Evidence from meta-analysis about parental involvement in education which supports their children's learning

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Abstract

Purpose

The aim is to contribute to understanding different ways that parents and schools develop and maintain working partnerships to improve outcomes for children by focusing on quantitative evidence about parental involvement. The key questions for this synthesis are: what is the evidence about the extent of impact of parental involvement on cognitive or academic outcomes for children and how consistent and reliable is this evidence?

Design/ methodology /approach

This is an 'umbrella' review comparing and contrasting findings from 13 meta-analyses across three areas of parental involvement and home/school partnerships: (1) general approaches, (2) home and family literacy programmes and (3) targeted interventions focussed on individual or specific family need.

Findings

There is consistent evidence about the extent of impact from general approaches (three to six months average additional gain for children's educational outcomes), and for targeted intervention (four to six months), but with a wider range of estimates for family literacy (two to eight months average gain). Variation in approaches and evaluation quality make specific recommendations for practice challenging, though some consistent patterns of findings indicate strategies that are likely to be 'good bets' to explore and evaluate.

Research limitations/ implications

The quality of the underlying studies makes drawing secure implications for practice difficult. The nature of the review means that it does not capture the most recent studies.

Originality/ value

Provides a synthesis of quantitative evidence from 13 meta-analyses to identify where there is consistency in estimates of impact and what is associated with systematic variation in this impact.

Keywords

Umbrella review, meta-analysis, parent involvement, academic achievement

Paper type: review

Implications

- Educationally important gains are possible from effective parental involvement of up to eight months additional learning in areas such as early literacy.
- We should be cautious about generalising impact from the evidence base as a result of its quality.
- We should also look at areas which are less successful, on average, and try to improve these, such as home visiting or parental involvement in homework.
- Further rigorous research is required, together with scale-up studies, to understand the causal mechanisms involved.

Introduction

This article contributes to understanding the different ways that parents and schools forge, maintain and strengthen working partnerships so as to improve outcomes for children by focusing on the quantitative literature about parental engagement and involvement with schools. It draws on evidence accumulated for the Sutton Trust-Education Endowment Foundation Toolkit ("Toolkit": see Higgins et al., 2014), which aims to provide summaries of research to inform the decisions of teachers and school leaders about how to improve the learning of disadvantaged pupils, particularly in terms of spending the Pupil Premium, an additional allocation of funding for disadvantaged pupils in England. The current review is not limited to findings from disadvantaged pupils but it draws upon evidence from wider reviews.

The wider context is the accumulating research evidence about the relationship between parental involvement (by which we mean school, family and community partnerships in children's learning in school: Todd & Higgins, 1998; Sheldon, 2009), and how this can be supported through intervention with parents, and in particular the impact on children's engagement in school and their academic achievement. A general consensus emerged in the last quarter of the 20th century that such partnerships were not only desirable, but had a positive impact on educational outcomes for children of these families. Since Lewis and Vosburgh's (1988) meta-analysis of the effectiveness of kindergarten intervention programs showed that parental involvement added significantly to the long term impact of early intervention (providing an additional average benefit of about two months with an effect size (ES) of 0.16), there has been a general consensus that parents play a vital role in promoting children's school success. There is less agreement, however, about how to identify specific practices that have the most influence on academic attainment and what the role of the school is in supporting the development of these practices with parents. School, family and community partnerships are areas that need to be understood to provide guidance on how to help their children to improve their learning outcomes. Three more recent reviews (Jeynes, 2012; Gorard & See, 2013; Van Voorhis et al. 2013) argue that parental involvement may indeed be beneficial for pre-school and primary age children, but these conclusions rest on evidence which is not conclusive due to the design and methodological quality of the studies. In particular, the impact of *increased* parental involvement was not often rigorously tested. It is therefore difficult to make clear recommendations for practitioners (Jeynes, 2012). There is still much to learn about how best to engage with and involve parents so as to improve their children's educational achievement (Van Voorhis et al. 2013). As meta-analyses and systematic reviews become more plentiful, there is a need for overarching reviews to aggregate findings across these reviews to address specific research questions. An 'umbrella' review tends to focus on a broad issue and highlights findings relevant to the central

problem. The current paper may therefore be thought of as an 'umbrella' review, or a review of reviews, of the existing quantitative evidence about parental involvement in their children's education (Ioannidis, 2009). The key questions that this synthesis aims to answer are what is the quantitative evidence about the extent of impact of approaches to develop or improve school and parent partnerships on cognitive or academic outcomes for children and how consistent and reliable is this evidence?

Methods

This synthesis draws on the meta-analyses identified through systematic searching for the Sutton Trust-Education Endowment Foundation Toolkit which has a focus on cognitive and academic outcomes for children achievable through intervention. The Toolkit was therefore used as the primary source of information. In the context of this review, the synthesis is based on quantitative reviews; either systematic reviews reporting impact of parental involvement initiatives or meta-analyses which pool these effects to identify and explain variation in impact between different studies. It does not therefore include, for example, reviews of parent training which focus only on behavioural or social change or outcomes for parents. It includes some studies of pre-school involvement, particularly where there was follow-up impact for children of school age. We focus on interventions, rather than correlational studies, because we need to know what schools and parents can do to improve outcomes, rather than just understand what parent and/or school behaviours are associated with more successful outcomes, as these may not be directly causal. So, Fan and Chen's (2001) and Rosenzweig's (2001) comprehensive meta-analyses of correlational studies are not included. Although they both provide systematic and invaluable information about what parents do and how this relates to their children's achievement, it does not let us identify ways in which parent and school behaviours can be changed to improve learning outcomes. Briefly the steps involved are identifying search terms based on the 'population intervention comparison and outcomes' criteria (PICO: Moher et al. 2009) for school-aged pupils where an intervention to develop parent involvement was evaluated in terms of academic outcomes by comparing these outcomes with a comparison or control condition (such as 'parental involvement or family education AND attainment or academic performance'), performing systematic searches on various databases (e.g. Web of Science, First Search, ERIC, JSTOR Google Scholar, Proquest Dissertations, etc.), then screening and retrieve all relevant studies, then include or exclude them based on our eligibility criteria (e.g. PICO meta-analysis or systematic review with estimates of impact and/or enough data to compute effect size (ES) on academic outcomes). More detailed information about the Toolkit, its approach, systematic review methods, eligibility criteria, and assumptions can be found in Higgins et al., 2014.

As mentioned earlier, this paper can be viewed as an 'umbrella' review. This approach is commonly used in the medical world to provide a rapid overview of what is happening to inform practice. The technique arose out of the work of the Cochrane Collaboration (Grant & Booth, 2009). An 'umbrella' review tends to focus on a broad issue and highlights findings relevant to the central problem. The approach does have weaknesses. For example, the latest evidence may not be included because there is a lag between publication and inclusion in a review. The underpinning reviews may also have different aims and inclusion criteria making synthesis challenging. However, it is particularly valuable to see patterns and gaps in the evidence, and to provide an overview of the landscape.

Findings

Epstein (2001) identified six different types of parental involvement clustered around parenting, communicating, volunteering, learning at home, decision making, and community collaborations. Whilst these are hard to define precisely (see Jeynes, 2005) they are helpful, broad categories looking at both the activities and the relationships involved. For this analysis we have further reduced these categories to three and identified: (1) general approaches to develop parent and school partnerships (which may include a number of components), (2) specific family literacy interventions, and (3) targeted interventions for families in particular need. This is because of the nature of the included meta-analyses where our analysis indicated there were different findings and conclusions from these different categories. The first two are typically school-led initiatives. The third category often has a broader focus than education, and will typically come from a health or social care perspective, but it is included here because of the educational potential. The search, retrieval and screening processes identified 13 meta-analyses across these three areas of parental involvement and home/school partnerships: (1) general approaches, (2) home and family literacy programmes and (3) targeted interventions focussed on individual or specific family need. These studies in these groups and their findings are discussed in the sections which follow. Effect size gains are estimated as months of progress according to the Toolkit conversion (Higgins et al. 2013), with the rationale in the technical appendices, based on annual gains on standardised tests. Effect sizes with confidence intervals and standard errors are also reported for those familiar with these measures; the number of studies included in each meta-analysis is also provided.

(1) General parental involvement programmes

There are two main challenges in interpreting the reviews of general parental involvement programmes. First, most interventions have a number of components (such as parent workshops, meetings in school, volunteering opportunities, home activities etc.). There are very few replications of evaluations of successful interventions. This makes it difficult to identify the impact of each component or of the different configurations or components or to compare impact across programmes. Second the design, implementation and analysis of evaluations vary and key aspects, such as attrition, are rarely reported (see Gorard & See, 2013 and Van Voorhis et al., 2013 for more discussion of this issue).

Overall the results from these five meta-analyses indicate that there is an important potential benefit from developing more effective partnerships between schools and parents which ranges between three to six months additional gain in academic outcomes for children receiving the intervention. A summary of the findings can be seen in table 1.

Table 1: General Approaches to Parental Involvement (PI)

Citation	Summary	Notes	ES of moderator variables
Hill & Tyson, 2009	**+5 months** **50 studies** **ES=0.37** SE=0.066 CI 0.24 to 0.49	Investigates parental involvement in middle school determine relationships with achievement. 5 interventions in 50 included studies. Homework association negative. Overall r=0.18 (CI .12 to .24); 5 interventions r=0.19 weighted mean. Associations dependent on correlational studies.	*Type of PI:* School based= .02; Home-based= .03; Academic Socialization= .39; Help with Homework= .-11; Activities= .12 African American= .11; European American= .19
Jeynes,	**+ 4 months**	Parental involvement and the	*Type of PI:* Parental

2005	**41 studies** **ES=0.27** SE=0.14 CI 0.00 to 0.54	academic achievement of urban elementary school children. Includes some correlational studies.	expectations= .58. Parental reading= .42; Parental communication= .24; Checking homework= -.08; Parental style= .31; Specific parental involvement= .29; Attendance of participation= .21; Sample: Mostly minority= 1.01; All minority= .41.
Jeynes, 2007	**+ 3 months** **52 studies** **ES=0.25** SE 0.07 CI 0.11 to 0.39	Influence of parental involvement on educational outcomes of urban secondary school students. Measures: combined overall academic achievement, grades, standardized tests, and other measures (e.g. rating scales, academic attitudes and behaviours. Positive effects for both White and minority children. Includes some correlational studies.	*Type of PI:* Parental expectations= .88; Parental style= .40; Parental communication= .24; Checking homework= .32; Specific parental involvement= .39 Rules= .02; Attendance & participation= .11 *Sample:* Mostly minority= .53 All minority= .42
Jeynes, 2012	**+4 months** **51 studies** **ES= 0.30** SE= 0.092 CI .12 to .48	Examines relationship between parental involvement programs and academic achievement of pre-kindergarten to 12th-grade. Includes studies with true control and some correlational.	*Age groups:* Younger= .29, Older= .35 *Type of tests:* Standard= .31, Non-standard=.21 *Specific Interventions:* Shared Reading= .51; Emphasized partnership= .35; Checking H/W= .27; Communication teacher/parent= .28; Head Start= .22; ESL training= .22
Nye, Schwartz & Turner, 2006	**+6 months** **19 studies** **ES=0.45** SE 0.102 CI .25 to .66	Campbell review: parent involvement has a positive and significant effect on children's (5 to 10 years of age) overall academic performance with an effect large enough to have practical implications. Striking as the median length of parent involvement was only 11 weeks. Includes only randomised control studies.	*Academic outcome:* Reading= .41; Math: .54 (nonsignificant if outlier removed); Science= .08 PI & reward in math= 1.18; PI & parents training= .61 Longer duration <u>not</u> larger effects. b=0.01.

The majority of this evidence comes from North America and Sénéchal & Young (2008) found studies from the USA had a higher effect size, so some caution is needed in generalising, particularly as there is often significant variation in impact related to ethnicity and socio-economic status and we know these patterns are not consistent across countries and cultures (Kao & Thompson, 2003). The analysis shows that educationally important gains are achievable across the age range, with some indication of greater gains for older pupils (Nye et al, 2006; Jeynes, 2012). Impact can be seen across subjects, but with more secure evidence for reading and literacy than science and mathematics. There is contradictory evidence about duration with longer interventions not necessarily showing greater effects (median 11 weeks: Nye et al., 2006). By contrast, for literacy interventions, workshop programmes of more than five months were more effective on average (about a month more progress (ES= .08) Van Steensel, 2008). Frequency of contact or intensity was hard to assess, but there was some evidence that shorter workshops (one to two hours) were more effective than longer sessions (three hours or more: see also Van Voorhis, 2013).

There is clearly considerable variation in the quality of the underlying studies. Overall, the field has relied on correlational and non-experimental designs that help us understand what successful parents do, but not how to work in partnership to improve or develop the impact of what they *could* do. Studies rated of higher quality often had higher impact (.04

higher: Jeynes, 2012). Nye and colleagues review (2006) was conducted following Campbell Collaboration quality procedures and identified overall a higher mean effect (.45) with strict inclusion criteria. Some caution is indicated from this study's finding that journal publications reported a higher effect (.63), when compared with non-peer reviewed reports ('grey' literature) as this may indicate publication bias, though other studies did not report significant variation by publication type (e.g. Jeynes, 2012). Overall, the meta-analyses investigating the impact of general parental involvement on children's learning shows a moderate effect with relatively narrow confidence intervals, (only Jeynes, 2005 includes 0.00 so would conventionally be considered non-significant) but as discussed earlier considerable caution is needed due to the variation in the quality of the underlying studies..

(2) Home and family literacy programmes

The five meta-analyses in this area found a range of average effects from two to eight months additional progress in reading measures. The range is very broad and is likely to relate to the diversity of programmes, from book reading (Bus et al., 1995) to family literacy activities (Manz et al., 2010; Sénéchal & Young, 2008; Van Steensel et al., 2011) and to summer home reading programmes (Kim and Quinn, 2013), with many of these programmes targeted at low-income families. More information was available about longer term impact, with more robust evidence of decline in follow-up measures (Kim & Quinn, 2013: 0.52 to 0.20) or washout (Van Steensel et al., 2011: 0.20 to 0.04) than increase (Sénéchal & Young, 2008: 0.52 to 0.79).

In terms of methodological features, one key issue is that older studies tend to have larger effects (Bus et al., 1995; Sénéchal & Young, 2008), perhaps reflecting the development of more rigorous approaches to evaluation in recent years. Other features such as design and publication bias appear less critical in this category. There was contradictory evidence about duration with shorter interventions sometimes having greater impact (Sénéchal & Young, 2008) sometimes longer (Van Steensel et al., 2011). On the other hand, shorter workshops with parents (an hour or so) are associated with larger effects (Sénéchal & Young, 2008).

Table 2: Family literacy programmes

Citation	Summary	Notes	ES of Moderator variables
Bus, Van Ijzendoorn & Pellegrini, 1995	**+ 7 months** **33 studies** N=3410 **ES=0.59** ***SE & CI not available**	Parent-pre-schooler joint book reading across several outcome measures. Explains about 8% of the variance in outcomes and affects acquisition of written language register. Effect not dependent on SES or on methodological differences. Effect smaller as children become readers and can read on their own.	*Type of PI:* Book reading & language measures= .67; & emergent literacy= .57; & reading achievement= .55 Publication year: .sig .p= 0 (older studies larger effects) All others non-significant: Sample size; Publication status; SES: Design; Book reading measure; Age at outcome measurement
Kim & Quinn, 2013	**+ 3 months** **14 home interventions (41 studies)** **ES=0.22** SE 0.031 CI -.03 to .48	Summer reading interventions conducted in USA & Canada, 1998 to 2011. Classroom and home-based summer reading from K to Grade 8, majority low-income children. Home interventions: Mean reading 0.12; Comprehension 0.22; Fluency and decoding 0.26; Vocabulary -0.02	*Research-based:* Yes= .25, No= .06; *Income:* Majority low-income= .10; Mixed-income= .08. *Design:* Experimental= .09; Non-experimental= .11. *Type of publication:* Peer-reviewed journals= .11; Unpublished= .13. *Timing of assessment:* Immediate measures= .52; Delayed measures= .20

		Larger benefits for children from low-income backgrounds.	
Manz, Hughes, Barnabas, Bracaliello & Ginsburg-Block, 2010	**+ 4 months** **14 studies** **ES =0.33** SE 0.03 CI .27 to .39	Family-based emergent literacy interventions: Intervention studies involving caregivers for children (2-6 years) with an experimental or quasi-experimental design. Significant limitations in generalizability of this literature to these important groups of children.	*Sample Characteristics:* Caucasian= .64; Minority=.16; low-income=0.14; Middle/high income=.39 *Intervention Type:* Dialogic Reading only=.32 *Intervention Context:* Home only=.47; Home & school=.13; Pre-Intervention=.32; Pre & during intervention=.33
Sénéchal & Young, 2008	**+ 8 months** **16 studies** N=1340 families **ES=0.65** SE 0.061 CI .53 to .76	The effect of family literacy interventions on children's acquisition of reading from kindergarten to grade 3. Further analyses revealed that interventions in which parents tutored their children using specific literacy activities produced larger effects than those in which parents listened to their children read books. The three studies in which parents read to their children did not result in significant reading gains.	*Intervention Characteristics:* Parent Involvement, read books to child= .18; listen to child read= .52; tutor child to read= 1.15. *Amount of parent training*: short (1-2hrs)= .97, long (3-13.5hrs)= .37. *Supportive feedback:* Yes= .62, No= .70. *Length of Intervention:* 1.5 months or less) = .61; Between 2.5 & 5 months= .57, 10 months += .46. *Participant Characteristics: Grade:* K= .51, grades 1-3= .74. *Level:* normal= .69, special= .40. *SES:* low= .43, middle to high= .61. *Study Characteristics:* *Design:* experimental=67, quasi-experimental= .61. *Sample size:* <50= .59, large >50= .65. *Outcome measure:* Early literacy= .46, word reading= .31, comprehension= .46, composite measure= .69. *Time of test:* immediate= .52, delayed= .79. *Country:* US= .78, Non US= .51. *Tests:* standard= .42, non-standardised= 1.24. *Publication year:* Pre 1990= .85, 1990 or later= .35
Van Steensel, McElvany, Kurvers & Herppich, 2011	**+ 2 months** **30 studies** **ES=0.18** SE 0.06 CI .06 to .30	Family literacy impact studies from 1990–2010; 47 samples, and distinguishes between effects in two domains: comprehension-related skills and code-related skills. A small but significant mean effect emerged (d = 0.18). There was only a minor difference between comprehension- and code-related effect measures (d = 0.22 vs. d = 0.17). No statistically significant effects of the program, sample, and study characteristics inferred from the reviewed publications. Children were between 2 to 10 years old.	*Activity Type:* Shared reading= 0.05, shared reading + other activities= 0.21, literacy exercises= 0.17. *Program focus:* Comprehension= 0.13, code= 0.16, both= 0.22. *Staff Quality:* Professionals= 0.21, semi-professionals= 0.18, both= 0.12. *Home Visits*: Yes= 0.18, No= 0.18. *Group Meeting*: Yes= 0.20, No= 0.12. *Book Provision:* Yes= 0.18, No= 0.18. *Location:* Home-based= 0.17, Home-based + center-based= 0.24. *Duration:* < 5 months= 0.13, > 5 months= 0.21. *Educational status:* At-Risk= 0.16, Not at-risk= 0.20. *Age group:* Pre-formal= 0.19, formal= 0.14, both= 0.26. *Sample selection*: Random= 0.11, non-random= 0.22. *Pretesting:* Yes= 0.15, No= 0.24. *Time of measurement:* Short-term= 0.20, Follow-up= 0.04.

(3) Targeted interventions for families in need

This final section looks at cognitive and academic outcomes for children in more specific need, through concerns about parenting or families in crisis. These targeted approaches can also support families with children who have special educational needs where more individualised support is indicated. Gains in cognitive outcomes of between four to six months on average are achievable. Indications are that frequency, intensity and duration of support are all important with reasonable consistency across the meta-analyses. Gains can be sustained, even into adolescence. Supporting younger teenage parents, especially with practical activities, is of likely benefit.

In terms of the quality of the studies in this category the most common observation is the lack of reporting of attrition in two out of the three studies (see Layzer et al., 2001; Manning et al., 2010). On the other hand, all studies presented information regarding the studies' design, sample characteristics and specific programme traits.

Table 3: Parent and family support and intervention programmes

Citation	Summary	Notes	ES of Moderator variables
Comfort, 2003	**+ 6 months** **94 studies** N= 6,147 **ES=0.46** SE 0.041 CI .38 to.54 On cognitive/ language outcomes Follow-up: d=0.52 SE 0.041 CI .44 to .59	Effectiveness of parent training for children between the ages two and five to enhance child outcomes and examined variables related to the differential impact of parent training. When the theoretical orientation of programs was considered, there was no evidence of differential effectiveness. Various instructional techniques used in parent training were not differentially effective, with the exception of some evidence of enhanced effect when a "bug-in-the-ear" device was used.	*Design:* Pre-post control= .66; Random= .42; Non-random= .57 *Type of Sample:* Universal= .17; Selective= .17; Indicated= .33; Treatment= .50 *Sample Source:* Community= .25 Referred/Self-referred= .41 *Nature of Problems:* Externalising behaviour problem= .17 Others=.-09 *Orientation of Training:* Behavioural=.-08; Developmental= .47 Other= .55. *Degree of Intervention:* PT only= .49 PT & other= .37. *Format of training:* Individual families= .57 Group= .52; Individual & group= .23; Self-instruction= -.02. *Attrition:* 0-4%= .76; 5-24%= .31; 5% or greater= .30 *Total Training Time (in minutes):* 0-499= .22; 500-999= .31; 1000 or greater= .53 *Role Play:* No= .48, Yes=.38 *Didactic:* No= .43, Yes=.46 *Home visitation*: No= .51, Yes= .46 *Modeling:* No= .51, Yes= .42 *Video:* No= .43, Yes= .43 *Homework:* No= .25, Yes .46
Layzer, Goodson, Bernstein & Price, 2001 (see also additional analysis in Sweet & Applebaum, 2004)	**+ 4 months** **260 programs** **ES=0.27** (across ages) d=0.37 (preschool) ***SE & CI not available**	Meta-analysis from final report of National Evaluation of Family Support Programs, findings from 260 programs with representativeness compared with 167 family support programs not evaluated. All programs providing family support services had small but statistically significant average short-term effects on child cognitive development and school performance, child social and emotional development, child health, child safety, parent attitudes and knowledge, parenting behaviour, family functioning, parental mental health and health risk behaviours,	*Randomized studies:* Early childhood education Yes= .48, No= .25. Targeted to SEND children= .54, not targeted to SEND= .26. Peer support for parents= .40, no support= .25. *Home visiting vs. parent groups:* Yes= .26, No= .49. Home visiting SEND= .36, no SEND= .09. Parent groups SEND= .54, no SEND= .27. *Professional parent education staff vs. Para-professional*: Yes= .39, No= .23. *Case management provided:* Yes= .08, No= .23. *Targeted to children developmentally at risk:* Yes= .39, No= .22. *Serves majority low income families:* Yes= .12, No=

		and economic well-being. Associated with stronger child outcomes were programs that targeted special needs children. Home visiting as primary method of working associated with less strong child outcomes.	.22. *Teenage parents*: parent-child activities= 1.00, no parent-child activities= .50. *No teenage parent:* parent-child activities= .71, no parent-child activities= .21.
Manning, Homel & Smith, 2010	**+ 4 months** **17 studies** **ES=0.34** SE 0.051 CI .24 to.44 Cognitive development	Meta-analytic review of early developmental prevention programs (children aged 0–5: structured preschool programs, centre-based developmental day care, home visitation, family support services and parental education) delivered to at-risk populations on non-health outcomes during adolescence (educational success, cognitive development, social–emotional development, deviance, social participation, involvement in criminal justice, and family well-being).	Largest effect for educational success during adolescence (ES .53); followed by social deviance (.48), social participation (.37), cognitive development (.34), involvement in criminal justice (.24), family well-being (.18), and social–emotional development (.16). *Program components:* 1= .44, 2=.44, 3+= .42. *Program intensity:* 500 min or fewer= .28, 500 or more= .49 *Duration:* 3+ years= 0.47, 1 - 3 years= 0.30 *Follow-through component:* Yes= 0.51, No= 0.36

Overall the indications suggest that for these children we should intervene early, intervene intensively and sustain the intervention over several years, ideally with a flow-through or follow-up component into schools. Although results are not guaranteed, this kind of targeted support to individual families can bring about significant short term and sustained educational benefits for vulnerable children and young people. This can even be identifiable in adolescence with additional progress of seven months for prevention programmes in the early years.

Conclusions

The meta-analyses included in this 'umbrella' review allow us to draw similar conclusions to the more recent critical reviews of the field reviews (Jeynes, 2012; Gorard & See, 2013; Van Voorhis et al., 2013) that will be discussed later in this section. The aforementioned reviews do provide a wealth of information but are somewhat different from the present review. More specifically, the first review (Jeynes, 2012) is a single meta-analysis of 51 studies focusing on the relationship of parental involvement (PI) programmes and academic achievement. The second, by Gorard & See in 2013 is a review including only primary studies investigating specific PI programmes rather that overall PI impact, excluding meta-analyses. Finally the Van Voorhis and colleagues review in 2013 includes primary studies, meta-analyses, descriptive, non-experimental, experimental and quasi-experimental. Some other differences involve specific inclusion criteria differences such as; focusing on older age ranges, including only published studies, or experimental evidence only. Our 'umbrella' review summarises findings from meta-analyses only. Therefore, to our knowledge this study is the only 'umbrella' review focusing on summarising and synthesising findings from meta-analyses, so as to investigate the relationship between PI and educational attainment across the school age range.

Two main conclusions can be drawn from the present review; first there is indicative evidence of the potential of developing effective partnerships between schools and parents so as to increase children's educational attainment and, second, that there are concerns that need to be addressed in the future relating to the design and analysis of studies which at present make it difficult to identify clear implications for practice or policy.

Following our first conclusion, the evidence we have collected is that PI intervention (in all three categories) can potentially improve attainment from two to eight months' additional gain for children receiving a parent-focussed intervention. Also, there is some indication that older students are likely to benefit more, but there is no indication that interventions targeting students with special educational needs (SEN) will be of greater benefit to this group. For these children and families, impact is likely to be greater if intervention takes place early, has a long duration, and is of high intensity.

More specifically, even though there is evidence that PI interventions have the potential to improve attainment we cannot disregard the fact that the quality of design and analytical procedures need to improve. Some of the research design issues that can be identified and improved in the future include: the use of standardised tests, larger samples, use of pre and post testing, the importance of reporting attrition, cluster analysis, clarity regarding the inclusion of either experimental or correlational studies, more details on analysis procedures and, in terms of meta-analyses, clearer inclusion and exclusion criteria in relation to these issues. Finally, another important aspect that needs to be addressed is to identify which specific aspects of parental involvement have the largest impact on pupils' learning. We have identified three broad categories in this current umbrella review but further research and synthesis is needed to find the most promising characteristics that make parental involvement successful. Overall the implications for researchers are that we need to develop the rigour of our evaluation methods and the transparency of reporting, so that findings can be compared and related systematically to each other.

Some of the patterns of findings in moderator analyses are worth further exploration. For example, for schools a programme of regular short (an hour or so) but focussed workshops over a limited period (10 weeks or so) which boosts parents' confidence and gives them practical activities they can undertake with their children in literacy or mathematics is likely to be a good starting point. It will be important to evaluate impact to be sure that the investment of time and effort bears fruit as these are correlational implications from this review. There are some developing patterns in the findings, but there are also inconsistencies we need to be able to understand and explain. The impact of homework, for example appears to vary considerably. This may relate to the definition of homework, or it may be the range of ways that parents seek to support their children at home. This has risks, as helping with homework (Hill & Tyson, 2009), and checking homework (Jeynes, 2005) are not always positive. Many teachers see sending reading books home as 'homework', but again there are some implications from this review. For pre-school children who are not yet reading, supporting parents in reading to their children is important. But once children begin to read, the focus should shift to supporting parents in developing their children's reading capability. Therefore, different ages would require different approaches, and this is an important aspect to consider in future research.

We should also be cautious about generalising impact. For policy audiences, this means not promising too much, whilst drawing attention to the potential gains if successful interventions and approached can be developed and implemented. For practitioners, encouraging professionals to consider the evidence in making decisions is important. In terms of our research with the Toolkit we think of these as evidence-based bets. 'Best bets' are areas where other people have tried, and on average succeeded. We argue practice should not only focus effort on these high average impact areas. If schools are already engaged in activities which, evidence suggests are less successful on average (such as home visits (Layzer et al. 2001: see also Sweet & Appelbaum, 2004), then

these areas might benefit from a review. We would call these 'risky' bets, but would not necessarily suggest stopping them (unless you know you have something better to replace them with), but to review and ensure your use of the approach gives you an above average chance of success.

Overall, the evidence from these 13 meta-analyses indicates that parental involvement, where school, family and community partnerships are developed to support and improve children's learning in school, offers a realistic and practical approach that has consistent evidence of beneficial impact on children and young people's attainment. Clear and specific messages for practice are hard to draw due to the nature of the evidence, its comparability and particularly its quality. A number of areas have promise. Early literacy approaches are usually beneficial with as much as seven or eight months additional progress achievable in terms of young children's learning. There are also other areas of practice, such as home visiting or parental support for homework, which, on average, are less successful. These are areas where practitioners may wish to review what they do to ensure the impact on learning is being achieved, or to replace these approaches with others where the evidence indicates greater benefit is more likely. Further rigorous research and replication is also required, together with scale-up studies, to develop our understanding of the causal mechanisms for impact on learning outcomes. This is necessary to ensure any policy messages about parental involvement are likely to be successful.

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