Summary: What One Hundred Years of Research Says About the Effects of Ability Grouping and Acceleration on K–12 Student Academic Achievement

Bottom Line

In "What One Hundred Years of Research Says About the Effects of Ability Grouping and Acceleration on K–12 Students' Academic Achievement: Findings of Two Second-Order Meta-Analyses," three researchers examined a century's worth of evidence on two widely debated educational techniques: ability grouping and acceleration. Researchers Saiying Steenbergen-Hu and Paula Olszewski-Kubilius of Northwestern and Matthew C. Makel of Duke University applied second-order meta-analysis to several dozen previously published syntheses that had analyzed nearly 300 original studies. The findings of their synthesized research are published in the *Review of Educational Research*. Their conclusion: there is compelling evidence that acceleration and most forms of ability grouping are effective at increasing academic achievement and have the potential to provide widespread benefit to millions of students in U.S. school systems.

Background

Although the U.S. spends nearly $600 billion a year on public education, new research has raised the question of whether these resources are being allocated effectively when it comes to the development of high-performing students. A recent policy brief (Makel, Matthews, Peters, Rambo-Hernandez, & Plucker, 2016) reported that 20% to 40% of elementary and middle school students perform above grade level in reading and 10% to 30% do so in math, leading the policy brief's authors to conclude that the U.S. educational system requires major changes when it comes to providing advanced students with opportunities to learn. However, many education professionals have expressed concern about the effectiveness of interventions or even the possibility of causing potential harm. Among the most controversial of these intervention techniques: ability grouping and acceleration. This study was designed to resolve the debate on both techniques.

With ability grouping, students are organized into different groups based on their initial skill levels, creating learning environments in which all students have similar abilities. There are several kinds of ability grouping, including separating students into high-, average-, and low-achieving classes; dividing students into small groups within an individual class; or placing students into a gifted and talented program.

Acceleration is an approach that allows students to access opportunities earlier or to progress at a more rapid pace. There are many forms of acceleration, including grade-skipping, early entrance into high school or college, and subject-specific acceleration (taking a higher-level math class while staying in grade-level English classes, for example).

Proponents of ability grouping and acceleration point to the educational benefits these techniques provide for academically talented students who are under-challenged in their grade-level classrooms.

Critics have argued that, by dividing students, these strategies increase achievement gaps and produce negative social-emotional outcomes, such as lowered self-esteem for lower-achieving students. However, numerous previous studies (Steenbergen-Hu & Moon, 2011) have shown that these negative social-emotional outcomes are not associated with such interventions; those findings were confirmed by this study.

Study Purpose

When a subject such as this one has particularly strong political and policy implications, and when the evidence is inconsistent across individual studies—particularly when a large body of evidence exists—comprehensive syntheses of evidence can prove to be particularly useful. Such syntheses are often called meta-analyses. However, in some cases, different meta-analyses can exist that relied on different methods of synthesis. For example, some syntheses may focus on research from a particular time period or on one specific type of intervention. Such filtering influences the results that will be found. With this in mind, the study's authors designed a second order meta-analysis study that synthesized all previous meta-analyses published on ability grouping and acceleration to answer five key questions:

- What are the effects of ability grouping and acceleration on K–12 student academic achievement?
- Does ability grouping have differential impacts on students of different ability levels (e.g., high, medium, and low ability)?
- What are the discrepancies and commonalities in the methods and findings across different meta-analyses?
- Do meta-analyses of different methodological quality show differential effects?
- What are the effects of ability grouping when only the highest quality of research evidence is considered?

Method

The study's authors created two second-order meta-analyses of existing meta-analytic studies that had already aggregated the outcomes of empirical primary studies on the effects of ability grouping and academic acceleration on K–12 student academic achievement. Meta-analysis is a quantitative research review method for combining and comparing the results from multiple primary studies to generate a synthesis of the outcomes on a given topic or relationship. A second-order meta-analysis is a meta-analysis of a number of existing meta-analyses that examine similar issues or relationships on a given topic. It is also sometimes known overviews of reviews, systematic reviews of reviews, umbrella reviews, meta-meta-analyses, and meta-analyses of meta-analyses.

Second-order meta-analyses can serve several important purposes, including summarizing evidence from multiple studies, comparing findings and resolving discrepancies in those findings, reexamining the credibility and validity of prior studies from a fresh perspective, and identifying research gaps as well as future inquiry directions.

Although dozens of meta-analyses on the impact of ability grouping and acceleration on student academic achievement have been conducted since the 1980s, no second-order meta-analysis had yet been conducted to integrate and synthesize these existing meta-analyses. Thus the study's researchers were careful to establish a set of inclusion or exclusion criteria to identify the highest quality and most useful first-order meta-analyses to include. Eligible studies had to have:

- Employed methods of meta-analysis or quantitative synthesis to aggregate research findings.
- Focused on the academic impact of ability grouping, acceleration, or both.
- Included studies that had both treatment and control groups so that standardized mean differences were calculable.
- Reported academic achievement outcomes of ability grouping or acceleration interventions. Meta-analyses focusing only on nonacademic outcomes (such as social-emotional outcomes) were excluded.

Results

After taking a comprehensive look at the existing published research integrating previous meta-analytic results, the researchers of this second-order meta-analysis found that students benefited from within-class grouping, cross-grade subject grouping, and gifted and talented programs. However, the authors found that the benefits of between-class grouping (separating students from the same grade into high-, average-, and low-achieving classes) were negligible. They also found that acceleration had positive effects. Accelerated students, in all meta-analyses, performed significantly better than their non-accelerated same-age peers—though they did not perform significantly better than non-accelerated, older students.

Another important point made by this latest study is that ability grouping and acceleration can improve school performance for little cost. In fact, acceleration can save schools money since students may spend less time in school by graduating early.

Conclusion

By demonstrating that one hundred years of research shows most forms of ability grouping and acceleration to be effective educational strategies that benefit students, the authors of this study make a strong argument that schools should implement these techniques. Simply put: there is a large research base showing that these interventions are effective means of improving academic outcomes.