

Technical Appendix

Definition

Within-class attainment grouping involves organising pupils within their usual class for specific activities or topics, such as literacy. Pupils with similar levels of current attainment are grouped together, for example, on specific tables, but all pupils are taught by their usual teacher and support staff, and they usually all follow the same curriculum.

The aim of this type of grouping is to match tasks, activities and support to pupils' current capabilities, so that all pupils have an appropriate level of challenge.

There are other forms of grouping, not included in this Toolkit entry, which also use current academic performance to organise pupils for teaching.

- **Setting:** pupils in a given year group are grouped by attainment into classes for specific subjects, such as mathematics and English, but not across the whole curriculum.
- **'Streaming'** (also known as 'tracking' in some countries): pupils are grouped by attainment into classes for all or most of their lessons, so that a pupil is in the same group regardless of the subject being taught.
- **Cross-age grouping:** pupils from different year groups are formed into classes of similar current attainment for specific lessons (usually reading and mathematics), but then return to their same-age classes for other lessons.
- **Gifted and talented provision:** high attaining pupils are taught in separate groups or classes.
- **Acceleration:** pupils considered to be of exceptional ability receive separate lessons with a different curriculum (or the same curriculum at a faster pace) or join older learners for more advanced study.

The Toolkit has a separate entry on **Setting or streaming**. Cross-age grouping, gifted and talented provision, and acceleration are not currently covered in the Toolkit.

Although these practices are sometimes described as 'ability grouping', we refer here to 'attainment' rather than 'ability', as schools generally use measures of current performance, rather than measures of ability, to group pupils.

Search Terms: ability grouping, within class ability grouping, homogeneous/ heterogeneous grouping, (setting, streaming, tracking, regrouping, gifted and talented)

Evidence Rating

There are four meta-analyses of within-class grouping studies included in the analysis for this strand, once duplication has been taken into account. These suggest that within-class attainment grouping appears to benefit pupils by about three months on average (a weighted mean of 0.21). Overall the pooled effects from these meta-analyses are similar, ranging from 0.12 to 0.32. Only one meta-analysis has been conducted in the last ten years. Only two of the meta-analyses explore the variation in effects. Many of the designs of the included studies have limited causal inference.

The majority of the experimental evidence comes from the USA, and there are few rigorous studies from other countries.

Overall the evidence is rated as limited.

References

- 1 *Kulik, J. A., & Kulik, C. C. (Abstract ↓)*
Meta-analytic findings on grouping programs. [↗](#)
Gifted Child Quarterly, 36, 73–77.
(1992)
- 2 *Kulik, J.A.*
An Analysis of the Research on Ability Grouping: Historical and Contemporary Perspectives [↗](#)
The National Research Center On The Gifted And Talented
(1992)
- 3 *Lou, Y., Abrami, P. C., Spence, J. C., Poulsen, C., Chambers, B., & d'Apollonia, S. (Abstract ↓)*
Within-class grouping: A meta-analysis. [↗](#)
Review of Educational Research, 66(4), 423-458.
(1996)
- 4 *MacIntyre, H., & Ireson, J.*
Within-class ability grouping: Placement of pupils in groups and self-concept. [↗](#)
British Educational Research Journal, 28(2), 249-263.
(2002)
- 5 *Marks, R*
'The Blue Table Means You Don't Have a Clue': the persistence of fixed-ability thinking and practices in primary mathematics in English schools. [↗](#)
FORUM, 55(1), 31-44.
(2013)
- 6 *Puzio, K., & Colby, G. (Abstract ↓)*
The Effects of within Class Grouping on Reading Achievement: A Meta-Analytic Synthesis. [↗](#)
Society for Research on Educational Effectiveness.
(2010)
- 7 *Saleh, M., Lazonder, A. W., & De Jong, T.*
Effects of within-class ability grouping on social interaction, achievement, and motivation. [↗](#)
Instructional Science, 33(2), 105-119.
(2005)
- 8 *Slavin, R. E. (Abstract ↓)*
Ability grouping and student achievement in elementary schools: A best-evidence synthesis. [↗](#)
Review of Educational Research, 57, 293–336.
(1987)
- 9 *Steenbergen-Hu, S., Makel, M. C., & Olszewski-Kubilius, P.*
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. [↗](#)
Review of Educational Research, 86(4), 849-899.
(2016)
- 10 *Tereshchenko, A., Francis, B., Archer, L., Hodgen, J., Mazonod, A., Taylor, B., Pepper, D., & Travers, M. C.*
Learners' attitudes to mixed-attainment grouping: examining the views of students of high, middle and low attainment. [↗](#)
Research Papers in Education, 1-20.
(2018)

Summary of effects

Meta-analyses	Effect size	FSM effect size
Kulik, J. A., & Kulik, C. C., (1992)	0.25	-
Lou, Y., Abrami, P. C., Spence, J. C., Poulsen, C., Chambers, B., & d'Apollonia, S., (1996)	0.12	-
Puzio, K., & Colby, G., (2010)	0.22	-
Slavin, R. E., (1987)	0.32	-
Effect size (weighted mean)	0.21	

The right hand column provides detail on the specific outcome measures or, if in brackets, details of the intervention or control group.

Meta-analyses abstracts

1 *Kulik, J. A., & Kulik, C. C. (1992)*

Meta-analytic reviews have focused on five distinct instructional programs that separate students by ability: multilevel classes, cross-grade programs, within-class grouping, enriched classes for the gifted and talented, and accelerated classes. The reviews show that effects are a function of program type. Multilevel classes, which entail only minor adjustment of course content for ability groups, usually have little or no effect on student achievement. Programs that entail more substantial adjustment of curriculum to ability, such as cross-grade and within-class programs, produce clear positive effects. Programs of enrichment and acceleration, which usually involve the greatest amount of curricular adjustment, have the largest effects on student learning. These results do not support recent claims that no one benefits from grouping or that students in the lower groups are harmed academically and emotionally by grouping.

3 *Lou, Y., Abrami, P. C., Spence, J. C., Poulsen, C., Chambers, B., & d'Apollonia, S. (1996)*

The effects of within-class grouping on student achievement and other outcomes were quantitatively integrated using two sets of study findings. The first set included 145 effect sizes and explored the effects of grouping versus no grouping on several outcomes. Overall, the average achievement effect size was +0.17, favoring small-group learning. The second set included 20 effect sizes which directly compared the achievement effects of homogeneous versus heterogeneous ability grouping. Overall, the results favored homogeneous grouping; the average effect size was +0.12. The variability in both sets of study findings was heterogeneous, and the effects were explored further. To be maximally effective, within-class grouping practices require the adaptation of instruction methods and materials for small-group learning.

6 *Puzio, K., & Colby, G. (2010)*

Although some literacy researchers consider grouping students for reading instruction to be a proven educational practice, the support for this belief is lacking from a research synthesis perspective. With this idea in mind, Slavin comments in the middle of his review on the effects of grouping: "there is not enough research on within-class ability grouping in reading to permit any conclusions" (Slavin, 1987, p. 320). Because of this, the question of whether "and" how to group students is often cast and answered ideologically rather than empirically. This review attempts to see if the empirical research available can answer either or both of these questions. It will contribute to the literacy field by focusing specifically on reading outcomes for classroom teachers, who instruct a wide variety of students. Informed by previous research on within-class grouping, the following three research questions guide the present study: (1) To what extent does within-class grouping impact student achievement in reading?; (2) For which grade(s) or which students is within-class grouping most or least beneficial?; and (3) Do any moderators, especially those identified by previous research (measurement source, teacher development, and grouping type), help explain this effect?

8 *Slavin, R. E. (1987)*

This article reviews research on the effects of between- and within-class ability grouping on the achievement of elementary school students. The review technique- best-evidence synthesis-combines features of meta-analytic and narrative reviews. Overall, evidence does not support assignment of students to self-contained classes according to ability (median effect size [ES] = .00), but grouping plans involving cross-grade assignment for selected subjects can increase student achievement. Research particularly supports the Joplin Plan, cross-grade ability grouping for reading only (median ES = +.45). Within-class ability grouping in mathematics is also found to be instructionally effective (median ES = +.34). Analysis of effects of alternative grouping methods suggests that ability grouping is maximally effective when done for only one or two subjects, with students remaining in heterogeneous classes most of the day; when it greatly reduces student heterogeneity in a specific skill; when group assignments are frequently reassessed; and when teachers vary the level and pace of instruction according to students' needs.