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REVIEW ARTICLE

The powerful impact of teacher expectations: a narrative review*

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ABSTRACT

In a narrative review we investigated teacher beliefs that moderate teacher expectation effects. An extensive literature search revealed that only three researchers had systematically examined (in at least three studies) teacher beliefs' differences and consequent expectation effects for students. Babad explored teachers who believed stereotypical information about students and showed how that bias translated into teacher-student interactions. Highly biased teachers had large negative self-fulfilling prophecy effects on student outcomes. Overall, the difference in contrasts between high and low bias teachers (those who did not accept stereotypes) was $d = 0.92$. Weinstein's research investigated teachers who believed all students should be treated similarly versus teachers who believed high and low achievers should be treated quite differently (low and high differentiating teachers). The average effect size of the differences between these teachers was $d = 0.85$. Rubie-Davies examined the idea that some teachers believe that all students can make large gains (high class-level expectations) whereas others believe their students will make little progress (low class-level expectations); the average effect size difference between high and low expectation teachers was $d = 0.87$. Hence, the review showed that effect size differences between these different teacher types were remarkably consistent, and all were large.

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Teacher expectations have been shown to affect student outcomes. However, less frequently studied are other teacher beliefs that might moderate these expectation effects, resulting in overall greater or lesser impacts on students. Merton (1948) introduced the notion of the self-fulfilling prophecy into academia as a belief that brought about consequences that caused reality to match the belief. Rosenthal and Jacobsen (1968) took the idea of the self-fulfilling prophecy into the education realm. They conducted a ground-

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breaking experimental study in which they induced high expectations in teachers by randomly selecting some students who would 'bloom' during the year of the experiment compared to their peers (although the bloomers were selected randomly). By the end of the academic year, the 'bloomers' did achieve higher IQ scores than those for whom high expectations had not been induced ($d = 0.35$). This seminal study suggested that the self-fulfilling prophecy could be found within classrooms. That is, when teachers had higher expectations for some students than for others, those for whom they had higher expectations were likely to achieve at higher levels than previous performance might have indicated whereas those for whom expectations were low might not achieve at previous levels (but low expectations were not tested in the Pygmalion study). Although this study had many critics (e.g. Thorndike 1968; Spitz 1999), it was the catalyst for a new field in educational and social psychology.

The Pygmalion study (as it became known), however, left many questions unanswered. It was not clear whether teachers formed expectations of students in regular classrooms and, if they did, there was no understanding of the basis for teacher expectations. In addition, Rosenthal and Jacobson suggested that teachers must have interacted differently with the students for whom they had induced high expectations compared to how they interacted with the other students; but this was unknown because the researchers did not conduct classroom observations. Further, if expectations were to affect student outcomes, the students needed to notice that the teacher had high expectations for some students and low for others and then act in accordance with their teacher's expectations but, again, the degree to which students in regular classrooms would meet their teacher's expectations was not tested in the original study.

These three key aspects of the seminal study resulted in the naissance of the teacher expectation research. Many researchers in the 1970s and 1980s (e.g. Dusek and Joseph 1983) and through until today (e.g. Doyle et al. 2023) have investigated what student characteristics lead teachers to have high expectations for some students and low for others. Overall, the conclusion appears to be that prior achievement is the most salient contributor to teachers' expectations of student academic outcomes (Peterson et al. 2016). However, in many studies, for example, student socioeconomic status (Rubie-Davies and Peterson 2016; Westphal et al. 2016), ethnicity (Rubie-Davies et al. 2006; Bonefeld et al. 2022), gender (Watson et al. 2016; Gentrup and Rjosk 2018), second language (Wang and Li 2023; Rubie-Davies and Li in press), and special needs status (Meissel et al. 2017; Pit-ten Cate and Glock 2018) have been shown to influence teacher expectations and to result in students achieving at higher or lower levels than might have been anticipated, depending on whether expectations were high or low for individual students, even controlling for prior achievement.

A further area of research that arose from the Pygmalion study was an exploration of whether teachers interacted differently with students for whom teachers had high or low expectations. Much of this observational research was conducted in the 1970s and 1980s by Brophy and Good (e.g. Brophy and Good 1970; Brophy 1983), Weinstein (e.g. Weinstein and Middlestadt 1979; Weinstein et al. 1982), and Babad (e.g. Babad 1998). They showed that teachers interacted much more positively with students for whom they had high expectations than those for whom expectations were low. In addition, interactions with those for whom expectations were high were often more academically

supportive in fostering learning outcomes, whereas interactions with those for whom expectations were low were less conducive to improving academic outcomes. Unfortunately, although much of this research was conducted over 40 years ago, very few observational studies have since investigated whether teacher interactions have changed over the intervening years and, if so, how (see Ilatov et al. 1998; Inan-Kaya and Rubie-Davies 2022 for two exceptions). This is an area of the teacher expectations field that is sorely in need of updating.

Finally, many studies have investigated the effects of teacher expectations on student academic outcomes. From nine meta-analyses, Hattie (2023) reported an average effect size of $d = 0.58$, which is substantial. However, whether teacher expectations affect student socioemotional outcomes has been less frequently explored (see Wang et al. 2018). Some researchers have reported on whether students notice their teachers' expectations (Weinstein and Middlestadt 1979; Weinstein et al. 1982; Witty and DeBaryshe 1994; Zimmermann 2018) and have shown that even very young students can readily proffer examples of how their teachers differentially treat some students more favourably than others. Those for whom expectations are high enjoy much more positive academic and emotional support than those for whom expectations are low (Babad 1998; Weinstein 2002).

In all these studies, however, whether researchers are investigating the catalysts for teachers' expectations, teachers' interactions with students for whom they have high or low expectations, or student outcomes as a result of their teacher's expectations, the data for all teachers across each of the studies has always been combined. Although many teachers are likely to be swayed in their expectations by student characteristics, and many teachers may interact differently with students for whom they have high or low expectations, these findings probably do not apply to all teachers. Instead, it is likely that there are teacher beliefs that will moderate the findings, that is, the teachers' beliefs will interact with their expectations leading to different outcomes for students in some classrooms compared with others. For example, some teachers may believe that they can have large effects on student learning whereas others may believe that, overall, teachers have little effect on student academic outcomes. These different teacher beliefs are likely to lead to very different learning opportunities and teacher-student interactions in one class versus another, and ultimately to students making much greater progress in the former class than the latter. More recent studies using more advanced statistical methods, including hierarchically nested models account for the individual teacher more often (e.g. Rubie-Davies and Peterson 2016; van den Bergh et al. 2010). It seems important not to generalise to all teachers, but to investigate if there are cohorts of teachers who have different beliefs that moderate their expectations, study the nature of their expectations, understand how these expectations are viewed and absorbed by their students, and assess the magnitude of the effects on various study outcomes of teacher cohorts with differing beliefs.

Teacher beliefs that moderate expectation effects

There are only three researchers and their colleagues who have initiated a research programme that has explored teacher beliefs differences as potentially influencing their

expectations and thereby moderating their expectations for their students: Babad (2009), Weinstein (2002), and Rubie-Davies (2015). They have all reported large differences in teacher beliefs, teacher interactions with students, and the effects on consequent student outcomes. Each researcher has examined different teacher beliefs likely to moderate the expectation effects.

In an early experimental study, Babad (1979) provided teachers with drawings of people supposedly completed by students. The demographic information was such that a low socioeconomic ethnic minority or high socioeconomic ethnic majority student purportedly drew the person. Babad used exemplars from the Draw-A-Person IQ test (Harris 1963) as his drawings because experts had already calibrated their qualities. The test provides pictures of what, for example, an average, above, or below average student at different ages will include in their drawings. Babad found that some teachers (whom he called biased teachers) based their expectations on students' demographic information, whereas other (no-bias) teachers evaluated the drawings fairly. That is, teachers either believed that their students would reflect societal stereotypes (high bias teachers) or they did not (no-bias teachers). Following the identification of high and no-bias teachers, Babad (1979) found that biased teachers judged themselves to be less autocratic and emotional than unbiased teachers although questionnaires suggested the opposite. Hence, Babad's early work showed how stereotypical beliefs (or a lack of these) could lead teachers to judge students in particular ways and how this was then reflected in their expectations.

Weinstein (e.g. McKown and Weinstein 2008) has explored the concept of high and low differentiating teachers. These teachers either believe that all students should be treated similarly or that students for whom they have high or low expectations should be treated quite differently. In an early study, Weinstein and her colleagues (1982) showed that in some classrooms, there was far more teacher differential treatment of high and low achievers than in others. This was the first of Weinstein's studies to establish that high and low differentiating teachers could be identified.

A key feature of Weinstein's work was that the observation of differentiation is often from students' perspectives rather than teachers' (Weinstein and Middlestadt 1979; Weinstein et al. 1987). Following interviews with teachers and students, as well as classroom observations, Weinstein (2002) described how the beliefs of high and low differentiating teachers translated into their classroom practices. High differentiating teachers grouped students by ability (low differentiating teachers did not). The curriculum for high and low achievers was vastly different in the classes of high differentiating teachers but very similar for students with low differentiating teachers. High differentiating teachers believed that intelligence was fixed and that the teacher did not have much influence on student learning outcomes whereas low differentiating teachers believed intelligence was malleable and that all students could improve given teacher support. High differentiating teachers rewarded students for high achievement relative to their peers to motivate students because they believed that performance was important Low differentiating teachers focused on working towards and mastering skills regardless of prior achievement because they believed that learning was based around skill development not out-performing others. Achievement was less salient in these classes. In the classes of high differentiating teachers, although students were given some choices in the activities they completed and who they worked with, the teacher maintained tight

control so that the students relied on her for direction and answers to problems. In contrast, in the classes of low differentiating teachers, the teacher took on a more facilitative role whereby the students were given responsibility for their learning, working together with others, and appraising their own and their peers' work. Finally, the relationships between high differentiating teachers and their students were often characterised by negative comments from the teacher, and the competitive atmosphere in these classes meant that students were not supportive of each other. Students were encouraged to support each other in low differentiating teachers' classes. The low differentiating teachers had warm relationships with their students and developed positive relationships with their parents. These teachers tried to build a learning community in their classrooms.

Overall, the work of Weinstein has established how the instructional environment, class climate, teacher-student, and peer-peer relationships can vary systematically depending on whether teachers believe that students for whom they have high or low expectations should be treated very differently or very similarly.

More recently, Rubie-Davies (e.g. Rubie-Davies 2006, 2007) has identified what she termed 'high and low expectation teachers'. Rather than focussing on the different expectations relative to the attributes of various students, she claimed that high or low expectation teachers had contrastingly high or low expectations for *all* the students in their classes – class-level expectations. High expectation teachers believed that all their students would make large learning gains whereas low expectation teachers believed that their students would make only small gains in one academic year. These beliefs translated into different teacher practices. In her early studies, Rubie-Davies (2007, 2008b) showed that high expectation teachers (but not lows) spent more time teaching students, and displayed many effective teaching behaviours such as carefully orienting the students to the lesson, linking to prior knowledge, and carefully explaining concepts. Low expectation teachers were not effective teachers. Further, high expectation teachers asked students a mix of open and closed questions, and, importantly, they asked high-level questions of all students whereas low expectation teachers mostly asked closed questions and were dismissive of students who answered incorrectly. Finally, high expectation teachers managed their classrooms far more positively than lows.

Interviews (Rubie-Davies 2008a; Rubie-Davies and Peterson 2011) revealed that high expectation teachers believed that students should be taught in mixed ability and flexible forms of grouping whereas the lows used within-class ability grouping. Further, highs believed that all students needed challenging, exciting learning opportunities, but low expectation teachers felt that low achievers needed skill-based, repetitive tasks. High expectation teachers set skill-based mastery goals with all their students, carefully monitored their progress, and provided feedback related to progress towards goals. Goal setting was not evident in the classes of low expectation teachers. Moreover, high expectation teachers often gave students choices in their learning activities and student interests were considered in setting up activities. High expectation teachers (but not lows) frequently spoke about the importance of fostering student engagement and motivation. A further study (Rubie-Davies and Peterson 2011) revealed that, similarly to Weinstein's findings for low differentiating teachers, high expectation teachers emphasised the importance of supporting students emotionally as well as academically. In addition, they often used collaborative group activities,

frequently changed students' seating groups, and expected students to support each other. These practices meant there was a very warm socioemotional environment in the classes of high expectation teachers.

Overall, Rubie-Davies' early work showed that when teachers believed that all students could succeed given appropriate support (high expectation teachers), they structured their classrooms very differently from those teachers who believed that their students would make only limited gains. These beliefs meant that the teachers structured both the instructional and socioemotional environments of their classrooms very differently.

Given that Babad, Weinstein, and Rubie-Davies have all suggested that expectation effects can be moderated when beliefs and practices of high and low biased/ differentiating/ class-level teacher expectation are considered, the purpose of this review was to investigate whether researchers had investigated other teacher beliefs that might moderate their expectations and student outcomes and then to measure the magnitude of effects on students and their learning that could be attributed to these different types of teachers (including studies by Babad, Weinstein and Rubie-Davies that might be eligible). Moreover, a further purpose of the review was to explore whether consideration of different teacher beliefs leads to greater or lesser expectation effects on students. If the identification of teacher differences effectively moderate the expectation effects and make a large difference to student outcomes (both academic and socioemotional), the findings could provide researchers, school leaders, and teachers with information regarding how teacher behaviours can be changed to enhance student outcomes and could offer practical indicators of how professional development could be structured to enable far more students to succeed at high levels.

Method

To be included in this review, studies had to relate to teacher expectations and be analysed at the teacher level according to a teacher belief that may have moderated the outcomes for students. Hence, the theoretical path we considered was that teachers would form expectations of their students; these expectations would then interact with their beliefs, and student outcomes would therefore differ in line with the teachers' beliefs and expectations. According to Pajares (1992), beliefs can be defined as 'an individual's judgment of the truth or falsity of a proposition' (p.316). These beliefs then 'take on a life of their own and function as co-determiners of teachers' actions in the classroom' (Skott 2015, p. 22). Hence, teacher beliefs and teacher expectations would interact and lead to differences in the instructional and socioemotional environments of the classroom, depending on both teacher expectations and teacher beliefs.

Although we knew of the work of Babad, Weinstein, and Rubie-Davies, we wanted to conduct a much broader search of the literature to assess whether other researchers had also investigated teacher expectations and the same teacher belief within their studies as the aforementioned researchers or a different belief that might also lead to contrasting outcomes for students. For example, teachers who were highly motivated might structure their classrooms differently to those who were less motivated. To this end, we consulted a leading book focused on teacher beliefs (Fives and Gill 2014) in order to

Table 1. Articles located by teacher beliefs and database.

Teacher belief	PsycINFO	EBSCOHost	ProQuest
Teacher Identity	1	94	46
Teacher Affect	1	3	14
Teacher Emotions	0	3	7
Teacher Motivation	3	1	51
Teach* Efficacy	11	7	1158
Teacher Bias OR Teacher Stereotyp*	72	44	1416
Differentiating	6	4	210
Class-level	9	7	62
Total	103	163	2964

identify teacher beliefs commonly studied by people in that field. Table 1 shows the beliefs that formed the basis for this review as well as those already identified (bias, differentiating, class-level) and shows the number of studies located pertaining to each belief in relation to the databases we searched and in combination with the words 'teacher expectations'.

Hence, we searched PsycINFO, EBSCOHost, and ProQuest (given that these databases were those most likely to include papers related to education) using the search terms 'teacher expectations' AND each belief separately (e.g. 'teacher expectations' AND 'teach* self-efficacy'; 'teacher expectations' AND emotions). Restrictions were that manuscripts needed to be peer reviewed and have the full text available; we also included relevant chapters and books. As shown in Figure 1, a large number of studies were located ($N = 3230$). The first author then briefly accessed each abstract and only downloaded articles that appeared to meet the inclusion criteria. Although 'teacher expectations' was one of the search criteria, if the phrase did not appear in the Abstract or Keywords, the first author did not download the article. Further, because we wanted to calculate effect sizes (if possible) in relation to the teacher types identified, articles needed to provide quantitative data. At least some of the analyses needed to be at the teacher level rather than the student level. For example, articles that measured teacher expectations but then related those to student motivation, or emotions, or identity would not be downloaded. Ultimately, 96 articles were downloaded (see Figure 1). A final criterion for this review was that there would need to be at least 3 articles from any researcher related to a particular teacher belief and teacher expectations to provide sufficient data to calculate effect sizes and to show a systematic programme of research by that researcher related to a teacher belief that potentially moderated the teacher expectation effects.

The final inclusion step resulted in articles by Babad and colleagues ($n = 9$), Weinstein and colleagues ($n = 7$), and Rubie-Davies and colleagues ($n = 6$). Prior to this final step, three other articles were identified in which authors had analysed the teacher expectation data by a particular belief. Szumski and Karwowski (2019) analysed their teacher expectation data at the class-level and showed that higher class-level expectations resulted in improved achievement compared with classes where expectations were not high. However, a search on both authors revealed that this was their only paper related to class-level teacher expectations. The same was found for Friedrich et al. (2015) who also analysed their teacher expectation data at the class level. Finally, Knigge et al. (2016) examined the relations between class-level expectations and stereotyping, but,

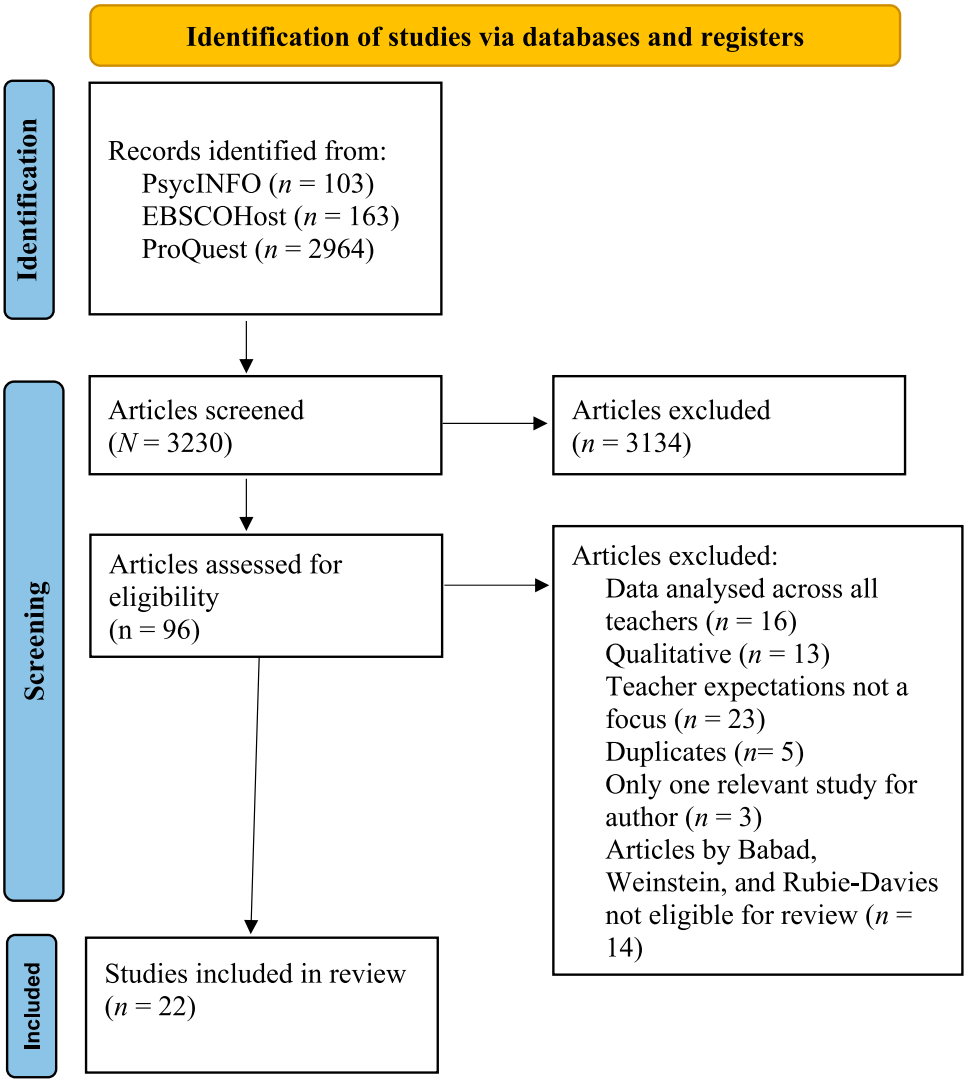

Figure 1. PRISMA Flow Diagram Showing Identification, Inclusion and Exclusion of Manuscripts in Narrative Review*. *Adapted from Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. 2021The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. British Medical Journal 2021;372:n71.

again, these authors did not have any additional articles published related to class-level expectations.

At this stage, the first author referred the findings to the second author for review. Through mutual discussion it was decided that 12 articles by Babad, Weinstein, and Rubie-Davies that had been downloaded for consideration for the review were not eligible because they did not include analyses related to teacher bias, high and low differentiating teachers, or class-level teacher expectation effects. In addition, the second author identified two further articles that did not contain data that could be analysed using meta-analytic techniques. Hence, this review focused consecutively on the work

Table 2. Studies included in the narrative review with detail related to each study.

Authors	Date	Study title	Journal/ Publisher details	Type of study	Participants	Measures	Outcomes
Babad E.	1979	Personality correlates of susceptibility to biasing information	Journal of Personality and Social Psychology. 37:195–2020	Experimental (Study One) Experimental (Study Two)	133 psychology students 179 psychology students	Draw a person Test Adjective checklist Embedded Figures Test Rokeach's Dogmatism Scale	Students showed bias in scoring drawings of a supposed high status (European) student versus a low status (Moroccan) student. High-bias students considered themselves more reasonable and rational and less emotionally extreme than low-bias students.
Babad E.	1990	Calling on students: How a teacher's behavior can acquire disparate meanings in students' minds	Journal of Classroom Interaction. 25:1–4	Experimental	520 7th grade students in 17 classes	Perceptions of differential behaviour towards a high and low achiever	Teachers treated high and low achievers differentially
Babad E.	1995	The 'teacher's pet' phenomenon, teachers' differential behavior, and students' morale.	Journal of Educational Psychology. 87:361–374.	Cross-sectional	2,475 students in 80 classes	Perceptions of differential behaviour towards a high and low achiever	Students and teachers reported that teachers gave more learning support to low achievers and put more pressure on high achievers. Students reported more emotional support for high achievers; teachers reported more for low achievers.
Babad E.	2009	The social psychology of the classroom	New York, NY: Routledge.	Summary of multiple studies			
Babad E, Avni-Babad D, Rosenthal R.	2003	Teachers' brief nonverbal behaviours can predict certain aspects of students' evaluations	Journal of Educational Psychology. 95:553–562.	Experimental	28 teachers 420 students 113 judges	Videotapes of teachers Judges ratings of teacher non-verbal behaviour (friendly, competent, interesting) Student ratings of teacher differential behaviour	Students reported teachers gave more learning support to supposed low achievers but more emotional support to high achievers. Judges confirmed these differences in teacher non-verbal behaviour from videotapes.

(*Continued*)

Table 2. Continued.

Authors	Date	Study title	Journal/ Publisher details	Type of study	Participants	Measures	Outcomes
Babad E, Bernieri F, Rosenthal R.	1989a	Nonverbal communication and leakage in the behaviour of biased and unbiased teachers	Journal of Personality and Social Psychology. 56:89–94.	Cross-sectional	7 unbiased 14 biased teachers	Videotapes of teachers Judgements of teacher behaviour	Non-verbal behaviour of biased teachers often did not match their verbal behaviour Non-biased
Babad E, Bernieri F, Rosenthal R.	1989b	When less information is more informative: Diagnosing teacher expectations from brief samples of behaviour.	British Journal of Educational Psychology. 59:281–295.	Cross-sectional	7 unbiased 14 biased teachers	Judges rated nondogmatic behaviour, negative affect, Active teaching	Unbiased teachers showed less dogmatism and negative affect and more active teaching than biased teachers.
Babad E, Inbar J, Rosenthal R.	1982a	Pygmalion, Galatea and the Golem: Investigations of biased and unbiased teachers.	Journal of Educational Psychology. 74:459–474.	Experimental	11 no-bias 15 high-bias teachers	Observations of teacher-nominated high and low expectation students ($N = 150$)	Teachers differed on degree of being nondogmatic, responsive, criticising, and friendly. Overall, no-biased teachers showed no expectancy effects.
Babad, E.Y., Inbar, J., Rosenthal, R.	1982b	Teachers' judgment of students' potential as a function of teachers' susceptibility to biasing information	Journal of Personality and Social Psychology. 42(3): 541–				
Bohlmann, NL, Weinstein, RS	2013	Classroom context, teacher expectations, and cognitive level: Predicting children's math ability judgments	Journal of Applied Developmental Psychology	Cross-sectional	1931st grade students	Observations of Classroom Ability-based Practices (CAP) Cognitive reasoning test Self-perceptions of ability Teacher perceptions of student ability Teacher beliefs about mathematics teaching	In high-differentiating classrooms, children's ability perceptions were more congruent with teachers' expectations and higher cognitive levels predicted lower self-ability ratings.
Brattesani, KA, Weinstein, RS, Marshall, HH.	1984	Student perceptions of differential teacher treatment as moderators of teacher expectation effects	Journal of Educational Psychology, 76(2):236–247.	Two studies: experimental and cross-sectional	Study 1: 318 1st, 3rd, 5th graders Study 2: 234 4th, 5th and 6th graders	Teacher Treatment Inventory (TTI) Self-report of teacher treatment Teacher expectations Achievement	Study 1: High and low differentiating classrooms identified. In high differentiating classrooms student self-report of treatment matched reports of treatment for hypothetical students.

							Study 2: In high-differential treatment classes, teacher expectations contributed much more to student achievement than in low differential treatment classes.
Kuklinski, MR, Weinstein, RS	2001	Classroom and developmental differences in a path model of teacher expectancy effects	Child Development, 72(5): 554–1578.	Longitudinal	376 1st to 5th graders	Teacher Treatment Inventory (TTI) Self-report of teacher treatment Teacher expectations Achievement	Both degree of perceived differential treatment (PDT) and grade predicted effects of teacher expectations. In perceived high versus low differentiating classrooms, expectations were lower in 1st grade, higher in 3rd grade, and lower in 5th grade
McKown C, Weinstein RS.	2008	Teacher expectations, classroom context, and the achievement gap	Journal of School Psychology. 46(3):235–261.	Study 1: cross sectional Study 2: cross sectional Study 3: Longitudinal	Study 1: 559 1st, 3rd, 5th graders Study 2: 1232 1st, 3rd, 5th graders Study 3: 561 1st, 3rd, 5th graders	Study 1: TTI Achievement Teacher expectations Study 2: TTI Achievement Teacher expectations Study 3: PDT Achievement Teacher expectations	Study 1: The greater the classroom diversity and the perceived differential treatment, the more biased were teacher expectations. Study 2: Classroom diversity, PDT, and grade mix (single-grade vs mixed) predicted teacher bias interactively. Study 3: In high PDT classrooms, teacher expectations contributed to the year-end achievement gap between ethnic minority and majority students to a much greater extent than in low PDT classrooms.
Weinstein RS.	2002	Reaching higher: The power of expectations in schooling.	Cambridge, MA: Harvard University Press.	Summary of multiple studies			
Weinstein RS, Marshall HH, Brattesani KA, Middlestadt SE.	1982	Student perceptions of differential teacher treatment in open and traditional classrooms	Journal of Educational Psychology. 74 (5): 678–692.	Experimental	234 4th, 5th and 6th graders	TTI	Low achievers perceived to receive more negative feedback and direction and more work and rule orientation than high achievers. High achievers perceived to have higher teacher

(*Continued*)

Table 2. Continued.

Authors	Date	Study title	Journal/ Publisher details	Type of study	Participants	Measures	Outcomes
							expectations and more choice than lows. No differences in perceived teacher support
Weinstein RS, Marshall H, Sharp L, Botkin M.	1987	Pygmalion and the student: Age and classroom differences in children's awareness of teacher expectations	Child Development. 58:1079–1093.	Experimental Cross-sectional	579 1st, 3rd, 5th graders	TTI Self-report of teacher treatment Self-expectations	The impact of teacher differential expectations increased from 1st to 5th grade. Differences for high and low expectation students with high and low differentiating teachers: Negative feedback and teacher direction Work and rule orientation Opportunity and choice
Rubie-Davies CM.	2006	Teacher expectations and student self-perceptions: Exploring relationships	Psychology in the Schools. 43:537–552.	Longitudinal	256 students	Student Self-Description Scale Teacher expectations Student achievement	There were no differences in student self-perceptions at the beginning of the year. By the end of the year, students self-perceptions in reading and maths and their perceptions of their teachers' expectations were lower in low expectation classes than in high expectation classes.
Rubie-Davies CM.	2007	Classroom interactions: Exploring the practices of high and low expectation teachers	British Journal of Educational Psychology. 77:289–306.	Longitudinal	12 teachers	Teacher expectations Classroom observations Student achievement	Students with high expectation teachers made much greater progress than those with lows. Instructional practices differed substantially between high and low expectation teachers.
Rubie-Davies CM.	2010	Teacher expectations and perceptions of student attributes: Is there a relationship?	British Journal of Educational Psychology, 80(1):121–135.	Cross-sectional	12 teachers	Teacher expectations Student achievement Teacher-perceived attitudes of students	High expectation teachers held much more positive beliefs about their students than low expectation teachers in terms of the students' perseverance, independence, reaction to new work, cognitive engagement, participation, motivation, confidence, self-esteem, classroom behaviour,

							relationships with peers and their teacher, having supportive parents, a positive home environment, and completing homework.
Rubie-Davies, CM, Hattie, JAC, Townsend, MAR, Hamilton, RJ	2007	Aiming high: Teachers and their students	In: Galwye VN, editor. Progress in Educational Psychology Research. Hauppauge, NY: Nova; p. 65–91	Longitudinal	9 teachers	Observations Interviews Teacher expectations Student achievement	Students with high expectation teachers made much greater gains in reading than students with low expectation teachers. There were substantial differences in the beliefs and practices of high versus low expectation teachers.
Rubie-Davies, CM, Meissel, K, Alansari, M, Watson, PW, Flint, A, & McDonald, L.	2020	Achievement and beliefs outcomes of students with high expectation teachers	Social Psychology of Education,23:173–1201.	Longitudinal	31 teachers 692 students	Teacher expectations Student achievement Self-concept, Perceptions of teacher support, academic competence, school satisfaction Self-expectations Perceptions of teacher expectations	There were no differences in any measures at the beginning of the year between students with high versus low expectation teachers but by the end of the year, students with high expectation teachers scored more highly on all measures than those with low expectation teachers.
Rubie-Davies, CM, Watson, PWStJ, Flint, A, Garrett, L, & McDonald, L.	2018	Viewing students consistently: How stable are teachers' expectations?	Educational Research and Evaluation, 24(3–5): 221–240.	Longitudinal	94 teachers	Teacher expectations Student achievement	Teacher expectation levels (high, medium, low) remained stable over not just one year but also over three years with different cohorts of students.

Table 3. Key effect sizes related to the reviewed articles*.

Authors	Date	Study title	Teacher differences	Differences measured	Effect sizes
Babad E, Bernieri F, Rosenthal R.	1989a	Nonverbal communication and leakage in the behaviour of biased and unbiased teachers	Differences between verbal and non-verbal behaviour	Dogmatic behavioural differences high bias teachers Dogmatic behaviour low bias teachers	$d = 1.97$ $d = 0.34$
Babad E, Bernieri F, Rosenthal R.	1989b	When less information is more informative: Diagnosing teacher expectations from brief samples of behaviour.	Differences between high and low bias teachers	Talking about students	$d = 0.66$
Babad E, Inbar J, Rosenthal R.	1982a	Pygmalion, Galatea and the Golem: Investigations of biased and unbiased teachers.	Behavioural differences between high and low bias teachers	Nondogmatic Responsive Critical Friendly	$d = 0.58$
Babad, EY, Inbar, J, Rosenthal, R.	1982b	Teachers' judgment of students' potential as a function of teachers' susceptibility to biasing information	Differences between high and no bias pre-service physical education teachers	High and low bias personality traits and self-description	$d = 1.04$
Brattesani, KA, Weinstein, RS, Marshall, H H.	1984	Student perceptions of differential teacher treatment as moderators of teacher expectation effects	Differences in treatment for high versus low expectation students	Opportunity and choice Less negative feedback and teacher direction Less work and rule orientation	$d = 0.91$ $d = -0.70$ $d = -0.89$
Kuklinski, MR, Weinstein, RS	2001	Classroom and developmental differences in a path model of teacher expectancy effects	Teacher expectations in perceived high versus low differentiating classrooms	Teacher expectations: 1st grade 3rd grade 5th grade Perceived differentiation 1st grade 3rd grade 5th grade	$d = -0.37$ $d = 0.35$ $d = -0.18$ $d = 0.09$ $d = 0.04$ $d = 0.02$
McKown C, Weinstein RS.	2008	Teacher expectations, classroom context, and the achievement gap	Study 1: Teacher behaviour towards a hypothetical high or low achieving student as reported by high versus low expectation students Study 2: Difference in teacher expectations for stereotyped versus non-stereotyped students Study 3: Effect of teacher expectations on student achievement	Supportive help Feedback and direction Work and rule orientation Opportunity and choice Mixed ability classes High differentiating classes: Reading Maths Low differentiating classes: Reading Maths	$d = 0.44$ $d = 1.04$ $d = 0.85$ $d = 1.50$ $d = 0.75$ $d = 0.37$ $d = 0.40$ $d = -0.03$ $d = -0.02$
Weinstein RS, Marshall H, Sharp L, Botkin M.	1987	Pygmalion and the student: Age and classroom differences in children's awareness of teacher expectations	Differences in treatment of high and low expectation students in classes of low versus high differentiating teachers	Negative feedback and teacher direction Work and rule orientation Opportunity and choice	$d = -1.40$ $d = -1.78$ $d = 1.83$
Rubie-Davies CM.	2006	Teacher expectations and student self-perceptions: Exploring relationships	Differences in self-perceptions of students with high and low expectation teachers	Beginning year: Reading	$d = 0.06$ $d = 0.20$

(*Continued*)

Table 3. Continued.

Authors	Date	Study title	Teacher differences	Differences measured	Effect sizes
				Maths	$d = 0.50$
				End year:	$d = 0.48$
				Reading	
				Maths	
Rubie-Davies CM.	2007	Classroom interactions: Exploring the practices of high and low expectation teachers	Differences in instructional practices and interactions between high and low expectation teachers	Orienting to the lesson	$d = 1.64$
				Linking to prior knowledge	$d = 1.79$
				Explaining new concepts	$d = 1.33$
				Feedback:	$d = 2.18$
				Group	$d = 1.88$
				Individual	$d = 2.05$
				Learning-related feedback	$d = 0.90$
				Questioning:	$d = 1.59$
				Closed	$d = 2.05$
				Open	$d = 1.51$
				Positive behaviour management:	
				Group	
				Individual	
Rubie-Davies CM.	2010	Teacher expectations and perceptions of student attributes: Is there a relationship?	Beliefs of high and low expectation teachers about student attitudes and behaviours	Perseverance	$d = 0.31$
				Independence	$d = 0.36$
				Reaction to new work	$d = 0.55$
				Interest in schoolwork	$d = 0.35$
				Cognitively engaged	$d = 0.42$
				Participation in class	$d = 0.67$
				Motivated	$d = 0.31$
				Confident	$d = 0.37$
				High self-esteem	$d = 0.88$
				Behave well in class	$d = 0.46$
				Relates well to teachers	$d = 0.67$
				Relates well to peers	$d = 0.75$
				Supportive parents	$d = 0.52$
				Positive home environment	$d = 1.06$
				Completes homework	$d = 0.45$
Rubie-Davies, CM, Hattie, JAC, Townsend, MAR, Hamilton, RJ	2007	Aiming high: Teachers and their students	Comparing students in classes of high versus low expectation teachers across one year	Progress in reading	$d = 0.97$
				Change in self-perceptions	$d = 0.05$
Rubie-Davies, CM, Meissel, K, Alansari, M, Watson, PW, Flint, A, & McDonald, L.	2020	Achievement and beliefs outcomes of students with high expectation teachers	Differences between student achievement and beliefs in classes of high and low expectation teachers by the end of one year	Reading achievement	$d = 0.36$
				Reading self-concept	$d = 0.19$
				Teacher support	$d = 0.05$
				Academic competence	$d = 0.23$
				Satisfaction	$d = 0.20$
				Personal expectations	$d = 0.19$
				Perceived teacher expectations	$d = 0.18$
Rubie-Davies, CM, Watson, PWStJ, Flint, A, Garrett, L, & McDonald, L	2018	Viewing students consistently: How stable are teachers' expectations?	Expectations of high and low expectation teachers	Difference across three years	$d = 0.97$

*Note: This table does not include the books in the review because the authors tended to summarise data rather than provide statistics. Some studies in the narrative review did not contain data that could be turned into effect sizes.

of Babad, Weinstein, and Rubie-Davies. This left 22 articles that were included in this review. Table 2 provides details of the studies included in the review.

In a final step, and in studies where it was possible, the second author calculated the effect sizes for comparisons between high minus low biased/differentiated/class-level expectation teachers or students. Table 3 provides a summary of these findings.

Babad: high and low bias teachers

Babad has completed a series of studies focusing on high and unbiased teachers. Overall, the sample sizes in each study were small (often less than 30 total), and many of the outcome measures had very low variance which can falsely magnify the consequential effect sizes. Babad selected high and unbiased (or no-bias) teachers from larger samples, and about 10% of the teachers could be classified as high or unbiased. Nevertheless, the patterns across his studies are consistent, adding veracity to his major claims.

His earliest study (Babad 1979) has been summarised above and was the first in which he was able to identify high- and no-bias subjects (the participants were undergraduate psychology students, not teachers). In a further early study, Babad et al. (1982a) randomly selected two students they described as having 'hidden' potential and identified 11 no-bias and 15 high-bias teachers. In addition, each teacher was asked to nominate three high-expectancy and three low-expectancy students (150 students in total were nominated). From observations of their lessons, they identified four factors where high and no-bias teachers differed: Nondogmatic (democratic, balanced, flexible, and open), Responsive (gives attention and reinforcement), Criticises, and Friendly and Confidence Inspiring. The average difference in the ratings in these four factors between the high and unbiased teachers was $d = 0.58$, but the interactions between high and low teachers with high and low students were more fascinating in that, no-biased teachers showed no expectancy effect (except Responsive behaviour, $d = 0.35$), as they treated all students similarly.

Babad et al. (1982b) studied high bias ($n = 13$) and no bias ($n = 13$) physical education teachers-in-training. The overall effect size difference across the 22 classroom comparisons was $d = 1.04$. The high-bias teacher education students described themselves as more conventional and more influenced by social desirability norms. In events concerning failure or criticism of themselves, the high bias student teachers tended to deny responsibility for the failure and to seek external or ideological justification. Overall, the high bias teachers tended to be more autocratic, rigid, distant, impulsive, preferential, and less trusting, but they described themselves on a self-report personality inventory as more conventional, more dependent on others, and more conforming to social norms than did no-bias teachers.

Babad et al. (1989a) then videotaped lessons from 7 unbiased and 14 biased teachers (from a sample of 123 elementary teachers). They were particularly interested in the difference between what teachers said and the non-verbal attributes they displayed while talking (in their terms, leakage). They found that biased teachers demonstrated systematic and substantial leakage effects in dogmatic behaviour (judged from the transcripts of the lessons, and facial and body language), amounting to an effect size of $d = 1.97$ for the biased but far lower for the unbiased teachers ($d = 0.34$).

In a further study, Babad et al. (1989b) asked biased and unbiased teachers to identify and describe a 'good student of high potential' and a 'weak student of poor potential' (the *talking about* phase). The teacher taught these two students individually (*talking to* phase). Fifteen judges (advanced undergraduate educational psychology students) rated the clips of the classroom on three factors: Nondogmatic Behaviour (flexible, democratic, warm), Negative Affect (hostile, condescending, tense/nervous/anxious), and Active Teaching (dominant, active/energetic, enthusiastic, clear, task-oriented). The rating scales were chosen because they 'represent typical behaviours measured in the mediation of expectancy research' (p. 285). Overall, there was a $d = 0.66$ effect size difference between the high and low bias teachers on the outcomes, but this was primarily related to Active Teaching and only when the teachers were *talking about* and not when *talking to* the students. Indeed, the teachers were more active when *talking about* the two students but were also more nondogmatic when *talking to* the students. Babad and his colleagues (1989b) concluded that the expectation effects 'permeated the most minute and molecular elements of [the teachers'] behaviour and were detected by the judges' (p. 292). Negative affect was transmitted to students for whom teachers had low expectations mostly through non-verbal channels (particularly the face). However, the teachers compensated by directing more active teaching behaviour at students for whom they had low expectations. Thus, Babad and colleagues (1989b) argued that these teachers attempted 'to compensate low expectancy students [by using] controllable, direct teaching behaviours' (p. 281).

When summarising his work, Babad (2009) argued for systematic studies comparing high and low biased teachers. He concluded that expectancy effects were only found in the classrooms of highly biased teachers. These teachers treated their low-expectancy students in a distinctly negative manner, and their students, in turn, responded with particularly low performance levels. In contrast, the unbiased teachers did not treat students differentially. He found that the high bias teachers waited longer for students they expected to do well to answer questions, were more likely to explain student mistakes and show how to correct them, and were warmer and more demanding of these students, whereas those they expected not to do well felt less pressure to achieve and engage, and were less attentive and supported (Babad 1990, 1995). He showed that the students were quick (less than 10 s) to make judgements about how the teachers expected them to perform—primarily from the teacher non-verbal behaviour (Babad et al. 2003). 'Students are first to perceive leakage and deception in teachers' behaviours' and high bias teachers 'can hinder the morale and satisfaction of the entire classroom because students' basic expectation of fairness and equity is violated' (p. 101).

Overall, Babad put much emphasis on the affective impacts of high compared to no- or unbiased teachers—and found differences in affect, which were readily detected in seconds (< 10 sec) by the students (as young as 4th graders), although teachers were less aware of the impact of their expectations.

Weinstein: high and low differentiating teachers

Weinstein (2002) summarised her major claims about teachers differentiating between students for whom teachers had high or low expectations. She argued that implicit theories matter—what teachers believe is transparent such that even young 'children are

aware of patterns of differential treatment favouring high over low achievers and … report variation among classrooms in such differentiation' (Weinstein 2002, p. 145). Those classrooms ranked high in differential treatment appeared 'devoid of hope for low achievers – those who cannot seem to learn, whom teachers cannot seem to help, and whose effort has eroded' (Weinstein 2002, p. 159). However, in low differential treatment classes, teachers 'speak more optimistically about the potential for all to learn and the important role of effort' (Weinstein 2002, p. 159). The differential expectations affect the opportunity structure of the class, curriculum exposure, exposure to self-regulation skills, the belief system of teachers and students (e.g. growth vs fixed), stereotype threat, and led to fallacies of differentiation and accommodation.

Following their 1982 study (Weinstein et al. 1982) in which high and low differentiating teachers were identified, Brattesani, Weinstein and Marshall (1984) were interested in whether students of different ages could perceive teacher differential treatment. Their study included 318 1st, 3rd, and 5th grade students and showed that in high differentiating classrooms (as identified by students), teacher expectations explained an additional 9 to 18% of the variance in student achievement, whereas in low differentiating classrooms where students all completed similar activities, only 1 to 4% of the variance could be explained by teacher expectations. The students perceived that those for whom teachers held higher expectations received more opportunity and choice from the teacher, less negative feedback, and less work and rule-oriented behaviour than did low achievers. Students for whom teachers held high expectations reported having more opportunity and choice ($d = 0.\ 91$), less negative feedback and teacher direction ($d = -0.70$), and less work and rule orientation ($d = -0.89$) compared to those with low expectations.

Weinstein and her colleagues then explored whether there would be differences in the effects of students being in classes of high and low differentiating teachers for different grades. Weinstein et al. (1987) included 579 1st, 3rd, and 5th grade students, and the major effect was an increase from 1st to 5th grade in the impact of teacher differential expectations. Overall the differences in the effects for students for whom teachers had high or low expectations comparing low differentiating teachers to highs were: Negative feedback and teacher direction, $d = -1.40$, Work and rule orientation, $d = -1.78$, and Opportunity and choice $d = 1.83$, but when considering the differences in effects at Grades 1 and 5, they were: Negative feedback and teacher direction 1st grade $d = -0.94$, 5th grade $d = -1.48$; Work and rule 1st grade, $d = -0.78$, 5th grade, $d = -1.69$, and Opportunity and choice, 1st grade, $d = 0.85$, 5th grade, $d = 2.01$. The researchers concluded that younger children (6-7-year-olds) were as aware as older children (10-11-year-olds) of differences in the teacher treatment of high and low achievers and of greater treatment differences in high differential treatment classes than in low differential treatment classes.

Extending on these earlier studies, Kuklinski and Weinstein (2001) ran a path model that included 376 1st–5th grade students specifying paths from classroom perceived differential environments through student self-expectations to year-end achievement. In perceived high compared to low differentiated classrooms, the teacher expectations were lower ($d = -0.37$) in 1st, higher in 3rd ($d = 0.35$), and lower in 5th grade ($d = -0.18$), but there were no differences for the students' perceived differentiation ($d = 0.09$, $d = 0.04$, and $d = -0.02$ for Grades 1, 3, and 5, respectively). The researchers noted that a 1 *SD* shift in teacher expectations was associated with a .10 *SD* change in

children's self-expectations, and the effects on end-of-year achievement were minimal: teacher expectations accounted for 2% to 3% of the variance in year-end achievement.

As a result of these earlier studies, McKown and Weinstein (2008) argued that the more children perceived teachers treating high and low achieving students differently, the stronger the predictive relations between teacher expectations and year-end achievement would be, even when controlling for prior achievement (cf., Brattesani et al. 1984; Kuklinski and Weinstein 2001). They included 559 1st, 3rd, and 5th grade students from 30 classes. Teachers were asked to rank order their expected year-end achievement in reading and mathematics. Students were asked to rate the frequency of teacher behaviour towards a hypothetical high – or low-achieving student using a series of items related to 'Negative Feedback and Teacher direction' (e.g. 'The teacher scolds him/her for not trying.'), 'Work and Rule Orientation' (e.g. 'When he/she is working on a project or assignment, the teacher tells him/her what to do.'), and 'High Expectations, Opportunity, and Choice' (e.g. 'The teacher calls on him/her to explain things to the class'). The teachers were rated higher with high compared to low achieving students in supportive help ($d = 0.44$), feedback and direction ($d = 1.04$), work and rule orientation ($d = 0.85$), and opportunity and choice ($d = 1.50$). Overall, the teachers ranked European American and Asian American children a little less than one ranked place higher in their class in the reading achievement hierarchy compared to African American and Latino students with identical records of mathematics or reading achievement ($d = 0.10$), but the effects increased by grade (1st $d = 0.07$, 3rd $d = 0.19$, and 5th $d = 0.36$). Students claimed that their teachers expected more of children from academically non-stereotyped ethnic groups than from children from academically stereotyped ethnic groups with similar records of achievement.

Their second study included 1,232 students from 1st, 3rd, and 5th grade classes from 53 schools. McKown and Weinstein found that the more diverse the classroom, the more teacher expectations favoured European American and Asian American students over their equally achieving African American and Latino peers. This was particularly true in highly diverse mixed-ability classes ($d = 0.75$ discrepancy in teacher expectations towards children from stereotyped and non-stereotyped ethnic groups). Their third study included 561 students. The study aimed to estimate the contribution of teacher expectations to the year-end achievement gap in high – and low-differentiating classrooms. Teacher expectations significantly predicted year-end achievement in all grades and subjects, controlling for prior achievement (d in high-differentiating classes 0.37 for Reading and 0.40 for Math, in low differentiating classes −0.03 for Reading and −0.02 for Math). In low-differentiating classrooms, teacher expectations made a negligible contribution to the year-end achievement, but the impact was much more marked in high-differentiating classrooms.

In a later study, Bohlmann and Weinstein (2013), trialled a new classroom observational tool in 15 Grade 1 classrooms but collected student data ($n = 193$) related to perceptions of their ability in mathematics, measured their cognitive level, and collected teacher and student expectations. They showed that in high differentiating classrooms and controlling for cognitive level, student self-ratings and the teachers' expectations were more congruent. In contrast, in low differentiating classrooms, student and teacher ratings were not only less congruent but students also rated their mathematics ability more positively. Further, students in classes of high differentiating teachers,

tended to rate their ability lower than similarly achieving students in the classes of low differentiating teachers.

Rubie-Davies high and low expectation teachers

Rubie-Davies et al. (2007) identified 6 highs and 3 lows in one of her earliest studies of high and low expectation teachers – those whose expectations were at the class-level. These teachers' expectations were either statistically significantly above or below student achievement at the beginning of one academic year, and teachers indicated how much progress (from very much below average to very much above average) they thought students would make during the year they were in their classes. The researchers found that students with high expectation teachers made much greater progress in reading ($d = 0.97$) and showed improved self-perceptions compared to students with low expectation teachers ($d = 0.05$). The students in classes with low expectation teachers made limited academic gains and their self-perceptions declined dramatically. In achievement, the students of the low expectation teachers started at higher levels than those in the classes of high expectation teachers (4.20 compared to 3.25 on a seven-point scale), but at the end of the year the students with lows had barely changed from the outset whereas the highs increased markedly (4.28 compared to 4.54; in effect-sizes this is a $d = -0.77$ difference between high and low expectation teachers at the start of the year to $d = 0.18$ at the end of the year). The effects for the students with each high expectation teacher highlight the changes over the year ($d = 0.50$, 0.73, 0.86, 1.27, 1.28, 1.44 respectively) and for the students with the low expectation teachers ($d = 0.20$, -0.02 and -0.03).

The students' ($N = 256$) self-perceptions also changed markedly in low- and high-expectation teachers' classes (Rubie-Davies 2006, 2007). For self-perceptions related to reading at the start of the year, the effect size difference between the classes of high and low expectation teachers was $d = 0.06$, increasing to $d = 0.50$ for reading at the end of the year, and from $d = 0.20$ to $d = 0.48$ for mathematics. This was mainly due to a decline in the self-perceptions of students with low-expectation teachers. The studies showed that both the instructional and socioemotional environments of the classes of the low and high expectations teachers were very different, and the students in the classes of high expectation teachers made much larger achievement gains across the year than the students of low expectation teachers (who made only small positive or negative relative gains across the year). At the beginning of the year, no statistically significant differences existed between the expectation groups in their self-perceptions of their academic capabilities and enjoyment.

The high and low expectation teachers were also observed twice by two pre-service teachers who were told only that the researcher was interested in discovering more about teachers' interactions with students (Rubie-Davies 2007). Substantial differences were found in how high and low expectation teachers interacted with their students. With reference to how instruction was delivered high expectation teachers spent more time orienting students to the lesson ($d = 1.64$), linked new learning to prior knowledge ($d = 1.79$), spent more time explaining new concepts ($d = 1.33$), modified instruction when necessary ($d = 0.84$), and recorded key information for students that they could refer to if necessary ($d = 0.69$). High and low expectation teachers also differed in the

types and frequency of feedback that they gave to students. High expectation teachers were much more likely to give feedback at both the group ($d = 2.18$) and individual level ($d = 1.88$) than lows. In addition, although high expectation teachers praised students less often than lows ($d = -1.88$), they more often provided their students with feedback designed to inform student learning and progress ($d = 2.05$). A further area in which high and low expectation teachers differed was in their questioning and response to student answers. High expectation teachers asked more closed questions of students than lows ($d = 0.90$), but they also asked far more open questions ($d = 1.59$). Further, when students answered questions correctly, high expectation teachers were much more likely than lows to question the student further ($d = 1.44$) or to repeat the students' answer ($d = 1.16$). However, if the answer was incorrect, highs were less likely than low expectation teachers to ask a different child ($d = -0.48$) and more likely to support the child to an answer ($d = 0.66$). In terms of behaviour management, high expectation teachers were much more likely to use positive behaviour management ($d = 2.05$) (at both the group, $d = 2.24$ and individual level, $d = 1.51$), and were less likely to use negative behaviour management ($d = -0.56$). Again, these differences in teacher behaviours also suggested that both the instructional and socioemotional climates of the classrooms of these two different teacher types differed substantially.

Among the same teachers, Rubie-Davies (2010) found that the high expectation teachers did not just have much higher expectations of their students than the lows, but also the highs had more positive views about a range of their students' attitudes. Moreso than the lows, the high expectation teachers believed that their students showed perseverance ($d = 0.31$), independence ($d = 0.36$), reacted positively to new work ($d = 0.55$), showed interest in schoolwork ($d = 0.35$), cognitively engaged in class work ($d = 0.42$), participated in class ($d = 0.67$), were motivated ($d = 0.31$), confident ($d = 0.37$), had high self-esteem ($d = 0.88$), behaved well in class ($d = 0.46$), related well to peers ($d = 0.75$), related to the teacher ($d = 0.67$), had parents who were supportive ($d = 0.52$), provided a positive home environment ($d = 1.06$), and ensured students completed homework ($d = 0.45$).

Rubie-Davies et al. (2018) investigated the relative stability of 94 teachers' expectations across three years in elementary school mathematics and reading in order to see whether, for example, high expectation teachers kept their high expectations year-on-year even with different cohorts of students. Teachers who under- or overestimated their students by more than half a standard deviation continued to do so across their classes over three years. The mean (on a 7-point Likert scale) for highs was 5.51 (SEM = .03) and lows = 3.97 (SEM = .12), and the effect size between the high and low expectation teachers was $d = 0.97$. Once teachers formed high or low expectations for their class, they tended to adhere to them for three years, even though they had a different cohort of students each year.

However, Rubie-Davies and her colleagues (2020), as shown from earlier studies, are interested not just in student academic outcomes, but also in student psychosocial outcomes. They included 31 teachers (16 low expectations and 15 highs) whose class-level expectations were more than 0.5 SD above or below their 692 students' beginning-year achievement. They found no effect ($d = 0.07$) between the reading achievement for students with high versus low expectation teachers at the beginning of the year, but $d = 0.36$ by the end of the year. Other differences at the end of the year related to Reading

Self-Concept ($d = 0.19$), Teacher Support ($d = 0.05$), Academic Competence ($d = 0.23$), Satisfaction ($d = 0.20$), Personal Expectations ($d = 0.19$), and Perceived Teacher Expectations ($d = 0.18$). Overall, in the classes of high expectation teachers, students showed far more positive beliefs and higher achievement by the end of one academic year than students in classes of low expectation teachers, even though there were no statistically significant differences in either beliefs or achievement at the beginning of the year.

Overall, Rubie-Davies has shown that high versus low expectation teachers can be identified. These teachers structure both the instructional and socioemotional climate of their classrooms differently. These different environments result from high and low expectation teachers' beliefs about how best to teach students, which, in turn, affect teacher behaviours. In addition, Rubie-Davies has shown that the differences between high and low expectation teachers and the outcomes for their students can also be found in China (e.g. Li and Rubie-Davies 2017; Hao and Rubie-Davies 2022; Li et al. 2024; Wang and Li 2023), providing some initial evidence that high and low expectation teachers can be identified in both eastern and western contexts, the effects on learning are similar, and that this conception of high and low expectation teachers is universal. Further, and independently of Rubie-Davies, the studies by Szumski and Karwowski (2019) in Poland and Knigge et al. (2016) in Germany also found positive benefits for students when their teachers had high class-level expectations adding further to this general body of research. To date, only one study has not found benefits for students of their teachers having high class-level expectations (Friedrich et al. 2015); this appears to be an anomaly. It remains for future research to continue this important work related to class-level expectations and both academic and psychosocial outcomes for students.

Discussion

As has been shown, in the classes of high and low bias, high and low differentiating, and high and low expectation teachers, the effects of teachers' expectations on students vary significantly. Overall, the findings suggest that when students are in the classes of unbiased teachers who do not differentiate in how they treat high and low achievers, the differences in achievement between students for whom teachers have high or low expectations are reduced, compared to if they are with biased teachers or with those who treat high and low achievers very differently. In addition, when teachers have high expectations for all students, achievement will likely increase substantially. These findings are important for several reasons.

First, it is not meaningful to generalise the findings of the expectation research to all teachers. The findings and meta-analyses in this paper suggest that the teacher expectation effects vary substantially between teachers depending on their beliefs. It is, therefore, important that research in the field takes account of teacher variance when drawing conclusions related to teacher expectation effects.

Second, the number of teachers who have low expectations and thus create negative impacts on students is relatively small. Rubie-Davies et al. (2007) found that approximately 25% of teachers could be considered to have high expectations for all their students and 10-17% of teachers could be classified as low expectation teachers. Babad (2009) estimated that across his samples, a slightly higher percentage (25%) of teachers

could be classified as highly biased and about one half were mildly biased. Only one sixth were found to be unbiased. This percentage of biased and low-expectation teachers are a cause for concern given the large differences in the effects on students of being with a high versus a low bias or low versus a high expectation teacher.

Third, when students have low bias and low differentiating teachers, the effects of teacher expectations on student achievement are minimal compared with those in classes of high bias and high differentiating teachers. That is, beginning-year achievement disparities decrease over one year with low bias and low differentiating teachers so that any initial gaps between high and low achievers reduce. On the other hand, high bias and high differentiating teachers produce negative effects among their students, particularly their low achievers. The achievement gaps between high and low achievers in these teachers' classes are exacerbated over one year.

Fourth, whereas low bias and low differentiating teachers produce similar effects, high expectation teachers positively impact all students' academic and psychosocial outcomes. Although there is some evidence that students prefer to be in classes of low bias (Babad 1998) and low differentiating teachers (Weinstein 2002), there does not appear to be any evidence that in these classes students make large academic gains, just that the gaps between high and low achievers decrease. Students in the classes of high expectation teachers, however, make large academic progress and improve their self-beliefs. Conversely, students with low expectation teachers make very little academic progress over one year and their self-beliefs decline. In addition, Rubie-Davies et al. (2015, 2016) conducted an experimental study in Aotearoa New Zealand that showed that any teacher can be trained to teach similarly to high expectation teachers and consequentially raise their expectations, and when they use the high expectation principles identified by Rubie-Davies (2015), their students benefit both academically and in terms of their psychosocial beliefs (McDonald et al. 2014). Given the disparity in achievement between majority and minority ethnic groups in both Aotearoa New Zealand and internationally, implementing high expectation teaching principles offers a promising means of enabling all students to make substantial academic progress and to decrease achievement gaps.

Fifth, the overall magnitude of the negative effects of high biased, high differentiating and low expectation teachers is marked. Across the five contrasts between high and low biased teachers in Babad's work, the average effect size is $d = 0.92$; across the 20 contrasts in Weinstein's work the average effect sizes between high and low differentiating teachers is $d = 0.85$, and across the 51 contrasts in Rubie-Davies' work, the average effect size between high and low expectation teachers is $d = 0.87$. These findings are very consistent and across all 76 contrasts, the weighted (by sample size) effect size is $d = 0.87$.

Sixth, care is needed in all teacher expectation research to ensure hierarchical models are used as students are nested in the classes of these teachers. This was not possible in earlier studies, but more advanced statistical procedures now reveal teacher variance in expectation effects, and this supports the need for further investigations into the differences in teacher beliefs and practices that moderate the teacher expectation effects on student learning and psychosocial beliefs. Babad, Weinstein, and Rubie-Davies have all shown the important variations in classrooms and among teachers that lead to different outcomes for students. It remains for future research to investigate other teacher differences that might lead to positive benefits for students.

Seventh, there is an oft-stated refrain that high expectations can be unrealistic and thus damaging for many students. This could lead to students not investing in the learning as they believe their chances of success relative to the effort is not worth it. However, high expectations must be accompanied by supportive teachers who believe that they can make a substantial difference to student learning and have the pedagogical skills to ensure their students' progress. Teachers have a different mandate—to encourage all students to invest in learning, leading to greater skills in learning, enjoyment of the process of learning, and higher achievement. The claim herein is for challenging goals and related high expectations relative to where the students commence, and this means the expectations should at least be much higher than the beginning-year achievement (which is sometimes not the case for low expectation teachers), and the expectations should serve as a challenge and motivator for teachers to strive such that all students meet these success criteria. Realistic expectations are ambitious more than achievable; challenging not 'do your best', challenging not unreachable, and meet the Goldilock's principle of not too easy, not too hard, and not too boring (Lomas et al. 2017; Hattie 2023). Part of the success of challenging and high expectations is communicating to the student that they are not alone, but there is a dedicated, accomplished, and caring teacher who will work to maximise the chances of all students seeing that there is a pathway to meeting these high expectations. Students know when these conditions are not met, when low expectations pervade the classrooms, affecting their commitment, investment, and enjoyment of improving their learning.

Eighth, the effects in this paper show the importance of understanding teacher beliefs. It is our claim that such beliefs can markedly change the climate and academic press in the class, the decisions teachers make about their teaching methods, and the impact of how their students see their performances and expectations. Thus, alongside the teacher competencies (e.g. problem solving, communication, empathy, organisation, equity, resilience, self-reflection), it is important to consider their beliefs—such as their beliefs about learning, assessment, curriculum, purpose, and expectations (Witter and Hattie 2023). These may be critical precursors to their choices about lessons, challenge, teaching, and feedback, which can differentially impact their students.

Ninth, although not the focus of this article, the effect size of student expectations can often be much larger than that of teachers. By age eight, many students have decided their 'rank' in the class, their expected performance, and their role in the class (disruptor, withdrawer, avoider, participator, complier, striver, or driver) and there is much need for more research on the formation, impact, and potential enhancements to student expectations.

Limitations

In some of the earlier studies of Weinstein (e.g. Kuklinski and Weinstein 2001), student achievement was not controlled. This was common in expectation studies of the time but meant that expectations may have been high for some and low for others because achievement was accordingly high or low. Such studies could not differentiate between classes with many high achieving students at the beginning of one year whose students made little progress but were still considered high achieving at the end of the year compared with initially low achieving students who made large gains over one year but still

did not quite reach the levels of their high achieving counterparts. It is only when achievement is controlled (i.e. there is a measure of prior achievement with which expectations can be compared) that researchers know whether expectations are above or below achievement, that is whether the expectations are over- or underestimates of achievement. Controlling for initial achievement also enables the effects of expectations on end-of-year achievement to be calculated. A further limitation of most teacher expectation studies is that the measure of expectations is normally only one item for each student. The use of one-item makes the load on teachers easier than using multiple items, but this is a limitation of teacher expectation studies. Scales that include additional items such as the one used by Rubie-Davies and Peterson (2016) are sorely needed. Finally, in a few cases the same data were used across different studies, and many of the data sets were based on small sample sizes. These cautions should be considered but the patterns are reasonably systematic across the many samples providing confidence in the findings.

Future research

This review has shown that when teacher beliefs are considered as moderating teacher expectations, there can be large effects on students in some classrooms. Rather than the unremitting focus on expectations for individual students within the field, it is important also to consider differences between teachers. Although some multi-level studies do take account of students as nested with teachers, the general consensus appears to be that major differences can be found for different teachers relative to their expectation beliefs. Given the findings in this review, it will be important in future studies that teacher differences that moderate the expectation effects are considered.

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