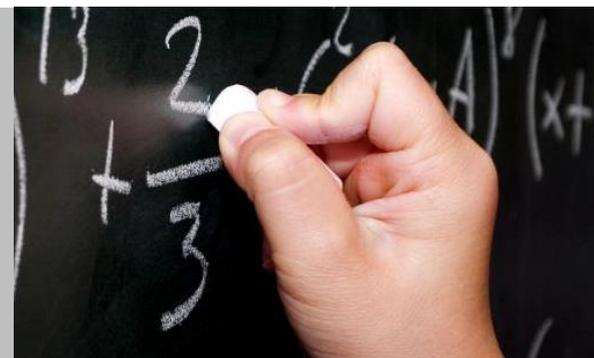
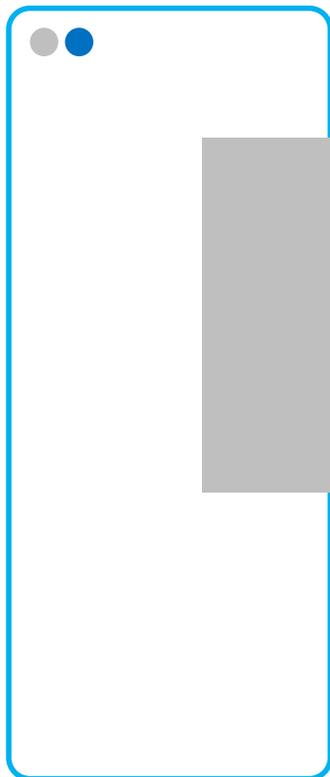


What works in tutoring for secondary school children

Review of meta-analytical reviews



16 June 2015

In a nutshell

Longer learning hours, such as tutoring, in addition to standard school hours, have a small impact on literacy and numeracy skills

Tutoring has a larger impact on both literacy and numeracy if the tutor is certified or if there is an element of peer tutoring

Tutoring has a larger impact on literacy for those groups that are smaller than 20 tutees or led by adults

The application of information technology (IT) to tutoring has a small impact

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Important

This report estimates the impact of tutoring on literacy and numeracy skills, as measured by tests which are not necessarily similar to those used in the UK

We searched for meta-analytical reviews thoroughly to make sure we did not miss any relevant one

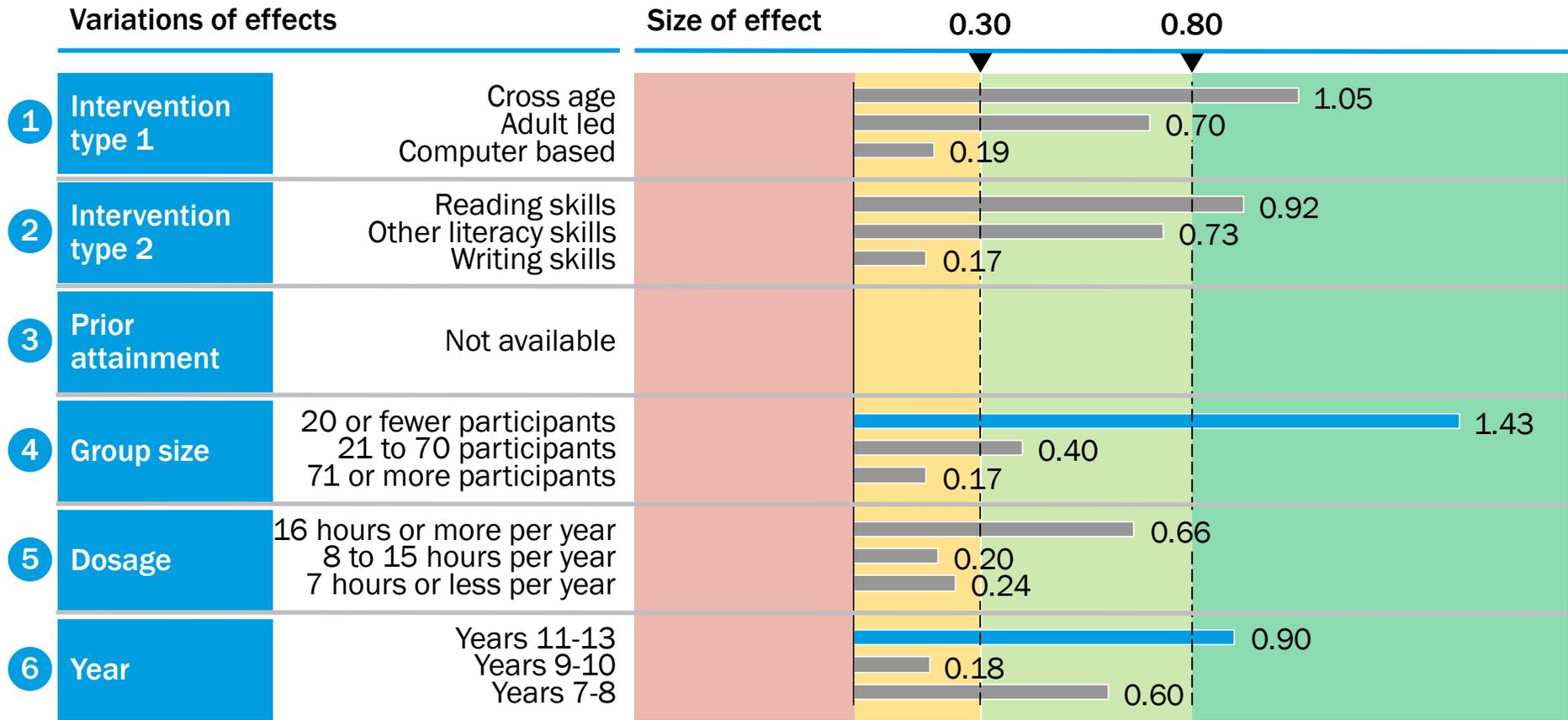
A meta-analysis is a summary of a number of evaluations for interventions that are similar, for example similar ways of running peer tutoring sessions

Each page of this report corresponds to one meta-analysis

Effect size figures may be compared within each page, but not across pages

How to interpret our findings

Blue bars that end in a green shaded area are for the stronger effect sizes, which are highly likely to happen in practice, as long as the approach to tutoring is implemented with fidelity



As a rule of thumb, a 0.3 effect size may be equivalent to up to one year's worth of progress

Note: 1. Effect sizes that fall in the green shaded areas are greater than 0.3, and therefore stronger. 2. Effect sizes that fall in the red or amber areas are below 0.3, and therefore weaker. 3. Grey shaded bars are for non statistically significant effect sizes. 4. Blue shaded areas are for statistically significant effect sizes.

Important

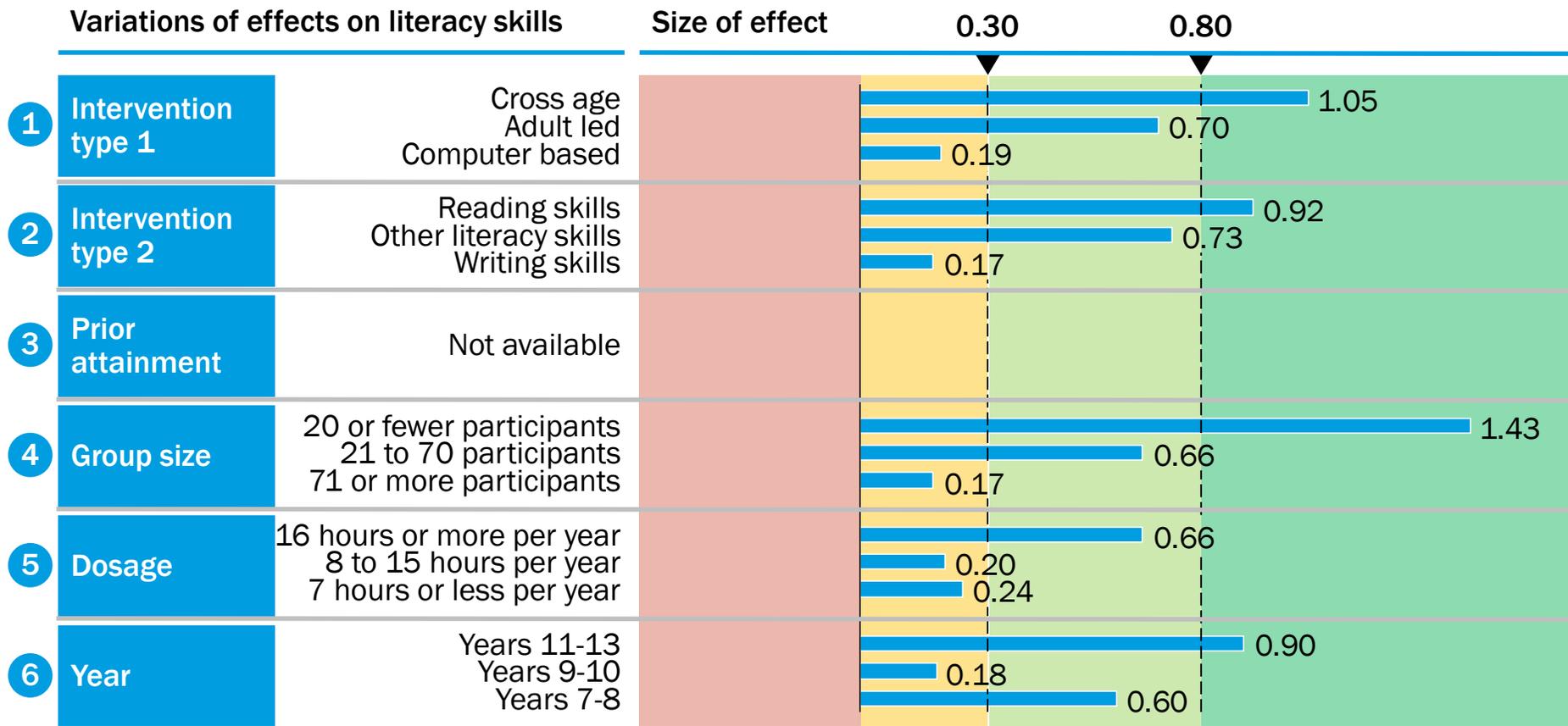
When we say that a particular type of tutoring has a small effect on literacy and numeracy skills, it does not mean that the approach does not work

It means that the evidence we have reviewed shows a small effect

There might be some evidence that contradicts our conclusions

The overall effect of literacy tutoring is small: 0.26

The largest effect of literacy tutoring is 1.43 for interventions delivered in groups of 20 or fewer participants and the smallest effect is 0.17 for groups of 71 or more participants



Findings apply to secondary schools only

Note: 1. Cross age includes tutees acting as tutors to other younger tutees. 2. Jun 2010 does not break down findings by tutee's prior attainment. 3. Minimum threshold duration needed for tutoring to be effective not explored.

Source: Jun 2010, based on meta-analysis of 12 studies

Literacy tutoring benefits from feedback, peer tutoring, and a good tutor

Beyond effect sizes and statistical significance, Jun 2010 provides practical recommendations on how to design tutoring interventions

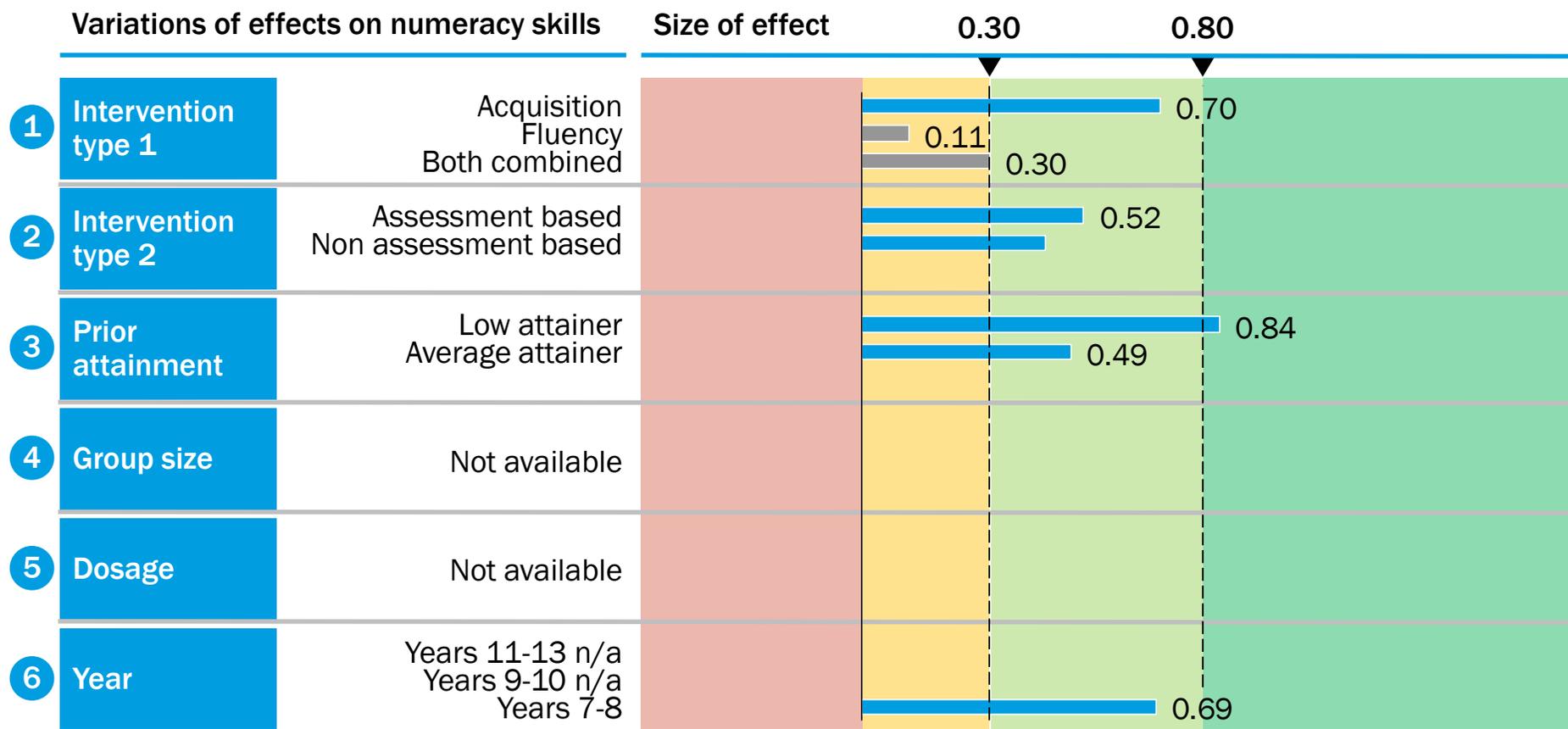
Practical recommendations on literacy tutoring

1	Feedback	Providing students with feedback in tutoring sessions can be effective
2	Subskills	Focusing on specific subskills of literacy, such as decoding skills and thinking skills for reading and sourcing skills for writings, can be beneficial for developing literacy skills
3	Tutor training	Tutoring by minimally trained tutors, including adolescents, can be promising when guidance is provided
4	Computer	Computer tutoring, if well structured and informed by theory, can effectively help students that have limited access to face-to-face tutoring
5	Responsibility	Providing students with genuine reasons to use literacy and with a sense of responsibility by allowing them to tutor other students can help them actively engage in literacy practices
6	Tutor	The individual who performs the role of the tutor makes a difference in achieving learning outcomes

Findings apply to secondary schools only

Numeracy tutoring effects are large on those with low prior attainment: 0.84

Tutoring interventions that include guided practice and frequent feedback produce moderate effect sizes on those with low prior attainment

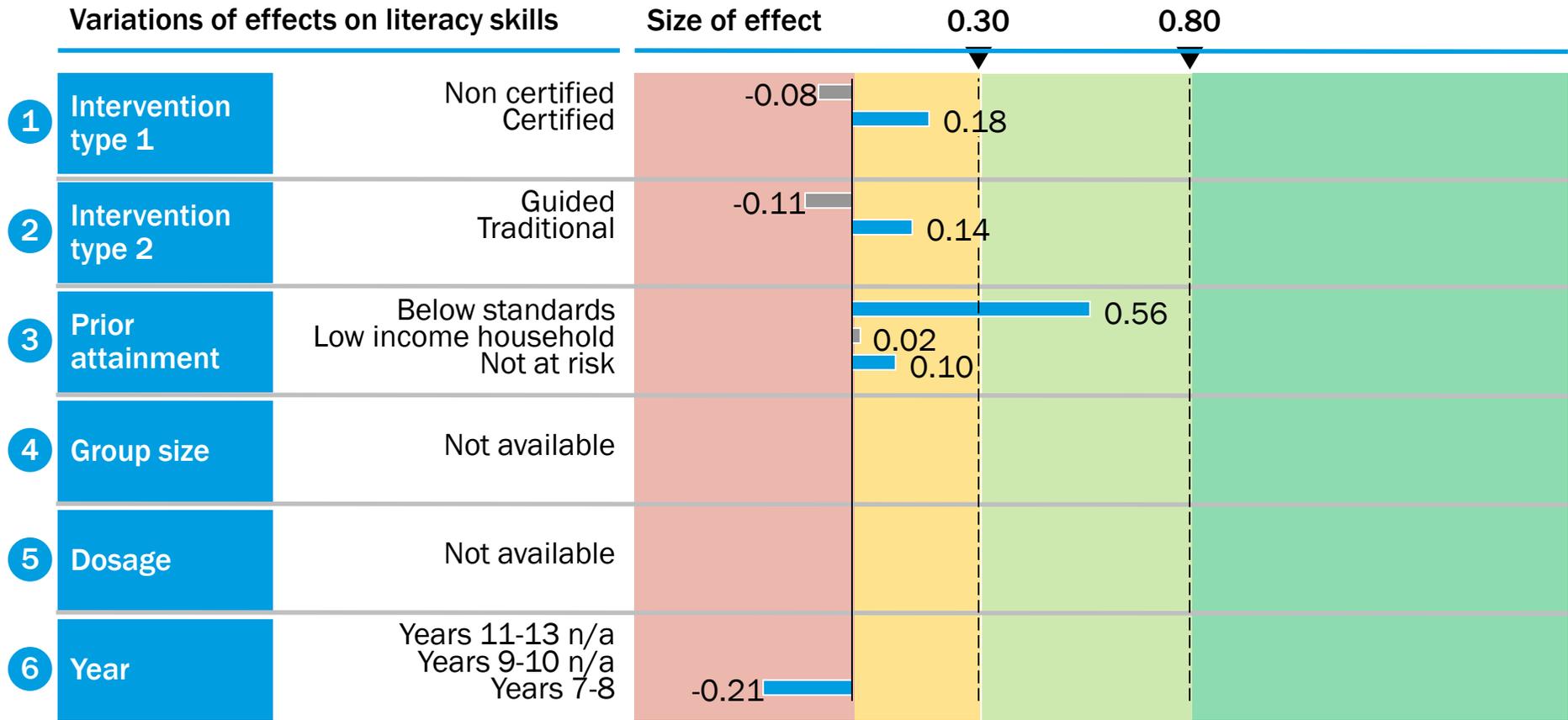


Unless stated otherwise, findings apply to primary schools and younger ages in secondary schools

Note: 1. Acquisition interventions require guided practice and frequent feedback; fluency interventions require additional practice to become proficient. 2. Conclusions on fluency interventions for levels of prior attainment were not possible given the small number of studies relevant to this. 3. Prior attainment refers to acquisition interventions only. Source: Burns 2010, based on 17 studies

Limited evidence that increased time improves literacy and numeracy 1/2

Increased learning time, in addition to standard school hours, has moderate effects on the literacy skills of those performing below standards, and negative effects on those of younger ages in secondary school



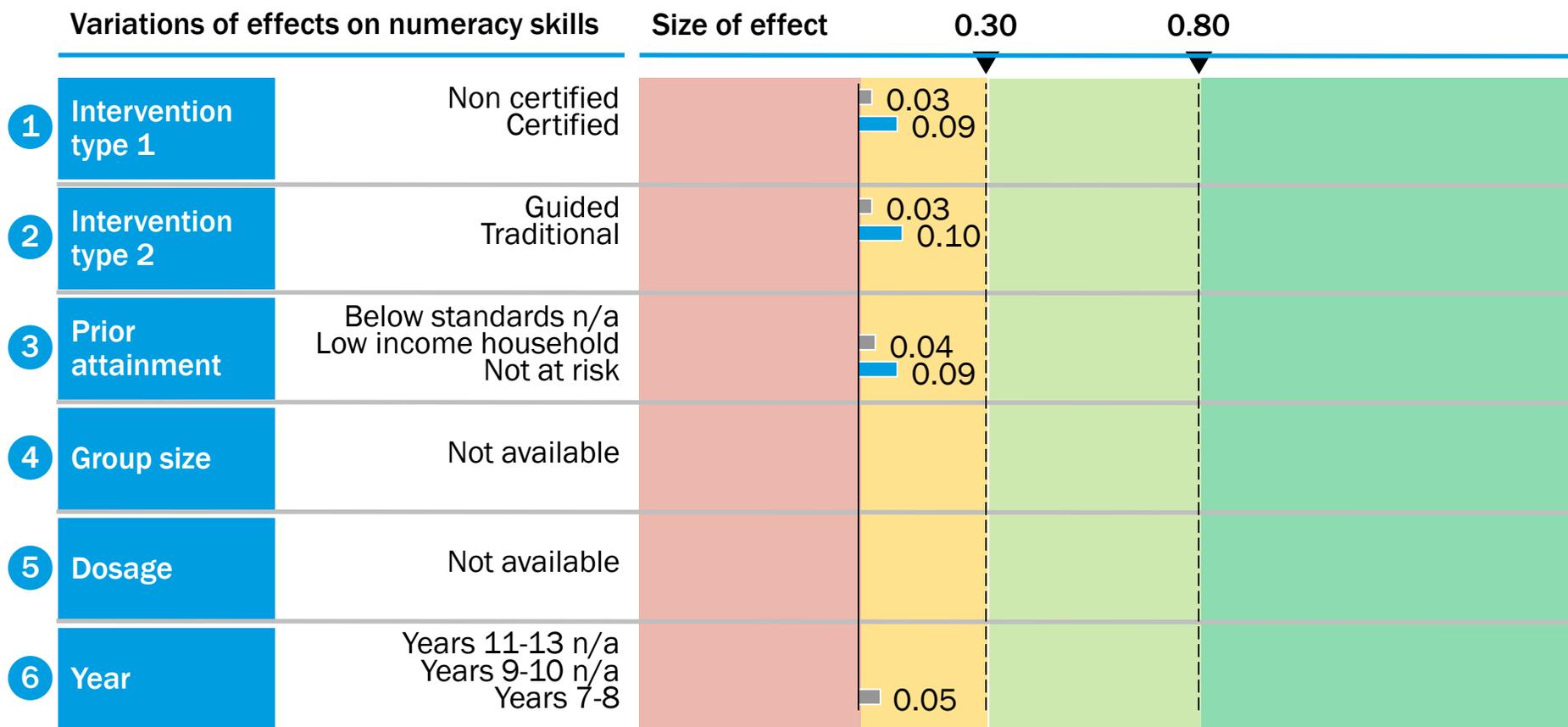
Unless stated otherwise, findings apply to primary schools and those of younger ages in secondary schools

Note: 1. Duration and intensity available at individual study level. 2. One-on-one tutoring excluded. 3. Guided practice provides participants with time and supervision as they work independently; traditional interventions are led by the teacher, including progression of activities, and instruction of concepts and skills¹⁰

Source: Kidron 2014, based on 30 studies

Limited evidence that increased time improves literacy and numeracy 2/2

Increased learning time, in addition to standard school hours, has small effects on numeracy skills across different types of interventions and levels of participant need



Unless stated otherwise, findings apply to primary schools and those of younger ages in secondary schools

Note: 1. Duration and intensity available at individual study level. 2. One-on-one tutoring excluded. 3. Guided practice provides participants with time and supervision as they work independently, traditional interventions are led by the teacher, including progression of activities, and instruction of concepts and skills¹¹

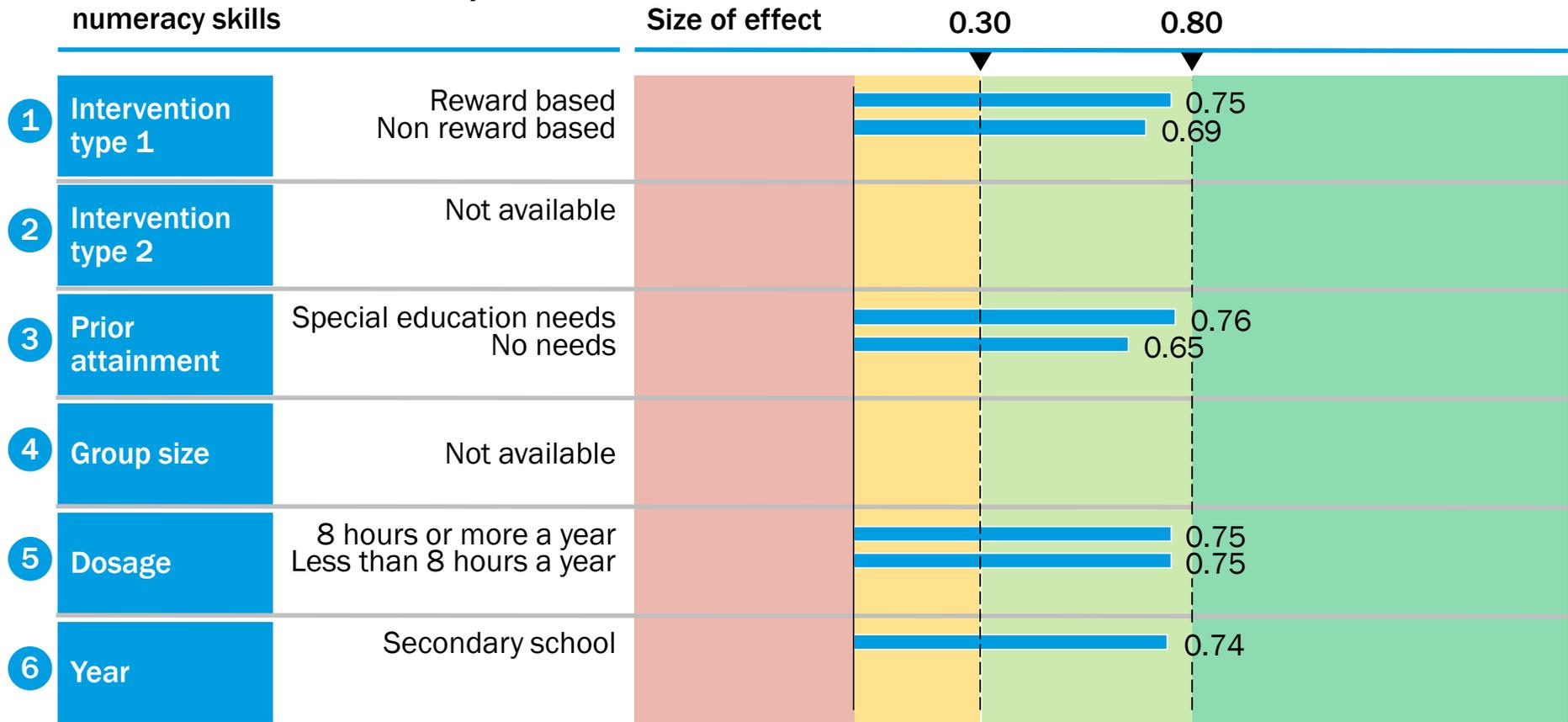
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The overall effect of peer tutoring on achievement is moderate to large: 0.75

The effect is consistently moderate to large across different types of interventions and levels of participant need and dosage, including literacy and numeracy skills

Variations of effects on literacy and numeracy skills



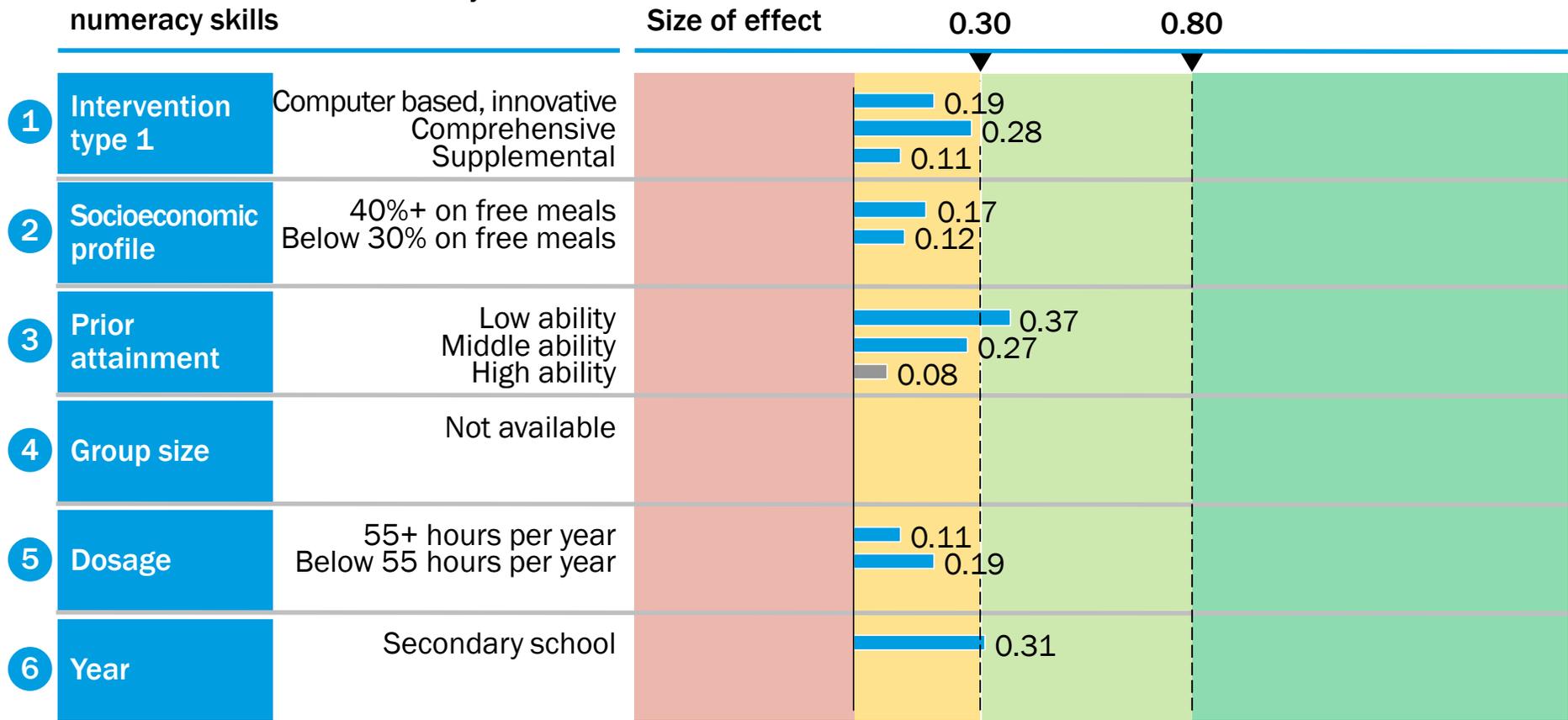
Unless otherwise stated, findings apply to both primary and secondary schools

Note: 1. Examples of rewards include stickers and applause
 Source: Bowman 2013, based on 26 studies

Educational technology has small effects on reading outcomes: 0.16

The effect is consistently small across different types of interventions and levels of participant need and dosage, with moderate effects applying to those whose ability is assessed as low compared to the standard

Variations of effects on literacy and numeracy skills



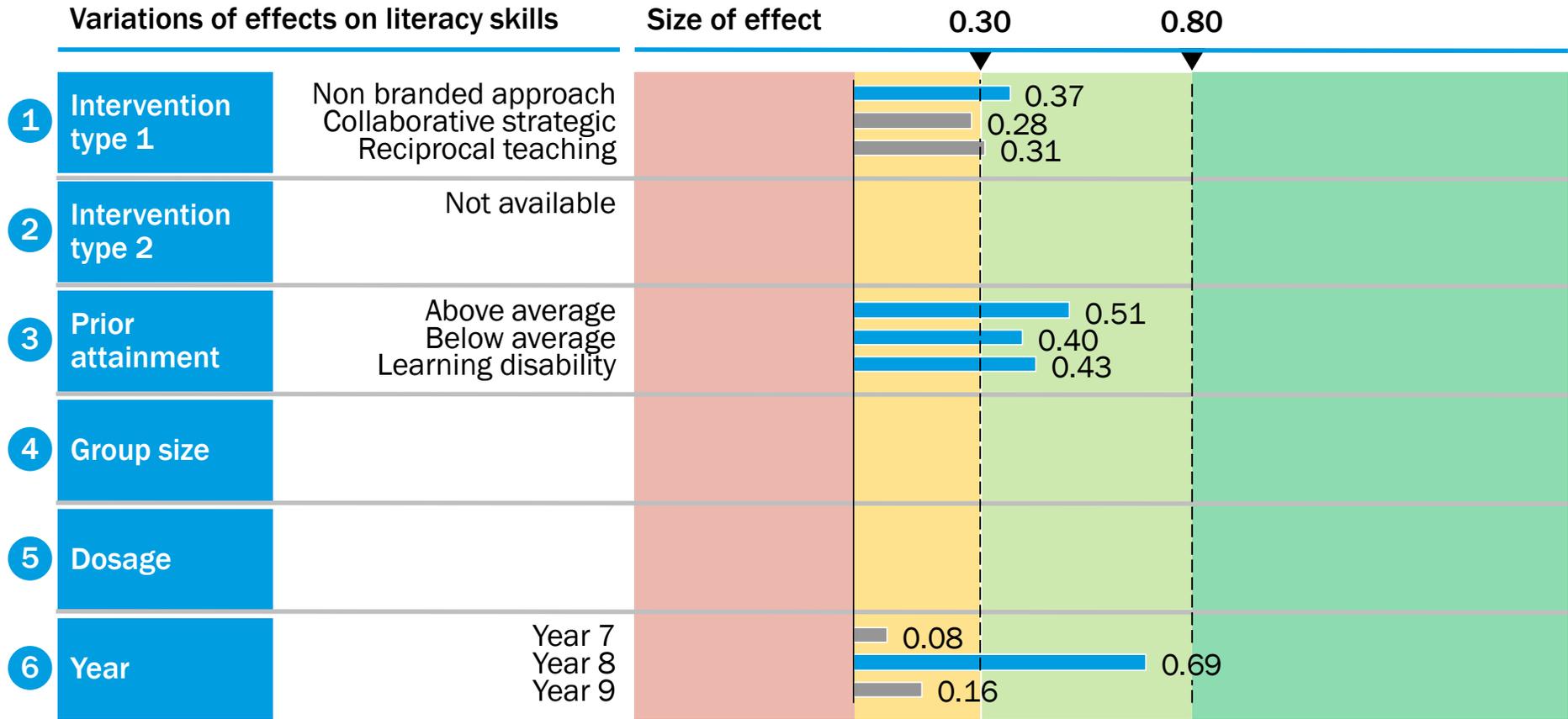
Unless otherwise stated, findings apply to both primary and secondary schools

Note: 1. Computer-managed uses computers to assess reading skills and assigns reading materials accordingly; innovative uses state-of-the-art technology, including approaches to re-train the brain; comprehensive also includes non technology approaches; supplemental focuses on learner-computer interactions.

Source: Cheung 2012, based on 86 studies

Comprehension strategies to improve reading have a moderate effect: 0.36

This includes strategies to improve understanding of a text before, during, and after reading, such as previewing, stopping to summarize, and generating questions



Unless stated otherwise, findings apply to primary schools and those of younger ages in secondary schools

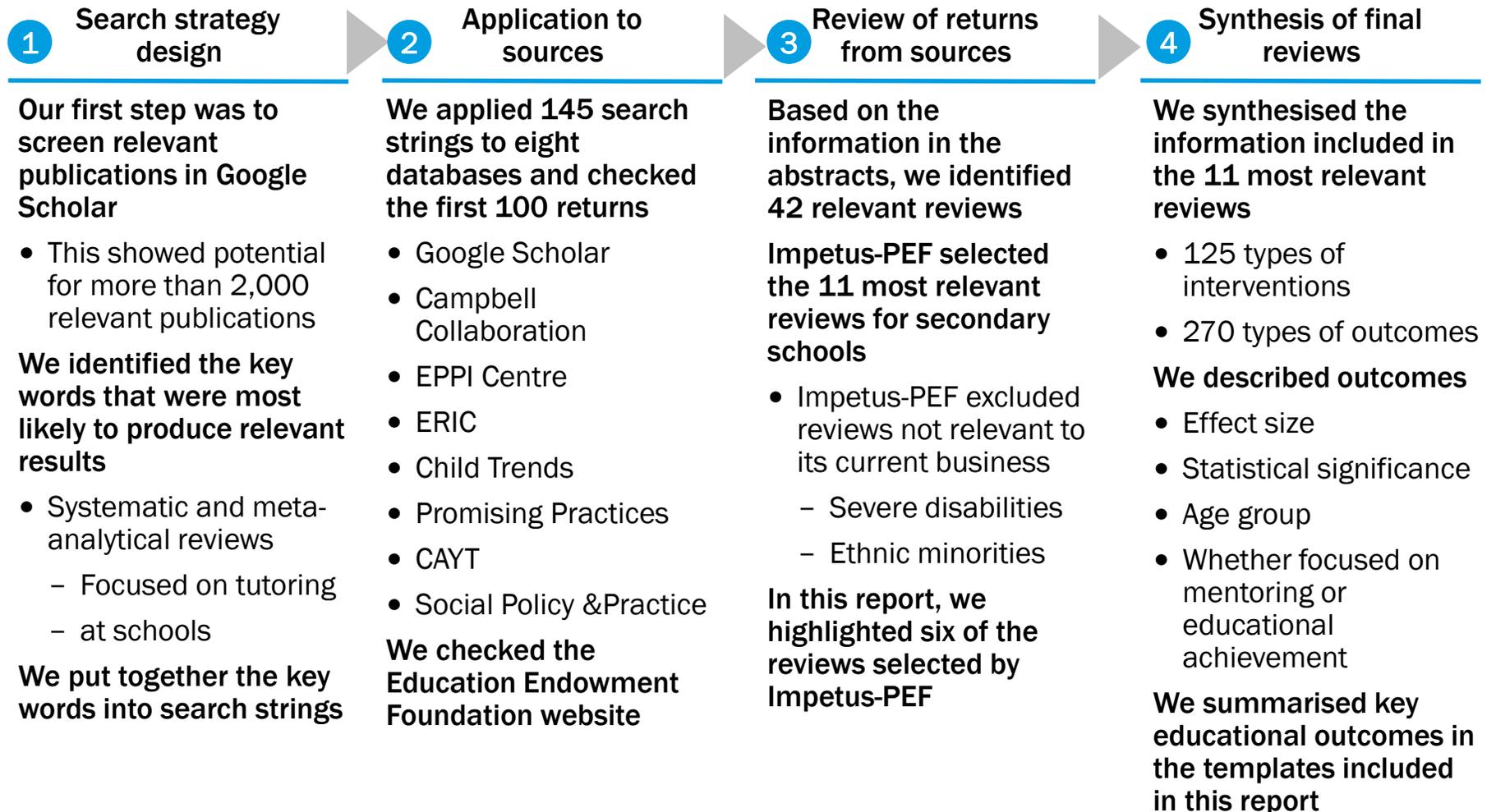
Note: 1. Non branded approaches are broadly defined, rather than for example subject to a franchised model; Collaborative Strategic Reading focuses on student-led cooperative learning, instead of teacher-led groups; Reciprocal Teaching uses student-teacher interactions rather than explicit explanations
 Source: Davis 2010, based on 60 studies

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We followed a staged process to do this report

Inclusion criteria: reviews published between 2010 and March 2015 written in English



Final list of reviews

Based on the information available in the abstracts, we identified 42 relevant reviews, and Impetus-PEF selected the 11 most relevant reviews

	Author	Title	Source	This report
1	Burns 2010	Meta-Analysis of Acquisition and Fluency Math Interventions with Instructional and Frustration Level Skills: Evidence for a ...	School Psychology Review, 2010, 39(1), pp. 69-83	Yes
2	Jun 2010	Tutoring adolescents in literacy: A meta-analysis	McGill Journal of Education, 2010, 45(2), pp. 219-238	Yes
3	Scruggs 2010	Do special education interventions improve learning of secondary content? A meta-analysis	Remedial and Special Education, 2010, 31(6), pp. 437-449	
4	Shulruf 2010	Do extra-curricular activities in schools improve educational outcomes? A critical review and meta-analysis of the literature	International Review of Education, 2010, 56, pp. 591-612	
5	Chappell 2011	A meta-analysis of supplemental educational services (SES) Provider effects on student achievement	Journal of Education for Student s Placed at Risk, 2011,16(1), pp. 1-23	
6	Cheung 2012	How features of educational technology applications affect student reading outcomes: A meta-analysis	Education Research Review, 2012, 7(3), pp. 198-215	Yes
7	Davis 2010	Multiple Comprehension Strategies Instruction (MCSI) for Improving Reading Comprehension and Strategy Outcomes...	Vanderbilt University	Yes
8	Wood 2012	School-Based Mentoring for Adolescents: A Systematic Review and Meta-Analysis	Research on Social Work Practice, 2012, 22(3), pp257-269	
9	Bowman 2013	Academic Benefits of Peer Tutoring: A Meta-Analytic Review of Single-Case Research	School Psychology Review, 2013,42(1), pp.39-55	Yes
10	Kim 2013	A Meta-Analysis of K-8 Summer Reading Interventions: The Role of Socioeconomic Status in Explaining Variation in...	Society for Research on Educational Effectiveness	
11	Kidron 2014	The Effects of Increased Learning Time on Student Academic and Nonacademic Outcomes: Findings from a Meta-Analytic Review	National Center for Education Evaluation and Regional Assistance	Yes

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Aldaba

Dr Miguel Garcia-Sanchez, Director of Aldaba, and Clive Gilbert, Analyst, worked with the investment team at Impetus-PEF to complete this review

Aldaba is a new company that helps organisations when the best way forward is not clear

From the chief executive to the newest intern, we work with the people who do the tasks every organisation needs to keep improving

- Strategies: Where you want to be and how to get there
- Operations: How you work on the day to day
- Evaluations: What you learn from your experience

The organisations we work with have chosen to make people's lives better based on information

- Economic analysis: Whether you get back more than you put in
- Statistics: What is really happening to most people, not just a few
- Qualitative techniques: The human side of things

The Aldaba team has done a lot of work on public services

- Education and children's services
- Health and social care
- Criminal justice
- Jobs

Our job is to put the information through a series of checks so that we can find out what it is telling us