrease with age linearly and other aspects were found to increase in a linear or nonlinear fashion (Keyes, 1998).

Konu, Viitanen and Lintonen (2010) summarized their findings related to well-being obtained from a sample of Finnish teachers and showed that, in general, the well-being of primary school teachers was higher in comparison to teachers working in secondary schools. Furthermore, their study showed that male teachers had a higher level of well-being than female teachers. And finally, satisfaction with school management and treatment was found to be higher among teachers working at primary schools (Konu, Viitanen & Lintonen 2010).

Internal factors. The existence of an association between subjective well-being and personality has been shown in many studies. Similarly to personality variables, subjective well-being shows stability regardless of environmental conditions, life course or even the intensity of intervening life events (Diener & Lucas, 2003). Most of the researchers exploring the relationship between personality and subjective well-being have built their exploration on the personality factors derived from the Big Five model of personality. A research study carried out on a representative sample of twins showed that subjective well-being and the personality traits of extraversion, neuroticism and conscientiousness have a common genetic background and personality can create so-called “affective reserves”, which are important for maintaining the homeostatic state of subjective well-being in time (Weiss, Bates, & Luciano, 2008). Many research studies have shown that there is a relationship between subjective well-being and personality dimensions, especially with high extraversion and low neuroticism (Libran, 2006; Van den Berg & Pitariu, 2005).

Even in the early studies on subjective well-being conducted by Bradburn (1969, as cited in Diener & Lucas, 2003) it was found that sociability, which is a part of extraversion, was related to positive emotions and not found to be related to negative emotions. Costa and McCrae (1980) later confirmed these findings and extended them by finding that neuroticism was related only to the negative and not the positive emotional state. According to many authors (Steel, Schmidt, & Shultz, 2008; Vittersø, 2001), neuroticism is a better predictor of subjective well-being than ex-

74 traversalion. Other Big Five factors which have been found to be related to well-being as well are conscientiousness (Chung & Harding, 2009) and agreeableness (Joshanloo & Nosratabadi, 2009; Ruiz, 2005). To conclude, out of the Big Five personality factors subjective well-being has been found to correlate with all but the factor of openness to experience (Hřebíčková, Blatný, & Jelínek, 2010).

1.2 The interpersonal concept of personality and well-being

The social dimension and interpersonal relationships play a key role in the subjective experience of well-being and satisfaction with life (Myers, 2003). Some authors suggest that the social dimension is an inherent part of well-being itself (Ryff & Keyes, 1995) or represents its unique dimension (Keyes, 1998; Šolcová & Kebza, 2005). Therefore, it is important to study the determinants of well-being from the point of view of the interpersonal theory of behaviour.

This study is based on the theory which is defined by the interpersonal circumplex and puts a particular emphasis on the vertical line of the circumplex which represents the provision of status and love of oneself and others. It can be hypothesized that this continuum will be related to subjective well-being as interpersonal behaviour which is characterized by provision of love, positive relationships and status to others and oneself should be related to a high level of subjective well-being. Finally, self-esteem and positive self-evaluation have been generally shown to be associated with subjective well-being.

Happy people are characteristically known to have a positive relationship toward themselves and have high levels of self-esteem and self-acceptance (Myers & Diener, 1997; Ryff & Singer, 1998). Lucas, Diener and Suh (1996, as cited in Diener & Lucas, 2003) have found that self-esteem and optimism correlated with components of subjective well-being, such as satisfaction with life and positive and negative affect. From the perspective of the interpersonal circumplex theory, it is the provision of love and status that are characteristic for people who manifest extraverted, dominant but also arrogant behaviour (Wiggins, 1996).

Van Petegem, Aelterman, Van Keer and Rosseel (2008) based their study on the circumplex model of interactive behaviour and explored the relationship between behaviour and the subjective well-being of teachers. The conclusions from their research show that teachers who gained a high score in the dominant-cooperative quadrant rated their own subjective well-being positively while the well-being of the teachers who gained a high score in the submissive-opposing quadrant was much lower.

1.3 Social support and well-being

Social support constitutes an important factor in maintaining high subjective well-being (Blatný, 2001). In addition, social support is known to be one of the first variables that has been clearly shown to act as a moderator in the context of well-

being and health (Šolcová & Kebza, 1999). Social support is also significant for subjective well-being in the work environment. The influence of superiors at work on employees' subjective well-being has been shown by Smith (2008) who found that leadership which is tolerant and open, which offers social support, motivates and provides intellectual stimulation, is positively related to the well-being of its employees.

The original model of social support was introduced by Trobst (2000). This model is based on the interpersonal circumplex theory of personality within which individual types of supportive behaviour are organized in a circumplex with a continuum represented by two dimensions. The first dimension represents the provision of love of oneself and others and the second dimension is represented by the supporting status of self and that of others. Within this model, eight different types of behaviour can be distinguished: directive, arrogant, critical, distancing, avoidant, deferential, nurturant and engaged.

1.4 Subjective well-being of teachers

The subjective well-being of teachers is determined by many factors. It has been found to be related to different strengths, socio-demographic factors, competence, the subjective well-being of other teachers and social support provided by head teachers (Kinman, Wray, & Strange, 2011; Peters & Pearce, 2012). It has been suggested that head teachers represent a particularly important source of social support for teachers at school and this support could constitute an important moderator of psychological stress (Sakoda, Tanak, & Fuchigami, 2004). Dunlop and Macdonald (2004) found in their study that the role of a school's head teacher is crucial and depends on whether the head teacher acts in a certain way, e.g. applies a friendly approach, provides emotional support, collegiality, as well as a proactive and engaged approach to teachers. Other researchers such as Leithwood (2005, as cited in Konu, Viitanen, & Lintonen, 2010) emphasize that effective head teachers support and develop teachers' initiatives, creativity and ideas in their school.

2 Research aims

The aim of this study was to explore the relationship between the supportive behaviour of the head teacher and selected personality traits in relation to the emotional component of subjective well-being (positive and negative emotions) and its cognitive component (overall life satisfaction, satisfaction with work) of primary school teachers in Eastern Slovakia.

Conceptually, this research project was based on the hedonic perspective to subjective well-being, which was operationalized by life satisfaction and frequency of experiencing positive and negative emotions. Within this approach, high well-being

76 was defined by a higher frequency of positive emotions relative to the frequency of negative emotions. Within the context of teachers' well-being this study was mainly focused on work satisfaction but the related concepts of overall life satisfaction and emotional well-being were also analysed here.

The measurement of personality traits was based on the Five Factor Model and the Circumplex model of interpersonal behavioural traits (Trapnell & Wiggins, 1990). The selection of traits entered into the analyses as independent variables was based on the current knowledge regarding whether they had been previously shown to be related to well-being. Such evidence exists for extraversion, neuroticism and conscientiousness, as well as dominance and arrogance. Furthermore, it was hypothesized that interpersonal traits containing high levels of love and status would be positively related to well-being and life satisfaction.

Head teachers' interpersonal behaviour regarding the provision of social support was explored within the interpersonal concept of social support (Trobst, 2000). This study focused mainly on those aspects of head teachers' behaviour which can be characterized by affiliation to and cooperation with their teachers. Supportive behaviour of head teachers was used as an independent variable in the analyses.

It was hypothesized that *personality variables* represented by extraversion, neuroticism, conscientiousness, dominance and arrogance would be *related to the components of well-being*. It was further hypothesized that the *dominant-cooperative supportive behaviour of head teachers* would be *related to work satisfaction*, which is considered to be a part of the cognitive component of subjective well-being.

The control variables entered in the analysis consisted of socio-demographic variables: gender, age and the grade in which the teachers taught.

3 Method

3.1 Participants

The research sample consisted of primary school teachers from Eastern Slovakia. The questionnaires were administered in two ways. Firstly, they were distributed to teachers taking part in continuous professional development courses. Secondly, questionnaires were also administered directly in schools. In total, 551 questionnaires were distributed and 287 (52.98%) completed questionnaires were returned. Twenty-two questionnaires were excluded due to the data on the key dependent variables being missing. Participation was anonymous, the respondents were given information about the objective of the study and were informed that they could end their participation in the study at any time. All participants signed a consent form for their participation.

The total number of respondents included in the analysed sample was 265 (89.6% women). The length of teaching experience varied from half a year to 50 years with a mean duration of 17.92 years. Almost 80% of the teachers had not had working ex-

perience other than in the field of education and only 1% of the respondents reported that they had held a non-educational position for longer than 10 years.

It is worth noting that although the construction of the sample was not strictly random, its composition in terms of the main observable characteristics is similar to the composition in the whole population of primary teachers in Eastern Slovakia. Firstly, 39.7% of teachers in the sample taught year 1–4 students and 63.3% taught year 5–9 students. The respective statistical figures for the whole population were 42% (year 1–4) and 58% (year 5–9). Secondly, the gender split of 10.4% male also fit reasonably closely with the 14% found in the population (Slovak Centre of Scientific and Technical Information). Lastly, the mean age of the respondents was 42.14 years ($SD = 9.65$) with a range of 24 to 68 years. The age distribution of all Slovak primary teachers was not very different, the mean age was 43 years (TALIS – Teaching and Learning International Study).

Even though the sample seems to be reasonably representative of the population in the few main characteristics where comparisons are possible, we cannot know whether it is also representative in other respects. Based on the knowledge of the data collection and the context of the teachers and schools involved, the authors are not aware of any apparent data biases. Nevertheless, to stay on the safe side in the analysis we focus on the substantive significance of relationships (or its absence) rather than their statistical significance. The results of the statistical tests are reported for completeness only and in light of the limitations outlined above they should be interpreted with caution.

3.2 Measures

The cognitive component of subjective well-being was measured by the Life Satisfaction Questionnaire from the authors J. Fahrenberga, M. Myrteka, J. Schumachera and E. Brahlera, (Rodná & Rodný, 2001) which was developed to assess overall life satisfaction, as well as life satisfaction in important life domains. Each domain was represented by 7 items. The respondents used a seven-point scale (1 – *very dissatisfied*, 2 – *dissatisfied*, 3 – *rather dissatisfied*, 4 – *neutral*, 5 – *rather satisfied*, 6 – *satisfied*, 7 – *very satisfied*). The total life satisfaction score was calculated as a summary score for individual domains of health, work and employment, financial situation, attitude toward oneself, friends and family and living conditions. Regression analyses included overall life satisfaction regarding the work and employment domain. Cronbach's alpha for overall score of life satisfaction was .936 and for work and occupation it was .962.

The affective component of subjective well-being was measured by the Scale of Emotional Habitual Subjective Well-being (Džuka & Dalbert, 2002). This scale consist of two subscales (positive and negative emotions) measuring the emotional component of subjective well-being. Positive emotions were assessed with four items representing pleasure, physical vitality, joy and happiness and negative emotions were represented by six items of anger, guilt, shame, fear, pain and sadness. Respondents

78 provided information about the frequency of experiencing these emotions on a six-point scale (*almost never, seldom, sometimes, often, very often and almost always*). The indicator of emotional well-being was defined as the difference between the standardized summary scores of positive and negative emotions.

Personality traits were measured by the IASR-B5 questionnaire which contains factors of the Big Five personality model, as well as interpersonal traits based on the Circumplex model (Trapnell & Wiggins, 1990). The respondents were given a list of adjectives and indicated how accurately each adjective describes them on an eight-point scale (1 – *completely inaccurately* to 8 – *completely accurately*). For the purposes of this research, the following personality traits were measured: extraversion (Cronbach's alpha = .686), neuroticism (Cronbach's alpha = .892), conscientiousness (Cronbach's alpha = .839), dominance (Cronbach's alpha = .679) and arrogance (Cronbach's alpha = .763). The scales for extraversion, dominance and arrogance contained 8 items and the scales for neuroticism and conscientiousness contained 20 items.

The supportive behaviour of head teachers was measured by the Support Actions Scale Circumplex (SAS-C) (Trobst, 2000). The author created this scale based on the Circumplex model of social support. The questionnaire consists of 64 items and each type of supportive behaviour (directive, deferential, critical, distancing, avoiding, nurturant, arrogant and engaged) is measured by eight items. Respondents evaluated head teachers' reactions in situations where they or their colleague needed help or were confronted with problems. This was rated on a seven-point scale (from 1 – *he/she would certainly not do it* to 7 – *he/she would certainly do it*). For the purposes of this study, a summary score was calculated for items measuring directive, engaged and nurturant behaviours (Cronbach's alpha = .920), which served as the indicators of dominant-cooperative supportive behaviour of a head teacher towards teachers.

All the above psychometric information (Cronbach's alphas) was calculated for the Slovak version of the questionnaires.

3.3 Analysis

In order to estimate the effects of the explanatory variables, a multiple linear regression was used. After checking that the requirements of the linear model had been met, linear regression was carried out. The dependent variables of the analyses were: subjective well-being, operationalized as overall life satisfaction and satisfaction with work and employment, and emotional well-being which was measured by the difference in frequency in experiencing positive versus negative emotions.

The independent variables which were entered into the multiple regression analysis consisted of the personality traits of teachers (dominance, arrogance, extraversion, neuroticism and conscientiousness) and their perceived level of dominant-cooperative supportive behaviour of their head teacher. The analyses were controlled

for gender, age and the grade taught by the teacher. A listwise missing data handling approach was used in regression analysis. All results were obtained in the IBM SPSS Statistics 21 statistical programme.

4 Results

4.1 Descriptive analyses

Firstly, the level of subjective well-being in the sample of teachers was calculated and it is shown in Table 1. The maximum possible score in overall life satisfaction was 350, 49 in individual domains, 24 in positive emotions and 36 in negative emotions. Out of the measured domains, the respondents were most satisfied with the domain of close relationships, as well as the domain representing the relationship towards oneself. Satisfaction in the area of occupation was rated lowest. Regarding the affective component of subjective well-being, it was shown that positive emotions were experienced with a higher frequency than negative emotions.

Table 1 Descriptive statistics regarding satisfaction with life, work and employment, oneself and frequency of positive and negative emotions

Variable	<i>N</i>	<i>M</i>	<i>SD</i>
Life satisfaction	262	235.76	36.11
Satisfaction with work and employment	265	34.60	7.00
Satisfaction with oneself	264	36.39	5.45
Positive emotions	264	15.91	2.92
Negative emotions	263	16.90	3.38

Bivariate Pearson correlations for variables used in analysis are shown in Table 2. As can be seen in the table, there is a strong positive relationship between the personality traits of extraversion and dominance. Neuroticism was negatively associated with all components of well-being, especially emotional well-being ($r = -.515$). Moderate positive relationships can be seen between extraversion and emotional well-being, as well as dominance and emotional well-being. Supportive behaviour of the head teacher is moderately positively associated to satisfaction with work and there are positive relationships between all the components of well-being, particularly between job and life satisfaction ($r = .670$).

4.2 Multiple regression analysis

In the next step, the results of the multiple regression analysis are described – the final models for overall life satisfaction, job satisfaction and emotional well-being, as well as additional separate models for positive and negative emotions.

Table 2 Bivariate correlations among variables used in analysis

	1	2	3	4	5	6	7	8	9	10	11	12
1 Extraversion	1	-.181**	.314**	.453**	0.068	.126*	0.027	-0.013	-0.001	.147*	.200**	.351**
2 Neuroticism		1	-.185**	-.305**	0.058	-.139*	-.158*	-0.016	-0.026	-.353**	-.370**	-.515**
3 Conscientiousness			1	.269**	-.311**	0.106	-0.056	.127*	.136*	.254**	.155*	.216**
4 Dominance				1	.190**	-0.077	.158*	0.109	0.095	.192**	.278**	.350**
5 Arrogance					1	-.133*	.151*	-.247**	-0.037	-0.052	0.048	0.05
6 Supportive behaviour of head teacher						1	0.05	-0.008	-0.051	.343**	.275**	0.102
7 Gender							1	.211**	.193**	.155*	0.091	0.117
8 Age								1	.138*	0.116	-0.015	-0.113
9 School year (1-4, 5-9)									1	-0.002	-0.041	-0.001
10 Satisfaction with work										1	.670**	.306**
11 Life satisfaction											1	.443**
12 Emotional well-being												1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Model for satisfaction with work. The behaviour of the head teacher, characterized by a dominant and cooperative approach toward teachers, was found to be positively related to satisfaction with work and employment. The standardised Beta coefficients suggest that this was the strongest relationship of all in the model. The estimates also suggest that conscientiousness was positively associated with satisfaction with work and neuroticism was negatively associated with it. The regression model explained the 24.5% variance in job satisfaction (Table 3).

Table 3 Regression model for satisfaction with work and employment

Variable	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>T</i>	<i>p</i>
Extraversion	.002	.070	.002	.025	.980
Neuroticism	-.099	.026	-.230	-3.769	< .001
Conscientiousness	.077	.028	.184	2.762	.006
Dominance	.059	.072	.058	.819	.414
Arrogance	.038	.059	.042	.638	.524
Supportive behaviour of head teacher	.084	.018	.279	4.797	< .001
Gender	2.024	1.349	.091	1.500	.135
Age	.050	.043	.069	1.148	.252
School year (1-4/5-9)	-.812	.820	-.057	-.990	.323
<i>Constant</i>	19.283	5.654		3.410	.001

($F_{\text{total}}(9;265) = 8.717$; $p < .0005$). $R = .495$; $R^2 = .243$. Please treat the p -values in the last column with caution due to the limitations related to the construction of the research sample (see section 3.1 for more detail).

Model for overall life satisfaction. Table 4 shows the estimates of the regression model for overall life satisfaction. The model explains 27.1% of variance in overall life satisfaction. The relatively strongest relationships were identified for the personality variables of neuroticism, dominance, as well as dominant-cooperative behaviour of the head teacher. The more dominant and more emotionally stable the teachers were, the more satisfied with life they were.

Model for emotional well-being. The values for the regression model which explain the variance in emotional well-being are shown in Table 5. The model explains 37.4% of variance in the emotional component of subjective well-being. The effect of neuroticism was found to be relatively strongest on the collected data ($Beta = -.431$) and extraversion ($Beta = .209$). There are indications that the age of the teacher was also important, with older teachers showing lower emotional satisfaction than younger teachers.

82 Table 4 Regression model for overall life satisfaction

Variables	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>T</i>	<i>p</i>
Extraversion	.104	.358	.019	.290	.772
Neuroticism	-.630	.134	-.283	-4.713	< .001
Conscientiousness	.156	.143	.071	1.091	.276
Dominance	1.036	.365	.197	2.840	0.005
Arrogance	.262	.302	.057	.869	.386
Supportive behaviour of head teacher	.401	.089	.257	4.482	< .001
Gender	5.885	7.001	.050	0.840	.401
Age	-.205	.222	-.055	-.926	.356
School year (1-4/5-9)	-3.961	4.175	-.054	-.949	.344
<i>Constant</i>	186.626	28.769		6.487	< .001

($F_{\text{total}}(9;265) = 9.971$; $p < .0005$). $R = .521$; $R^2 = .271$. Please treat the p -values in the last column with caution due to the limitations related to the construction of the research sample (see section 3.1 for more detail).

Table 5 Regression model for emotional well-being

Variable	<i>B</i>	<i>SE</i>	<i>Beta</i>	<i>t</i>	<i>p</i>
Extraversion	.053	.015	.209	3.499	.001
Neuroticism	-.044	.006	-.431	-7.758	< .001
Conscientiousness	.003	.006	.031	.516	.606
Dominance	.024	.015	.101	1.574	.117
Arrogance	-.011	.013	-.050	-.830	.407
Supportive behaviour of head teacher	.003	.004	.047	.883	.378
Gender	.477	.292	.090	1.633	.104
Age	-.026	.009	-.154	-2.811	.005
School years (1-4/5-9)	-.192	.178	-.057	-1.084	.279
<i>Constant</i>	.855	1.223		.699	.485

($F_{\text{total}}(9;2/65) = 16.046$; $p < .0005$). $R = .611$; $R^2 = .374$. Please treat the p -values in the last column with caution due to the limitations related to the construction of the research sample (see section 3.1 for more detail).

In order to gain a better understanding of the studied variables, separate models were also built for positive and negative emotions. The frequency of experiencing positive emotions by teachers was most strongly related to extraversion ($Beta = .313$), neuroticism ($Beta = -.234$) and age ($Beta = -.158$). For negative emotions, neuroticism seemed to be the most predictive personality trait ($Beta = .474$).

5 Discussion and conclusions

The aim of this study was to explore the relationship between the subjective well-being of teachers and social support provided by their head teacher with emphasis put on dominant-cooperative supportive behaviour. The models also included personality traits of the teachers as they have previously been shown to be important internal factors closely related to well-being in general. External factors included in the models were represented by gender, age and the level at which the teachers taught. It is important to remember that the results need to be interpreted with caution due to the limitations related to the construction of the research sample as outlined in section 3.1.

Teachers' work satisfaction was related to the personality traits of neuroticism and conscientiousness. Neuroticism was negatively associated with work satisfaction and conscientiousness was positively associated with work satisfaction. This could mean that those teachers who were emotionally stable, resilient and had strong will-power were able to control their impulsive behaviour and act responsibly and as a result were more satisfied with their work. This corresponds with the notion that conscientiousness is related to work satisfaction indirectly by experiencing situations that influence well-being (McCrae & Costa, 1991). A positive relationship between work satisfaction and conscientiousness was also demonstrated in the study by Van den Berg and Pitariu (2005). The strongest predictor of satisfaction with work and employment was supportive behaviour of the head teacher. This result is consistent with the findings of other studies, which reported a positive relationship with supportive managerial style and job satisfaction (Smith, 2008; Yildirim, 2014). The importance of social support in the work environment especially with respect to its role in buffering negative consequences of emotional stress on work satisfaction has also been suggested by Kinman, Wray and Strange (2011).

The variance in overall life satisfaction of the teachers was explained by their head teacher's behaviour characterized by showing respect, active (patient) listening, emotional support, giving advice and being decisive. This corresponds with teachers' reports on the types of behaviour of head teachers which contribute to their well-being (Dunlop & Macdonald, 2004). Satisfaction with work seems to be an important part of overall satisfaction with life in general (Judge & Locke, 1993). This was also supported by the model explaining satisfaction with work, where the strongest association was found for the head teacher's behaviour characterized by decisiveness, taking responsibility and giving advice as well as providing social support, encouragement and care. The influence of superiors at work on employees' subjective well-being has been shown by Smith (2008) who found that leadership that is tolerant and open, that offers social support, motivates and provides intellectual stimulation, is positively related to the well-being of its employees.

Consistent with other research studies (Van den Berg & Pitariu, 2005), this paper suggests that personality factors have a role in explaining the differences in the subjective well-being of teachers. Overall life satisfaction seems to be linked to the personality factors of emotional stability and dominance. Extraversion was not shown to be a strong factor in relation to the overall life satisfaction of teachers. Similar findings have been observed by other authors and it has been suggested that neuroticism is a better predictor of subjective well-being than extraversion (Libran, 2006). According to Vittersø (2001) extraversion only explains 1% of variance in subjective well-being, while 34% can be attributed to neuroticism. Dominance is characterised in the interpersonal circumplex theory by self-esteem, as well as providing love and status to oneself and these features have been found to be associated to well-being (Lucas, Diener, & Suh, 1996, as cited in Diener & Lucas, 2003; Myers & Diener, 1997; Ryff & Singer, 1998).

Neuroticism and extraversion also appeared to be important in the emotional component of subjective well-being. Extraversion was relatively strongly related to the frequency of experiencing positive emotions and neuroticism appeared to be related to the frequency of negative emotions. Similar findings were reported by Steel, Schmidt and Shultz (2008). There is no evidence of to show that head teachers' behaviour has a strong effect on the emotional component of teachers' well-being.

Of the socio-demographic variables it was only age that was found to be related to emotional well-being and it showed a decreasing tendency as age and working years increased. No strong relationship was identified between gender and grade with the measured components of well-being. Other published research studies regarding gender and age have provided inconsistent results. Some studies found a significant relationship between age and well-being and some did not (Rodná & Rodný, 2001; Keyes, 1998). Konu, Viitanen and Lintonen (2010) showed, in contradiction to the findings of this study, that teachers teaching at a lower level in primary schools had a higher level of well-being.

Extraversion was surprisingly not strongly related to the cognitive component of subjective well-being (overall life satisfaction and satisfaction with work). Nevertheless, a low predictive power of extraversion in this context has been reported by other authors (Libran, 2006; Vittersø, 2001).

5.1 Limitations

The findings presented in this study are in many respects logical and in line with expectations. The research assumptions were mostly supported by empirical findings. While there are numerous studies addressing subjective well-being and its determinants, this study has focused on the well-being of teachers in primary schools. The main aim was to explore the interconnections and explanatory power of the determinants in explaining variance in teachers' well-being. However, despite its strength this study has certain limitations which are related to the characteristics of the sample. The convenience sample was based on the availability of the respondents

and so it may not generally be representative of the population of all primary school teachers from the Eastern Slovak region. There are further limitations with regard to the measurement instruments that were adopted into the Slovak language and may require further modifications as some indicators of reliability were relatively low.

In terms of future research, it would be beneficial to create a brief version of the questionnaires as the original versions were long and the whole battery of questionnaires was time-consuming and demanding on the attention and patience of the respondents. Finally, a comprehensive approach to subjective well-being would require supplementing the battery of questionnaires with a measure assessing psychological well-being based on the theory of Ryff and Keyes (1995).

5.2 Conclusions

The regression models indicate that social support, defined as supportive behaviour of school head teachers, contributes to the explained variance in the cognitive component of subjective well-being and, particularly, in the domain of satisfaction with work and employment. The supporting behaviour of head teachers, defined as their active engagement, interest, decisiveness, giving advice, emotional support and providing relevant information, seems to be related to teachers' well-being. The personality factors of neuroticism, extraversion and dominance were relatively most important in explaining subjective well-being. It can be said that increasing teachers' physical and psychological health, as well as their subjective well-being, are the key issues in improving the overall atmosphere in schools. The research findings of this study show a way which could be helpful in achieving this goal.

References

- Bakker, A. B. (2005). Flow among music teachers and their students: The crossover of peak experiences. *Journal of Vocational Behavior*, 66(1), 26–44.
- Blatný, M. (2001). Osobnostní determinanty sebehodnocení a životní spokojenosti: Mezipohlavní rozdíly. *Československá psychologie*, 45(5), 385–392.
- Costa, P. T., & McCrae, R. R. (1980). Influence of extroversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, 38(4), 668–678.
- Diener, E., & Lucas, R. E. (2003). Personality and subjective well-being. In D. Kahneman, E. Diener, & N. Schwarz (Eds), *Well-being. The foundations of hedonic psychology* (pp. 213–229). New York: Russell Sage Foundation.
- Diener, E., Lucas, R. E., & Scollon, C. N. (2006). Beyond the hedonic treadmill. Revising the adaptation theory of well-being. *American Psychologist*, 61(4), 305–314.
- Dunlop, C. A., & Macdonald, E. B. (2004). *The teachers' health and wellbeing study in Scotland*. Edinburgh: NHS Health Scotland, Woodburn House.
- Džuka, J. (2004). Life quality and subjective well-being – theories and models, similarities and differences. In J. Džuka (Ed.), *Psychological dimensions of life quality* (pp. 42–53). Prešov: Prešovská univerzita. [<http://www.pulib.sk/elpub2/FF/Dzuka3/index.htm>].
- Džuka, J., & Dalbert, C. (2002). Vývoj a overenie validity škál emocionálnej habituálnej subjektívnej pohody (SEHP). *Československá psychologie*, 46(3), 234–250.

- 86 Hřebíčková, M., Blatný, M., & Jelínek, M. (2010). Personality as a predictor of subjective well-being in adulthood. *Československá psychologie*, 54(1), 31–41.
- Chung, Mc., & Harding, C. (2009). Investigating burnout and psychological well-being of staff working with people with intellectual disabilities and challenging behaviour: The role of personality. *Journal of Applied Research in Intellectual Disabilities*, 22(6), 503–591.
- Janík, T., & Slavík, J. (2009). Obory ve škole a jejich enkulturační funkce. *Pedagogická orientace*, 19(1), 5–21.
- Joshanloo, M., & Nosratabadi, M. (2009). Levels of mental health continuum and personality traits. *Social Indicators Research*, 90(2), 211–224.
- Judge, T. A., & Locke, E. A. (1993). Effect of dysfunctional thought processes on subjective well-being and job satisfaction. *Journal of Applied Psychology*, 78(3), 475–490.
- Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, 61(2), 121–140.
- Keyes, C. L. M. (2006). Subjective well-being in mental health and human development research worldwide: An introduction. *Social Indicators Research*, 77(1), 1–10.
- Kinman, G., Wray, S., & Strange, C. (2011). Emotional labour, burnout and job satisfaction in UK teachers: the role of workplace social support. *Educational Psychology*, 31(7), 843–856.
- Konu, A., Viitanen, E., & Lintonen, T. (2010). Teachers' wellbeing and perceptions of leadership practices. *International Journal of Workplace Health Management*, 3(1), 44–57.
- Libran, E. C. (2006). Personality dimensions and subjective well-being. *Spanish Journal of Psychology*, 9(1), 38–44.
- McCrae, R. R., Costa, P. T. (1991). Adding Liebe und Arbeit: The full Five-Factor Model and well-being. *Personality and Social Psychology Bulletin*, 17(2), 227–232.
- Myers, D. G. (2003). Close relationship and quality of life. In D. Kahneman, E. Diener, & N. Schwarz (Eds), *Well-being. The foundations of hedonic psychology* (pp. 374–391). New York: Russell Sage Foundation.
- Myers, D. G., & Diener, E. (1997). The new scientific pursuit of happiness. *Harvard Mental Health Letter*, 4(2), 4–7.
- Peters, J., & Pearce, J., (2012). Relationships and early career teacher resilience: A role for school principals, *Teachers and Teaching: Theory and Practice*, 18(2), 249–262.
- Rodná, K., & Rodný, T. (2001). *Dotazník životní spokojenosti*. Praha: Testcentrum.
- Ross, S. W., Romer, N., & Horner, R. H. (2012). Teacher well-being and the implementation of school-wide positive behavior interventions and supports. *Journal of Positive Behavior Interventions*, 14(2), 118–128.
- Ruini, C., Ottolini, F., Rafanelli, C., Tossanti, E., Ryff, C. D., & Fava, G. A. (2003). The relationship of psychological well-being to distress and personality. *Psychotherapy and Psychosomatics*, 72(5), 268–275.
- Ruiz, V. M. (2005). The Five-Factor Model of personality, subjective well-being and social adaptation. Generalizability to the Spanish context. *Psychological Reports*, 96(3), 863–866.
- Ryff, C. D., & Heidrich, S. M. (1997). Life experiences and well-being: Explorations on what happens and how it matters. *International Journal of Behavioral Development*, 20(2), 193–206.
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, 69(4), 719–727.
- Ryff, C. D., & Singer, B. (1998). Middle age and well-being. In H. S. Friedman (Ed.), *Encyclopedia of mental health*, vol 2 (pp. 707–719). San Diego, CA: Academic Press.
- Sakoda, Z., Tanaka, K., & Fuchigami, K. (2004). Teachers' perception of social support from principals. *Japanese Journal of Educational Psychology*, 52(4), 448–457.
- Slovak Centre of Scientific and Technical Information, Ministry of Education, Science, Research and Sport of the Slovak Republic. *Annual statistics*. Available at: http://www.cvtisr.sk/cvti-sr-vedecka-kniznica/informacie-o-skolstve/statistiky/statisticka-rocenka-publikacia/statisticka-rocenka-zakladne-skoly.html?page_id=9601.
- Smith, S. (2008). Leadership's effects on employee health, well-being. *Occupational Hazards*,

- 70(9), 18–19.
- Steel, P., Schmidt, J., & Shultz, J. (2008). Refining the relationship between personality and subjective well-being. *Psychological Bulletin*, 134(1), 138–161.
- Šolcová, I., & Kebza, V. (1999). Sociální opora jako významný protektivní faktor. *Československá psychologie*, 43(1), 19–38.
- Šolcová, I., & Kebza, V. (2005). Prediktory osobní pohody (Well-Being) u reprezentativního souboru české populace. *Československá psychologie*, 49(1), 1–8.
- TALIS (Teaching and Learning International Study). Ministry of Education, Science and Sport of the Slovak Republic. Available at: <https://www.minedu.sk/vysledky-studie-oecd-o-vyucovani-a-vzdelavani-talis-2013/>
- Trapnell, P. D., & Wiggins, J. S. (1990). Extension of the interpersonal adjective scales to include the big five dimensions of personality. *Journal of Personality and Social Psychology*, 59(4), 781–790.
- Trobst, K. K. (2000). An interpersonal conceptualization and quantification of social support transactions. *Personality and Social Psychology Bulletin*, 26(8), 971–986.
- Van Den Berg, P. T., & Pitariu, H. (2005). The relationship between personality and well-being during societal change. *Personality and Individual Differences*, 39(1), 229–234.
- Van Petegem, K., Aelterman, A., Van Keer, H., & Rosseel, Y. (2008). The influence of student characteristics and interpersonal teachers' behaviour in the classroom on students' well-being. *Social Indicators Research*, 85, 279–291.
- Vittersø, J. (2001). Personality traits and subjective well-being: emotional stability, not extroversion, is probably the important predictor. *Personality and Individual Differences*, 31(6), 903–914.
- Warr, P. (2003). Well-being and the workplace. In D. Kahneman, E. Diener, & N. Schwarz, (Eds), *Well-being. The foundations of hedonic psychology* (pp. 392–411). New York: Russell Sage Foundation.
- Weiss, A., Bates, T. C., & Luciano, M. (2008). Happiness is a personal(ity) thing – The genetics of personality and well-being in a representative sample. *Psychological Science*, 19(3), 205–210.
- Wiggins, J. S. (1996). An informal history of the interpersonal circumplex tradition. *Journal of Personality Assessment*, 66(2), 217.
- Yildirim, K (2014). Main factors of teachers professional well-being. *Educational Research and Reviews*, 9(6), 153–163.

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About Testing, Tracking, and School Choice with Professor Adam Gamoran

David Greger, Jaroslava Simonová



Professor Adam Gamoran is the president of the William T. Grant Foundation (<http://wtgrantfoundation.org/whoweare>). He came to the Foundation from the University of Wisconsin-Madison, where he held the John D. MacArthur Chair in Sociology and Educational Policy Studies. In a research career spanning three decades, Adam conducted a wide range of studies focusing on inequality in education and school reform. Among his major works were a series of studies on tracking and ability grouping that identified consequences for student achievement and revealed the mechanisms through which those consequences occurred. Subsequent studies examined interventions to improve performance and reduce learning gaps, assessed through large-scale cluster-randomized trials. He was a Fulbright Scholar in the United Kingdom. He is an elected member of the National Academy of Education and the American Academy of Arts and Sciences, and was twice appointed by President Obama to serve on the National Board for Education Sciences. As president of the William T. Grant Foundation, Professor Gamoran has prioritized supporting research to deepen our understanding of the programs, policies, and practices that reduce inequality in youth outcomes, and to understand and improve the use of research evidence in decisions that affect young people.

In 2013, Professor Gamoran received the Spencer Foundation Award for contributions to research on education policy from the Association for Public Policy and Management, and in 2014 he was honored with the award for Distinguished Contributions to Research in Education from the American Educational Research Association.

In May 2015, he was a key-note speaker at the conference “School tracking: diverse mechanisms, effects and policy responses” that took place at the Faculty of Education, Charles University in Prague. His presence in Prague was a valuable opportunity to discuss approaches to tracking, school choice and educational policy in general and ask him many questions from the perspective of a small educational

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90 *researchers' community in Central Europe with its limited research funding and rather heated debate about equity and tracking. Nevertheless, we believe that Professor Adam Gamoran's deep insight might be an eye-opening experience and an inspiring reading also for many other readers of our journal. (The second part of the interview about the research-policy relationships and research funding in the United States will be published in some of the next issues of our journal.) The questions were asked by David Greger (DG) and Jaroslava Simonová (JS).*

DG: In the first part of this interview, we would like to learn more about the recent trends and issues in educational policy in the United States. Before discussing the main topic our conference – tracking, I would like to ask you about the *Common Core Standards*. How come that so many states of the USA adopted a common curricular document, and why did some of them changed their mind recently?

AG: The reason that the states had adopted *The Common Core State Standards* was that the Obama administration made available huge part of money called Race to the Top, which was a part of The American Reinvestment and Recovery Act, which was as an economic stimulus that was passed and provided after the 2008 recession. It was a way to crop-up states when they were in economic crisis. So, a huge part of the money to be awarded to states competitively and in order to be eligible, the states had to adopt “college and career readiness standards”. So, these Common Core State Standards were a way of doing that. That’s why 45 out of 50 states adopted The Common Core.

Now, a few years later, the states have become more resentful, especially states with Republican leadership, and Indiana was one of them. So they say: “Federal government is not going to tell us what to do! No more Common Core State Standards!” Then, they just adopt the same thing and call it by a different name.

Another condition was that states would adopt assessments so they can hold schools, and in this case teachers, accountable for student performance relatively to standard. The administration – also as part of the same, big funding package – awarded two 170 million dollar grants to two different consortiums, groups that were developing these assessments. One is called PARCC, which is something like Partnership for Assessment of Readiness for College and Careers. The other is called Smarter Balanced.

DG: What are the differences between the two? Are there any? Or why have some states chosen one and not the other?

AG: Partly marketing, one consortium might have been more successful with one state and the other with another state. There was more emphasis on a balance between focused knowledge and problem solving in the Smarter Balanced assessment. One of them was going to be more computer adaptive than the other. So there were some differences, but the overall philosophy of the two was the same, which is that they were going to be rigorous, they were going to be tied with The Common Core State Standards and they would be in-depth assessment, not multiple choice, but problem solving, constructive response... So they were

supposed to be better assessment than were typically used by states to measure student progress first-hand.

JS: And the non-cognitive skills are not part of the assessment?

AG: No, not the non-cognitive skills... Good question though. And there is a discussion in the US about social and emotional learning and whether there should be deliberate instructional strategies for social and emotional learning, whether there should be assessment for social and emotional learning, but so far that's not –

DG: And does it actually follow the No Child Left Behind policy and try to react to the problems with different states using different tests to reach the proficiency levels?

AG: Yes, exactly, and different states holding different standards setting. So, when it comes to educational inequality – one of my interests – the big promise of The Common Core State Standards would be to reduce inequalities among states, which is rarely examined but major dimension of inequality in the US.

The No Child Left Behind story

DG: And is it a big problem, the inequality between states? If you consider that, for example, many students actually finish their tracks within the system because the tuitions are lower in the states, I guess, at state universities? So what's the main deal there?

AG: It is. Well at the K-12 level it is a big problem of inequality. And in some cases it was exacerbated, it was made worse during the No Child Left Behind era, because now states had to hold schools accountable for performance, so many states simply set a low threshold for performance, so they could say all those schools are succeeding. But No Child Left Behind caught them in the end, because even a state like the one I lived in for thirty years – Wisconsin – where they set a low threshold, for example, in Wisconsin about 80% of the students were judged to be proficient on the Wisconsin assessment, but if you look at NAEP – the national assessment and testing – only 40% were proficient. Why? Because Wisconsin set a very low threshold for what counted as proficient. But even in Wisconsin, eventually, all the schools would be failing. Why? Because No Child Left Behind set the impossible standards of a 100% proficient. Wisconsin schools were like an 80% proficient for the whole No Child Left Behind period, so for a long time they were doing very well, but even in Wisconsin they got caught in the end by the No Child Left Behind.

DG: And this is a good example for a link between policy and research... In a small country like the Czech Republic where we have no studies available, we – kind of – are not surprised that our policy makers sometimes do very surprising things in our view... But when I read about the NCLB and about the 100% proficiency, I think many researchers were against it from the beginning, said it was too ambitious. So how could it happen, or how do you explain that fact – they didn't listen to researchers, or...?

AG: Right, that's true. No Child Left Behind was the product of a rare compromise between the left and right – the Democrats and the Republicans – and one feature that got people on the left excited about No Child Left Behind was that all children will be helped to the same standards. There won't be lower expectations for kids who are disadvantaged or at minority backgrounds. So by saying that all schools will reach a 100% we're declaring that everyone will meet the same standards. Now of course that was widely unrealistic and I think at the time there was a thought that this is an aspiration, not a real goal, and as we get closer, we'll be able to demonstrate the progresses made, but not enough progress, and so we'll push the time period ahead. I think that was the thinking at the time.

Now, let me put a parenthesis on that and I'll come back to it. Why did the right favor a 100% proficiency? Many people have charged that the right wing favored the 100% proficient because they knew that all schools would be judged failing eventually and they could make an argument that said that all schools should be privatized and students should use vouchers and go to whichever school they want... So two different reasons for why this 100% proficient was picked.

The thinking was though, that – at least among reasonable people – that, well, in five years we are going to re-authorize No Child Left Behind and we'll reset the target, we'll know that the 100% is the aspiration but we'll keep moving up there. But by the time five years have passed the coalition that created No Child Left Behind had shattered. Senator Ted Kennedy died a little bit after that, and he was a very important part of putting together that coalition. The right and left had fractured over the Iraq war and other things going on in the US politics, so there was no way to re-authorize, and still now – it's 2015 – this bill was supposed to be re-authorized in 2007 and nothing's happened since then. (Editorial remark: On December 10, 2015, several months after this interview took place, the Every Student Succeeds Act or ESSA was signed by President Obama. ESSA replaced NCLB.)

So, even if people who knew what they were doing had an idea that would simply fix this in five years that was not able to happen. There's a researcher for example named Bob Linn from the University of Colorado, he wrote an article very early on showing that this was unrealistic and other flaws in No Child Left Behind, but that wasn't even part of the discussion, it was a political decision, it wasn't on research basis.

DG: But you say that even the politicians knew it wasn't an achievable goal...

AG: It's hard for me to say what politicians do, but certainly the staff knew that it wasn't. I gave a speech where I said “no school has ever made the progress that the typical school is required to make under No Child Left Behind. No school EVER has made the kind of progress that the AVERAGE school has to make!” I kept giving that talk over and over again and I was waiting for someone to show me a school that did make that kind of progress, so I could say “only one school or only three schools have ever made that progress”, but I've never found one.

The Implementation of Common Core Standards

DG: Well, we are now on the federal level and we certainly know that NCLB is a top-down federal level policy, but The Common Core Standards – is it top-down, is it federal level? Because I got the impression it's made bottom up by a coalition of states, but now you say it's linked to the resources from federal government...

AG: That's exactly right.

DG: So how would you characterize that policy?

AG: It's a clever combination of top-down and bottom-up. When the US entered an economic crisis in 2008, Congress has appropriated a lot of money to stimulate the economy. A portion of this went to the US Department of Education, about 4 billion dollars – small compared to the whole stimulus package, but huge for the US Department of Education. Secretary Duncan had more money to allocate – more discretionary money to allocate – than all previous secretaries of education going back to the beginning of the Department of Education. The biggest part of that allocation was a competitive grants program called Race to the Top. They were trying to incentivize states to improve their education systems. One of their conditions for being eligible to compete for Race to the Top was embracing rigorous standards created by a coalition of states or otherwise demonstrably being college and career ready. In response then the states created The Common Core State Standards and almost all states then agreed to aspire to and to implement The Common Core State Standards, so it was a bottom-up effort in response to a top-down incentive.

DG: And I have read that some foundation just evaluated the standards at individual states and compared them to new Common Core Standards and they show that it's really like growing, more demanding standards being applied nowadays. What could it mean for the test-based accountability at state level? And actually when you introduced such a new standard and students are already in school, when should they be eligible for testing etc., should there be some time maybe between the introduction of standards and testing?

AG: Well, those are good questions. Let me say first step – research played an interesting role in the development of The Common Core State Standards. Of course there is a research base for saying that setting higher standards promotes higher performance – it won't surprise you to hear that, I am sure – and some researchers working with a grant from our foundation, Lorraine McDonnell and Stephen Weatherford, investigated the extent to which research played a role in the development of The Common Core State Standards. Advocates wanted the standards to be based on research, but knew that the research was insufficient in about itself and so they tried to pull together research and other types of evidence, for example the wisdom of an experience, feedback from teachers unions etc. So the research was used in the development of The Common Core Standards to frame the issue, to make the case that higher standards will promote higher performance, and in some cases to develop an approach to standards, particularly this idea of learning progressions

94 that now accumulates and that students can go through a well-defined progression over time, although they didn't have research to identify with what the progression should consist of all the way through. So research was used to frame, to give direction, and then had to be filled in with a lot of other types of knowledge.

DG: So it means the schools have to use it from the year they were adopted and the testing would follow? Because here for example we have time to time discussions, for example now the discussion in the Czech Republic is that we don't have national testing. We have some now, and the only real national testing is the final upper-secondary leaving examinations, like examinations from high school that is now standardized through tests, it's kind of a recent development...

AG: Oh, really?

DG: Yeah, so the Czech Republic had no accountability at all, no national test. And no test-based accountability for sure, also there is a big opposition from our side, we are skeptical it could work. And especially in the Czech Republic you should understand the knowledge of testing, we still use classical test theory, we don't use IRT etc., we don't even publish the results and analyze them in a correct way, so you should understand there's a low capacity for doing good research and good tests. If then you assign big consequences or stakes to such tests, we are rather saying we are not sure...

But to go back to the argument – now the discussion is that the minister proposes that math should be an obligatory subject to take in the final exams, and long discussion goes around that if we think the math should be obligatory, already students entering high schools should know it and be prepared for it. So you could not introduce it earlier than five years on, you have to prepare the standards, but you need to have five years time so that students entering the schools could prepare for such the final exam... I wonder if such a discussion appeared on The Common Core?

AG: Sadly, political impatience prevented that wise course from being implemented. What you described would be a much more sensible process. Creating a time period to become prepared, to teach the standards and for students to respond to the standards, but that isn't what happened – the political cycle is far too short for that. The idea was that in one year the new assessments will be pilot-tested, the next year they will be implemented and that's it. Teachers would be responsible for teaching it, schools would be responsible for supporting it, students would be responsible for performing. And of course that was unrealistic, but another feature of the federal policy under the Obama administration would be less emphasis on performance at a single point in time and more emphasis on growth, on improvement in performance over time.

So my feeling at the time this policy was designed was that it was not a weakness, that it was OK to implement the tests immediately because you were just establishing a baseline, and then you would see progress over time and in fact credit would be given to schools and teachers whose students improved over time. And that would be a great way to show progress, to give credit for the hard work of implementing and learning the new standards, teaching the new standards and performing the new

standards. So that didn't seem like such a bad idea to me. But, unfortunately, there is not enough understanding of the distinction between performance or status at a given point in time and growth. And this misunderstanding was reinforced by No Child Left Behind which had no concept of a growth, it was all about performance at a single point of time. So the innovation of the policy under the Obama administration to focus more on growth was lost and teachers were horrified at the idea that they would be held accountable for standards for which they had barely been introduced, let alone prepared to teach to.

The issue of teachers' accountability

And there's another thing that happened in a federal policy in the US that made this even more difficult, and that is the Obama administration implemented, or rather among the criteria that states had to follow also to be eligible for Race to the Top, was not only holding schools accountable for students' performance, but also teachers. And that was new, under No Child Left Behind there was no teacher accountability, only school and district accountability. But under the Obama administration's policy it was the teachers as well. And we are not very good at using test scores to evaluate teachers. The measures are too imprecise, there are too few data points... Two ways of saying same thing. So this was problematic.

There's been such a negative response to holding teachers accountable with the use of tests that it has pushed aside all the benefits that have come along with it – more rigorous standards, deeper assessments and the focus on growth. Which I think are three big improvements that the Obama administration brought, and yet all have been lost because of the emphasis of the teachers' testing and because of the failure to do what you described they did here, which is they implement it in a more gradual way.

JS: And how did parents react? They are also stake-holders.

AG: Yeah, many parents were not that knowledgeable or engaged or familiar, but the ones that were initially tended to be supportive, because they liked the idea of more rigorous standards, and they liked the idea of teachers being held accountable for producing. But there was always a current of suspicion among some parents over the idea that standards from Washington would be imposed on their district, even though The Common Core State Standards and the assessments were state initiative, not federal initiative, nonetheless, as I have described... Well, it's kind of federal. Anyway, they objected that. But for the most part parents were favorable, or if they were engaged at all they were favorable, for the most part.

But because of the backlash against holding teachers accountable, parents have been whipped up into a frenzy and there are many parents who oppose assessments. And there's something going on now in the US called "Opt-out" – the parents can withhold their students from having taken the test. It's not all over the country, but in some places it's very concentrated and so if parents are withholding their kids

96 from taking the exam in any kind of numbers, then you don't get the results that meaningful, because this is not just about one kid's performances, it's about the school and the teacher.

DG: And they couldn't be forced to take the exam.

AG: Right, yeah.

DG: So then the biggest opponents were probably the teachers unions?

AG: Absolutely.

DG: Were they influential enough to stop it? What's the future of teacher effectiveness and even teacher pay-performance schemes or all these measuring via tests, the teacher effectivity?

AG: I would say that for most of the period we've been discussing it, since the beginning of No Child Left Behind in 2002 through the election of president Obama and his administration to today, 2015, for most of this period I would say teachers unions were ineffective. Teachers unions favor high standards, but they are not big fans of high stakes testing and they certainly opposed holding teachers accountable for student performance. And after all we had a Democratic president. The Democrats and the teachers unions are natural allies – but nonetheless the policies implemented by the Obama administration were vigorously opposed by teachers unions without success. Only in the last two years I would say, the teachers unions have gained traction in rallying opposition to the new test. And, as a result, there's a wide spread opposition to The Common Core State Standards even though it is not really the standards they're against, it's the tests tied to the standards, but they tend to conflate the two.

DG: Well, it now reminds me of some opposing researchers we use on teacher effectiveness measures like Richie Ingersoll from University of Pennsylvania who would say "you wouldn't find another profession that would be held so accountable", which shows that the teaching profession is semi-professional and they are not trusted to do their work well. But on the other hand when I heard the interview with Stephen Ball from UK, he argued that – and I don't know whether it was the case for UK or the United States – that nowadays even surgeons and medical hospitals are held accountable and that it leads to some side-effects, or not desirable effects, that they are not taking patients for treatments that are hard to recover, or if there's no chance to solve their medical problems, that they are sending them to another medical hospital, saying that they would disturb their statistics and effectivity. Do you see any similar side-effects? Or what would you reply to that criticism?

AG: Well I have always been a fan of experimentation with teacher accountability. I think there is much to be learned and I thought that by collecting data over time and aggregating that it would be possible to get precise enough measures of teacher contributions so that at least the teachers who are very poor performers could be identified and given a chance to improve and then if not improve, then go find another job. So I've always thought that we should experiment with that, but I would never have imposed it on such a wide scale – in fact I had a chance to talk with secretary Duncan and his cabinet and that was my advice, that it shouldn't be imposed on such a wide spread basis, because it wasn't ready yet.

But I've thought that the idea that you can monitor students' growth and achievement from one year to the next, if the measures were precise enough and if the sample were large enough, that it could be informative. So, are there negative side-effects? You know a lot of people complain about teaching to the test. My view has been – if it's a good test, it's worth teaching to. And this is how I view the new assessments developed in response to The Common Core State Standards. This is the first year they have been implemented so it's a little too soon to say but my hope is that they will be rich assessments that provide positive incentives for teaching about things that matter and in ways that develop students' minds and not just raw memorization of knowledge.

So I think it's possible to avoid many of the negative consequences. Another negative consequence that people are concerned about is cheating. And of course there is an incentive to cheat which is then a huge scandal with people going to jail, going to prison for ten years – in Atlanta over a cheating, what the jury found to be a conspiracy to cheat. So, yeah, there is an incentive to cheat when there are high stakes but I don't think that's a reason to not impose accountability.

The reasons not to impose teacher level of accountability too far – the reasons not to do it – one: the measures are not precise enough, and two: it turns out that teachers are not largely motivated by money. You mentioned Ingersoll before and he has shown this. Teachers are motivated by working conditions more than by money. The pay-for-performance experiments have failed in the United States, so I think we know enough to know that that's not going to work.

The incentives alone are not enough

DG: But at the teacher level it seems to me even more strange idea, because methodologically it is much more difficult to really get the teacher evaluated as the impact of previous teacher and a lot of other stuff we could not really wave out from the analysis. But even test-based accountability initiatives at the state level seem not to work.

I've read *The Incentives and Test-based Accountability in Education* produced by National Research Council and the argument is that the effect size is around .08 standard deviation, so all the programs implemented in past in the US have in their conclusion no effect, like .08 is no effect.

But still there is a movement and belief that we could do it and it turns to the discussion whether the strategy to blame and shame schools that they are not doing their job well, and teachers, whether you see that as a promising way forward? So is it only a technical issue, that we should do better tests, better standards – as I understand is now the development in the US – or whether it's maybe your own direction, what Stephen Ball would argue, performativity...

AG: Yeah, I think you have identified the policy alternatives correctly for the US... There's some controversy over whether test-based accountability has had a small

98 effect or no effect, but there is no controversy that it has not achieved the benefits we had hoped for, that's clear. You know, No Child Left Behind was not only a system of accountability, it also contained specific research-based approaches that would lead to better performance. Placing a highly qualified teacher in every classroom, one-on-one tutoring for struggling students, choosing instructional methods based on research evidence – those were the three research-based strategies that were part of the No Child Left Behind. There was a fourth strategy – **school choice**, which I would say the research is not supportive about, but that was in the No Child Left Behind also. But what I and my colleagues found in a book that I edited in 2007 was that these strategies were implemented so weakly and so inconsistently that there was no chance that the strategies for improvement could succeed.

So it seems clear that the incentives alone are not enough, that you need the resources and strategies to improve, and the strategies need to be implemented. But I would argue that the incentives provide a baseline for taking on those strategies.

With some colleagues I wrote a book in 2003 about how schools and school districts can support teachers who want to improve their practice. A big limitation in that work was only a small minority of teachers were included in the group who wanted to do something about improving their practice, because for most teachers there was not an incentive. The incentive is to do what you did last year. And the accountability system gives teachers an incentive to improve their practice. And in fact a study by RAND found that the biggest consequence of test-based accountability system was that teachers agreed with the statement “I'm trying to find ways to raise student achievement” or something like that. So there is a perception that we need to get more learning out of our students. At least you bring people to the table, you set them up for being open to new ideas and approaches that might raise student performance. Then you have to deliver the goods, then you have to provide the new directions and provide the supports to learn, to teach towards those new directions. And that was a complete failure under No Child Left Behind.

Good ideas, questionable implementation

DG: I think what you said about the problem with implementation is very typical here. Sometimes we don't even see trials and no plans for implementations and whatever. But even with – and I see it as a good and research-based strategy – placing highly qualified teachers in every classroom, I've also heard about problems with implementation actually raising an inequality, because I've read a study that shows that in some parts of California the poor districts could actually not hire science and math teachers in the US because there was unequal funding based on the city tax in the US for schools, so they were unable to find teachers and there was no state support to really get the qualified teachers in the poor or remote areas and deprived schools etc.... There was a colleague from California who described how – and they had to solve it based on a law – they were inviting teachers from Philippines who

had good English, math as major etc., but in front of the US classroom in very poor suburbs they were horrible, they used to be teaching fifty kids and when they saw these kids they said “they are not poor kids, they are very wealthy” etc. Maybe this is very marginal scale, but –

AG: No, it’s not marginal at all, it’s a major problem.

DG: So did it really solve the inequality problem with the schools where the staffing is the problem?

AG: No, it certainly did not, this is one aspect of what I mean by failure to implement. With respect to highly qualified teachers there were a lot of problems with what seemed like a good idea. First of all, what counted as highly qualified was you have a B.A., you have a teaching certification and you have expertise in your subject matter.

Now of these three it was the expertise in your subject matter which was the innovation. But states varied widely in what that meant. In some states, teachers had to take a test to demonstrate their knowledge, in other states they had to have a college degree in the field they were teaching, in other states they simply declared all of their teachers to be competent – if you’re a math teacher, therefore you know math. So it wasn’t implemented in a consistent way. And then, as you say, the resource base differs across school districts. It’s a profound dimension of inequality in the US and so if the districts can’t compete for the same teachers, then you end up with a lot of inequality across districts, even within the state, let alone across states where there are huge differences, huge disparities in education spending. So yeah, you’re absolutely right, it didn’t solve the problem because it was not implemented in a way that could have possibly addressed the problem.

Tracking, de-tracking and school choice

DG: We are too much in the NCLB – it’s interesting, but maybe to go back to the general questions. I will maybe use another example which you are an expert on as well, and that is tracking. So would you say that the de-tracking reform was reacting to research findings? And what’s the result of that? So let’s have another example, I had the third one prepared at a school choice, that would also be the critical question of Stephen Ball and the others, saying – and you confirmed it – that this is not a research based strategy to enhance the student learning, rather to enhance inequalities, but still policy makers are going in that direction. So before tracking, how did –

AG: Well let me say a couple more things about school choice and then I’ll talk about tracking. School choice is a great example of the interplay of the difficulties, of the interplay between research and policy – at the policy level in the US at the federal or state levels. A great example, because here you had an idea that did come out of research. There were research-based theories going back to the work of Milton Friedman, but also John Chubb and Terry Moe and other writers as James Coleman, the great sociologist, writing about why having students choose schools

100 should increase student performance. So that was the theory, and to the extent that this became part of the policy there was a relation between policy and practice.

The breakdown is that the evidence did not support this, the evidence for the benefits of school choice is very weak. There is some evidence of positive effects, another evidence of negative effects, but it's very weak. Especially for a private school choice. But when it comes to public school choice the interest is in charter schools in the US and here too the main finding is the effects of charter schools are variable, some outperform the schools that they're drawing students from, but others perform worse. So not a strong evidence base for promoting the policy.

Nonetheless it's a favorite of Republican politicians because of their ideological commitment to market-based solutions and lack of appreciation for the failure of markets in the public sector. It takes information to make a good choice, right? But information is unequally allocated. In order to encourage choice, schools spent resources on marketing themselves. Those are resources that could have been spent on the education program. These are all research-based findings that demonstrate the reasons for market failure and yet those don't enter into the conversation because of the ideological commitments of the politicians who favor them.

Tracking is a different kind of example. I would say yes, the research on the negative effects of tracking did play a role in the de-tracking movement, which was by the way not a federal policy movement, for the most part not a state policy movement, it was a policy at the district level and school level. So decisions about de-tracking occurred at the district level or the school level, not the state level.

DG: Are there some districts that didn't implement de-tracking? Like in the UK there was a movement for comprehensive national reform which was also left on the individual local education authorities, until nowadays they still have some grammar schools operating on a very small scale, like 4% of kids. How is it in the US?

AG: Yeah. At the surface level there is some comparability, only in a sense that there is variability among school, but the dynamic was quite different, because in the UK you had a national reform comprehensive, with many schools maintaining the prior approach and also the reform being phased in, so different schools would become comprehensive at different points of time. There was nothing like that national policy in the US. Instead you had specific districts adopting or recognizing the negative consequences of tracking and adopting de-tracking reforms, very often lead by teachers – not always, but very often. Very often provoking some hostility or controversy among parents, especially parents of high-achieving students who wanted their kids in the advanced classes.

So it was a district or even school by school initiative, there was no top-down component as in the UK. And as a result, overwhelmingly school districts in the US have continued to use tracking and ability grouping. Very few schools have the kind of broad, curricular tracks that might have been more common in the 1950's and 60's, for the most part it's subject by subject grouping, it's not tracking for all subjects. But almost all districts have some kinds of ability grouping in some subjects, so that's another big difference to the UK.

Anyway, I would argue – without having done the research myself, but just having lived in this world – that the research evidence on the negative consequences of tracking did play a role in the decision that many school districts tried to reduce the use of tracking. But it's a selective reading of the evidence.

As I've argued in my own writing, advocates and critics of tracking look at the same studies, but don't read the same things and they talk past each other. Critics of tracking emphasize that tracking exacerbates inequality, which it does. Proponents of tracking emphasize that it promotes the achievement of the highest achievers, which it also does. And the critics of tracking who were implementing de-tracking didn't deal with that aspect, didn't deal with the consequences for high-achievers, they just asserted that de-tracking will benefit everyone and there are number of cases where that hasn't been the case. That's one of the reasons that the de-tracking reform I think installed.

JS: I would like to go back to school choice. In the Czech Republic the school choice is not the issue of school effectiveness or better achievement, but an issue of parents' freedom to choose a school. How could we argue with such an argument?

AG: I think that's a much better rationale for school choice than student achievement, because what we find is that student achievement is not substantially different among kids who have used a voucher and is not consistently different among kids who have made a choice to go to one school versus another competitive students who want to make the choice but don't get the chance to because they didn't win the lottery for whatever reason.

But that doesn't mean that it's not a place where the families are more satisfied or where students are being taught in a way that aligns more with their parents values. In fact there's some evidence that says that even though there is an absence of effects on achievement, there are higher levels of parents' satisfaction when kids go to the voucher schools or the private schools of choice. So that would be very consistent with what you're suggesting.

Now whether that is a good thing or a bad thing depends on your perspective about the parent freedom. Education plays an important role in promoting shared values and in creating a coherent and unified society and if we differentiate among schools in a way that leads kids from different backgrounds or different religions or different ideological preferences to go to different schools, then we don't have that opportunity for creating connections across different parts of society. It's like Durkheim's organic solidarity, you don't have the chance to build those ties of organic solidarity if you never come into contact and you have no co-dependencies with people from other origins. This is a matter of values rather than of scientific findings or evidence I would say.

JS: But don't you think it could harm children from not-so-good backgrounds?

AG: If the system of choice is set up that they don't have the opportunity to choose the schools where kids from more affluent backgrounds are found. Coleman's idea, or the reason he favored school choice, was because he thought in the system we had children from disadvantaged backgrounds are not able to go to

102 schools with more affluent peers because they are in impoverished neighborhoods, and if school tendencies are determined by where you live, then you have that kind of economic segregation. Whereas a school choice program would allow you to go to school you have selected irrespective of where you live. Coleman's idea at least was that that's exactly the point of school choice, it does allow you to do that. If you lack resources but you're in a market place for schools, you can send your kid to the school where it can be best served.

DG: But Coleman's rationale was far away from rationales in our country. His rationale was to make schools more diversified and allow more of the less favored to be with more affluent families together. But here it's like "Ok, you shouldn't limit anyone's choice" and we know the end in the Czech Republic is that we have very affluent schools or schools with people from very affluent families and schools in deprived areas and even now ghetto schools like Roma schools, because once you have more Romas in school the white people, the majority, leave that school and the policy makers are not willing to change the catchment areas in a way that the Roma children would have a right to enter any school around. So it is rather a school choice for those who are using it and those who more influence voting and policy so more educated parents and middle class.

AG: Yeah, this is an example of what I was speaking about before, about the failure of the markets and the public sector. If there is unequal information or unequal access to power then the choice system might promote more divisions instead of being for a free equalization, yeah...

JS: And could we prevent it?

AG: In principle it could be prevented but one thing we find in public policy is that the advantaged families seem to find ways to take advantage of public policies, to use public policies for their interests... So in principle it could be prevented.

Resources trump choice

DG: There's actually a big discussion – or our discussion, it's not big, but our national discussion – what would be good for the Czech Republic. Because since we have had communist system we don't have segregated living. We have many people from very different social strata living next to each other. But now more and more the educated parents choose better schools and even pay for private schools etc. So to support equality in the system we would vote for introducing catchment areas not allowing educated parents to go out of their areas. But then we had a discussion that it would probably lead to what happened in the United States, the residential differences because then the prices of the flats... But some people still would argue "well, it will take some time, maybe seven, maybe ten years, so the catchment areas could have some influence on equality"...

JS: So the question is more general. How to make school more heterogeneous, not just by catchment areas, but are there any other measures?

AG: Well we've tried this a lot in the United States and it has not been very successful... I have a new article coming out in *Educational Evaluation and Policy Analysis* focusing on Nashville, Tennessee, which is one of these districts that had court imposed desegregation, they had a very complicated busing system... There's a longer story. In 1954 the Supreme Court decided that segregation was illegal. Well it took about thirty years for Nashville to finally agree, or to finally implement a true desegregation system. And they had a very complicated system of busing where students were moving all around town to create more diverse school populations. And it only lasted in fully implemented way for about a dozen years. There was a wide spread dissatisfaction even among the African-American community because of the substantial burden of busing. We have achievement data from before, during and after the court imposed desegregation and then the release of court imposed desegregation. Of course the schools became more segregated because students began once again attending schools closer where they lived – where they lived segregated, so the schools became more segregated. And what we found was that: On anticipating this the Nashville school districts designated some of the schools that were going to have the highest concentration of low-income African-American families as what they called Enhanced Options Schools and they would get a lot of extra resources, they would get a longer school day, longer school year, smaller classes, after-school tutoring and social services. What we found is that first of all increased racial segregation did not change students' achievement trajectories, but an increase of concentration of poverty was a negative, but these enhanced option services counter-balanced the negative effects of increased poverty concentration. So the resources available to the school and the way they were implemented was more important than who you were going to school with. I had a line in a paper that the reviewers maybe take out, they said it was too strong for the evidence, but I said "resources trumped who you went to school with" or something like that, "resources were more powerful than composition", that's what it was. "Resources trump choice."

Challenges to de-tracking

DG: Another problem what I heard you say, and correct me if I understood it wrong, is that even for de-tracking there was a support of parents and schools etc. Also probably for these desegregation movements there was a support of general public opinion, that it was the right thing to do. That's the opposite in our country, maybe going back to communist idea, that equality is a communist idea, and you shouldn't limit the pupils freedom etc., so there's a big opposition of educated parents to de-tracking, opposition to policies against inequality or even to supporting deprived families and less educated parents. Is my evaluation of the American situation correct? How did it come, was it always so that the parents supported, let's say, measures for African-Americans and desegregation movements, or how could you change the view, if there was some change in public opinion?

AG: First of all to respond at a general level, it's a matter of preferences and values, educational programs respond to different values and I don't think a social scientist is the one to say "we should value freedom more than we should value equality". Instead I think we should say "Ok, if you are going to promote a policy because it advertises freedom, here's what you can do to minimize the harm to the equality", or "if you're going to promote a policy that advertises equality, here's what we can do to minimize the harm to freedom, or to maximize freedom given the policy that advances equality". That would be my general response. With regards to the specifics here, there are always a variety of responses to any of these kinds of policies. I think Jeannie Oakes, with respect to tracking, has done an excellent job of diagnosing the challenges to de-tracking. She says there are political, normative and technical challenges to de-tracking. Political objections – some people have an interest in maintaining tracking, teachers who teach high-achieving students, parents of high-achievers who want them to be in high-track classes. Second, normative – we believe that people differ, it seems normal that they should be in different classes because they differ from one another, and overcoming that normative view can be a big challenge. But there are also technical challenges. It is not easy to teach students with widely varying levels of prior preparation. I think that with Oakes and people who have followed her, there's been an insufficient appreciation for the technical challenges of instruction of students with widely varying levels of prior preparation. I think that the technical challenges of de-tracking are perhaps more important than some people recognize.

DG: What I like about the US case is that you are trying to do something to make the society and education more equal. It seems to me that we are not really trying here to do something. And the result is that very often it is inefficient, because the parents find their own ways to do it. I think also the evaluation of the de-tracking reform is kind of skeptical from Samuel Lucas etc., who say that maybe the inequalities have become more invisible rather than disappear by this policy. What would be your evaluation of that?

AG: I agree with that, I think that is correct, specifically with regard to tracking. Even in systems I found, or at least even in systems where parents or students choose their own track levels it tends to resolve in the same thing, because they get advice from teachers, "you should choose this track". And so many of the changes have been illusory, they have been illusions and the inequalities persist. I think Lucas is correct when he identifies effectively maintaining inequality as a process whereby you minimize inequality at one level and it pops out somewhere else. That's a function of our larger system which is competitive, which has inheritance, where the reason parents try to accumulate wealth and power is so they can pass on those advantages to their offspring while they're alive and after they're gone. So you're swimming up stream trying to promote equality in a system where having wealth and power gives you a position of advantage. Someone said about democracy that it's a terrible system, it's just better than all the other systems, so, you know, there's something to be said for that here.

Report on the XVI World Congress of Comparative Education Societies (WCCES 2016)

The Congress was held from 22nd to 26th August 2016 in China at the Beijing Normal University (BNU). The main theme of the Congress *Dialectic of Education: Comparative Perspectives* offered discussion on contemporary issues in a global, regional and local context aimed at exploring, interpreting and comparing diverse sides of educational phenomena. The dialectics of education were analysed at different stages or in various settings, including a complexity of issues concerning educational inputs and processes or outputs from different theoretical and disciplinary perspectives. It gave participants from every region of the world the opportunity to share ideas, views and methodological approaches pointing out particularities and emphasizing common trends or problems in education and educational research.

Keynote speeches focused on the main congress theme from different perspectives as follows: **Ying Wang**, senior professor of comparative education at BNU and the current president of the Chinese Comparative Education Society opened the way to understand the Chinese perspective. In his keynote *The prospect of Chinese schools: From the Perspective of Dialectics* he interpreted the development of school education and changes started in China since the reform in 1978. His speech was based on broad research evaluating the current state and conflicts in Chinese schools in the age of globalization and digitalization. In particular, he pointed out conflicts in educational aims, student engagement in learning, the different expectations that parents have and the persistence or emancipation of teachers and school principals. The main dilemma was seen in the conflict of educational standards and personalised concept of education with consequences for governance strategy, curriculum development and teaching methods, and especially for the teaching profession. Despite the real conflicts that he identified, his conclusion was fairly optimistic.

The second keynote devoted to Chinese education was presented by **Ruth Hayhoe**, a professor at the University of Toronto. She is deeply involved in Asian education, including several visiting professorships at Japanese, Hong Kong and Chinese universities. She has published a number of articles and books concerning Chinese education. In her keynote *China in the Centre: What will it Mean for Global Education?* she reflected on the restoration of universities after the Cultural Revolution and the dramatic modernization of higher education in China since the late 1970s. Furthermore, she celebrated the Chinese university culture and its influence on rapidly developing education systems in Africa and South Asia with the potential to enrich new approaches in education globally.

Andreas Schleicher, director for Education and Skills at the OECD, guiding major programmes, such as PISA, PIAAC, TALIS and INEC, offered different perspectives on the strategic value of education. In his keynote *Better Skills, Better Jobs, Better Lives: The Challenge for Connecting the Worlds of Learning and Work* education was viewed as a piece of equipment needed for an effective personal link in work and social benefit in economic growth. He referred his explanation to the OECD Skills Survey (PIAAC) and pointed out the difficulties connected with poor skills or with a shortage of the advanced skills that are important for the productive use of technologies and for new ways of working. He illustrated the difficulties with evidence from international research showing that in many countries the young graduates face serious problems when looking for jobs. He showed that more education does not mean better education and that relevant skills are the right way to a better job and quality of living. He challenged the anticipation of further development in contemporary societies of learning and deeper integration between the world of work and the world of learning.

The former president of the WCCES **Carlos Alberto Torres**, professor at UCLA and Director of the Paulo Freire Institute, concentrated on the functions of comparative education in the global age. In his keynote *The State of the Art of Comparative Education: WCCES at a Crossroad in the 21st Century* he challenged the community operating in the field to a broad and complex approach going far beyond the concept of academic discipline. Comparative education today, according to Torres' view, is a relatively obscure and unconventional field acquiring a new relevance. He pointed out particularly important relations between culture and power and the dynamics of power within social movements that make education permanently full of conflicts and struggles. He confronted the state of the field with the role of the WCCES and the diverse professionalism of comparatists in the interdependent world.

The role of the WCCES was discussed during the congress differently, particularly by the highlighted panel *The Future of Comparative Education* performed by other past presidents. The changing role of comparative education was also the subject of thematic sessions concerning globalization, educational reforms, and the re-contextualization of world culture.

Radically reconfigured contexts, challenges and opportunities were emphasized in every thematic session showing gaps in countries and cultures or in international settings concerning education. The following aptly chosen 14 themes served as the main focuses of the congress content and discussions: *Globalization and Localization, Quantity and Quality, Marketization and Public Good, Scientism and Humanism, Modernity and Tradition, Diversity and Standardization, Equity and Efficiency, Centralization and Decentralization, Autonomy and Accountability, Elite and Massive Education, Teacher-centred and Student-centred Education, Adult Education and Lifelong Learning*. The last but not the least thematic session *Theories and Methodologies of Comparative Education* reopened discussion on the identity of the discipline and the present state of certain crisis. The rise of new theories and approaches, such as neo-institutionalism, network theories, cartographic methodol-

ogies, multiplication of post-structural theories, in addition to debates on global and regional interpretation of common concepts, including globalization and glocalization or westernization and internationalization, reflected relevant diversities in the field.

Reflecting on the experience from the Congress the statement could be as follows: To know and compare diversities could lead to deeper understanding of education and learning in a global and local setting. To meet comparativists from the whole world, to have live discussion of theoretical and methodological questions of the research as well as real issues of educational policy and practice was a unique opportunity provided by the organizers.

To hold the Congress at Beijing Normal University was a very good choice. The University is a key institution of higher education and among the top ten universities in Mainland China. The University offers a broad range of study and research fields in arts and sciences and is well-known for teacher education and education science. It promotes broad international cooperation with a high number of universities and research centres abroad and exchange students from fifty universities particularly from the United States, the United Kingdom, Japan and South Korea. In addition, the BNU has co-established eight Confucius Institutes in North America and Western Europe.

The origins of the Faculty of Education, the main organizer of the Congress, date back to the early 20th century. Nowadays the faculty is considered a national leader in advancing teaching and research activities and innovative projects nationwide. The faculty consists of 13 academic institutes offering 5 undergraduate programmes, 28 master programmes and 16 doctoral programmes; four of these doctoral programmes are taught in English. The important centre of the faculty, the Institute of International and Comparative Education, is the oldest comparative research centre in the country and the only national centre of this kind accredited by the Ministry of Education. Since 2002 the Institute has hosted the Worldwide Forum for Comparative Education every three years. The Institute is a seat of the secretariat of the Chinese Comparative Education Society and publishes the *International and Comparative Education* journal.

The university and faculty staff were fully involved in academic, logistic and organizational committees. The management of the scientific and social programme of the Congress was very professional. Nearly 150 student volunteers contributed to a friendly and productive climate and the smooth running of the whole programme, including school visits and other special events. At the welcome evening the 1500 participants enjoyed Chinese traditional music, dances, calligraphy and drama performed by university students.

The double effect, scientific and cultural, contributed to the success of the congress. All that remains is to hope that the next WCCES Congress in Mexico in 2019 will continue the good work.

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