Teacher expectations and teacher expectation effects

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Summary

Teacher expectations can be defined as the beliefs that teachers hold about what their students are capable of achieving. Teacher expectations are important to study because they influence teacher practice and subsequently student academic and psychological outcomes (such as motivation and self-belief). For example, if teachers believe that all their students can achieve at high levels, they are likely to provide learning opportunities and supports that enable their students to be successful. Teacher expectations have been studied for the past 50 years since Rosenthal and Jacobson's experimental study, *Pygmalion,* showed that when teacher expectations were raised for some students, they subsequently performed at higher levels. This initial teacher expectation experiment led researchers to study how teachers differentiated in their behaviors towards high and low achievers, what student characteristics influenced teachers' expectations, what the effects were on student outcomes when teachers had high or low expectations for particular students, and what behaviors students reported that teachers displayed towards high and low achievers. These areas formed the key areas of subsequent research in the field. However, researchers recognized early on that not all teachers differentiated in their behaviors towards high and low achievers and that not all formed their expectations in line with common stereotypes (e.g., that boys are better at mathematics than girls). This led to the identification of specific types of teachers who either exacerbated the gaps between high and low achievers or who increased the success of all

students. However, although much is now known about teacher expectations and teacher expectation effects, few studies have experimentally endeavored to change teachers' expectations and support teachers to implement high expectation practices. However, the few that have worked alongside teachers to raise their expectations have shown promising results for students' educational outcomes. .

Keywords: teacher expectations; teacher judgments; expectation effects

1. A History of the Teacher Expectation Field

Teacher expectations can be defined as teachers' ideas about the probable future success of their students. Teacher expectations and the effects of those expectations have been of interest to researchers since the seminal study of Rosenthal and Jacobson (1968) five decades ago. Although, several other researchers, including Rosenthal (see Rosenthal, 1966 for a summary of these findings), had examined expectations in other settings, the Rosenthal and Jacobson study was the first to apply the findings to the education context. This first study within the educational realm was experimental whereby the researchers led teachers in one school to believe that some of their students were likely to suddenly blossom that year. Indeed, at the end of one academic year, those for whom teachers had induced high expectations did improve more than their control group peers. This study, however, provoked both support and criticism. The supporters accepted that teachers likely did form expectations for their students and that teacher expectations would affect student outcomes. Some (see Spitz, 1999 for a review) argued that low teacher expectations were the cause of low achievement among students from poor socioeconomic backgrounds even though the study had focused on creating false high expectations among teachers; low expectations were not measured. There were, however, strong criticisms of the study on methodological grounds (Elashoff & Snow, 1971), for example, that the effects were only among the Grade 1 and 2 students, rather than at every level. Nevertheless, despite the methodological shortcomings of the original *Pygmalion* study, there was broad acceptance that teachers' expectations could have an effect on student outcomes.

2. Teacher Differential Behavior

One of the questions surrounding *Pygmalion* was that, although there did appear to be an effect of induced expectations for at least some students, the mechanisms by which teacher expectations affected students was unclear. Rosenthal and Jacobson (1968) had suggested

that teachers must have interacted differently with students for whom they had high versus low expectations, but they had not conducted any classroom observations which enabled them to measure whether or not teacher behaviors differed in line with their expectations. This became an important area of investigation for the field.

Brophy and Good (Brophy & Good, 1970, 1974) conducted extensive observations in classrooms in order to establish whether or not teachers did differentiate in their interactions with students for whom they had high versus low expectations. For example, teachers waited less time for low achievers to answer questions than high achievers, teachers were warmer toward, and more supportive of, high achievers but criticized lows more and praised them less, and provided less helpful and, at times, inappropriate feedback to low achievers (Brophy, 1983, 1985). This research not only established that there was teacher behavioral differentiation toward different students but the research also established the ecological validity of the teacher expectation field. Brophy and Good showed that teacher expectations did occur in natural classrooms and that they affected student outcomes. Nevertheless, they also found that teacher differentiation occurred in some classrooms more than in others. That is, some teachers treated students for whom they had high or low expectations in ways that appeared to lower the achievement of students believed to be less capable, but many did not (Good, 1987).

3. Formation of Teacher Expectations

A further question following the *Pygmalion* study (Rosenthal & Jacobson, 1968) related to the bases on which teachers formed their expectations. Student characteristics and student information that might influence teachers' expectations were investigated. Perhaps not surprisingly, the largest influence on teachers' expectations was found to be information about student prior achievement. Jussim, Eccles, and Madon (1996) argued that previous grades, standardized test scores, and reports of student behavior influenced teacher

expectations to a much greater extent than all other influences combined. Nevertheless, other student characteristics that have been shown to influence teacher expectations include student social class, ethnicity, gender, and special needs labelling.

In relation to social class, researchers (e.g., Alexander & Entwisle, 1988; Baron, Tom, & Cooper, 1985) established that teachers often held lower expectations for students from poorer home backgrounds than for students from middle class backgrounds – even when achievement was initially the same. Over time, such initial early differentiation can have marked differential effects on student outcomes adding advantage to students from middle class backgrounds while deleteriously affecting those from less advantaged homes (de Boer, Bosker, & Van der Werf, 2010).

Other researchers (e.g., Tenenbaum & Ruck, 2007) established that student ethnicity influenced teacher expectations even when achievement was taken into account. Students from ethnic minority (McKown & Weinstein, 2002), other minority (e.g., Appalachian; Ali, McInerney, Craven, Yeung, & King, 2014) and indigenous (Peterson, Rubie-Davies, Osborne, & Sibley, 2016; Rubie-Davies, Hattie, & Hamilton, 2006) backgrounds were disadvantaged whereas, overall, those from the majority group were favored by teachers, again leading to differential outcomes between favored and less favored groups. Further, and conversely, Asian students have often been positively stereotyped as a "model minority" with high academic achievement (Lee, 2015). As a result, they may be the recipients of high teacher expectations, treated better by teachers than other ethnic minorities, and given more opportunities to learn. Hence, they tend to be more engaged and to do better at school (Good, 1987; Good & Nichols, 2001).

Gender has also been investigated as potentially influencing teacher expectations. For example, teachers appear to favor boys in mathematics and science (Barba & Cardinale, 1991; Qing, 1999) and girls in literacy (Shepherd, 2011). The research, however, is not

conclusive with some studies showing that expectations, and particularly student outcomes, do not differ for boys or girls in the science or literacy fields (Palardy, 1969; Qing, 1999).

One student characteristic that appears to be relatively powerful in predicting teachers' expectations is the labelling of students. Studies in this area of the teacher expectation field have been both experimental and conducted in regular classrooms. This research (e.g., Weinstein & Worrell, 2016) strongly suggests that taking account of achievement, when students are given a label, teachers tend to lower their expectations. In experimental studies (Stinnett, Crawford, Gillespie, Cruce, & Langford, 2001), it has been shown that when student behavior is described identically in vignettes but students are given a label in some of the descriptions and not others (e.g., ADHD or special needs), expectations will be lower for labeled than for unlabeled students.

4. Student Perceptions of Teacher Expectations

A further important area in the teacher expectation field is that of student perceptions. Researchers such as Babad (Babad, 1998, 2009) and Weinstein (Weinstein, 1983, 1989, 2002) established that students were highly perceptive of teacher differentiation in their behaviors towards students for whom they had high versus low expectations. Students could describe in explicit detail how some of their teachers provided differential learning and emotional support to students. Teachers were described as being much warmer in their support and interactions with high versus low achievers, to provide more learning support to lows, but to provide more quality support to highs. Low achievers were described by students as being closely monitored by their teachers, as being given structured activities, and receiving clear messages about their low achievement. Further, students described not just the explicit verbal messages they received but also non-verbal teacher behaviors that indicated their expectations of students. For example, teachers smiled more at high

achievers, and rolled their eyes and showed exasperation with low achievers (Weinstein, 2002).

5. Teacher Expectation Effects

6. Teacher Expectation Effects: Size of Effects and Accuracy

One consideration in assessing the relevance of the teacher expectation field to educational psychology relates to the size of teacher expectation effects. A second concern relates to the accuracy of teacher expectations. If teacher expectations are mostly accurate and have only very small effects on student outcomes, then they may not be worth considering. One strong advocate of the idea that teacher expectations are mostly accurate and, therefore, have only small effects on student outcomes, is Jussim (Jussim & Harber, 2005; Jussim, Robustelli, & Cain, 2009). In reviews of the field, using data from eleven studies, he showed that, overall, teachers' expectations had very small effects on student achievement. Much larger meta-analytic studies (Hattie, 2009) and other work (Timmermans, Kuyper, & van der Werf, 2015), however, have suggested that teacher expectation effects are not inconsequential and are often inaccurate. In a meta-analysis, which included 674 studies, Hattie (2009) showed that teacher expectations had an effect of $d = .43$ on student achievement, a moderate effect. In most of these studies, accuracy has been determined by comparing teachers' expectations of student achievement at the beginning of an academic year with actual student achievement.

One study (Meissel, Meyer, Yao, & Rubie-Davies, 2017) which researched the accuracy of teacher expectations in reading and writing when compared with standardized testing showed that, on average, teachers underestimated boys by approximately six months, two minority groups by one year, English Second Language students by eighteen months, and special needs students by two years – and the underestimation compounded when students belonged to more than one of these categories. In addition, Timmermans et al. (2015)

showed that when teacher expectations were inaccurate, they could have long-term consequences for students, because expectations beyond achievement meant that students were inaccurately placed in particular school tracks some of which led to university and others which did not.

7. Teacher Expectation Effects: Nature of Teacher Expectation Effects

As has been shown above, teacher expectations can have moderate effects on student achievement but, importantly, can predict the long-term academic trajectory of students. The focus of most studies of teacher expectations has been on student academic outcomes. In comparison, few studies have considered effects on student social-psychological outcomes. Yet it would seem likely that because teacher expectations are portrayed to, and understood by, students, that teacher expectations may affect student self-belief which, in turn, may lead to increased or decreased motivation, and consequent student achievement. Rubie-Davies (2006) showed that, although there were no differences between students at the beginning of one year, by year's end, if students were with teachers who had high expectations for their learning, their self-belief showed an increase, whereas when teacher expectations were low, student self-belief declined considerably. High expectations are defined as those which are well above where students are currently achieving. In other words, teachers expect their students to make large learning gains in their classes – and they do. Zhu, Urhahne, and Rubie-Davies (2018) explored further the mediating mechanisms of teacher expectations. In addition to achievement effects, teacher expectations were directly related to students' success expectations and their aspirations, as well as to student self-concept and pride in their learning. These outcomes related directly to perceived negative and positive teacher treatment. In other words, student beliefs were enhanced when they perceived positive teacher treatment and weakened when negative treatment was reported.

8. Teacher Differences and Expectation Effects

Much of the research in the teacher expectation field has examined teacher expectations by aggregating data across all teachers in any study and then drawing conclusions about how teachers in general interact with students, which student characteristics they use to form their expectations, and whether or not students perceive the teachers' expectations. From very early on in the field, however, researchers (Brophy & Good, 1974) recognized that teachers differed and that different teacher beliefs were likely to moderate the expectation effects. That is, some teachers were likely to have greater expectation effects on their students than others.

9. Proactive, Reactive and Over-reactive Teachers

Following their classroom observations, Brophy and Good (1974) proposed three types of teachers: proactive, reactive, and over-reactive. They suggested that pro-active teachers had a strongly developed teaching philosophy and adapted their teaching to meet student needs. Such teachers would set realistic goals for their students and support them to meet the teachers' expectations. Pro-active teachers took responsibility for student learning and altered their practice when necessary to suit student needs. These teachers were likely to have positive expectation effects on students.

Reactive teachers were likely to be the majority. Brophy and Good argued that these teachers probably adjusted their expectations as students progressed and probably had only small teacher expectation effects on students. These teachers were not likely, however, to either exacerbate or decrease student gaps but, rather, to maintain students at similar relative levels over the academic year.

Over-reactive teachers were those who were likely to make judgments about students based on stereotypical information and to then treat students in line with the stereotypes rather than taking account of individuality. Such teachers were the most likely to have negative expectation effects on students, particularly low achievers and those from a

stereotyped group. Over-reactive teachers were likely to exacerbate gaps between high and low achievers over an academic year.

10. Biased and Unbiased Teachers

Based on earlier experimental work (Babad, Inbar, & Rosenthal, 1982), Babad identified what were termed biased and unbiased teachers. Biased teachers were those who placed credence in stereotypical information about students and based their expectations on that information. Biased teachers were similar to the over-reactive teachers described by Brophy and Good (1974). They favored those students for whom they had high expectations both academically and personally, and students in classes of biased teachers were very aware of teacher differentiation. Babad (Babad, Bernieri, & Rosenthal, 1989a, 1989b, 1991; Babad & Taylor, 1992) also videotaped biased teachers interacting with, or just talking about, high or low achievers and then showed 10-second clips to groups of judges ranging from 10 years of age through to university-level students. All groups were able to judge from just these brief clips whether the student being spoken to, or about, was a high or low expectation student.

11. High and Low Differentiating Teachers

Weinstein and her colleagues (Kuklinski & Weinstein, 2000; McKown & Weinstein, 2008; Weinstein, 1993, 2002; Weinstein, Marshall, Brattesani, & Middlestadt, 1982) focused on investigating high and low differentiating teachers. High differentiating teachers were those who treated high and low achievers very differently and, therefore, exacerbated student differences, meaning that teacher expectation effects were very large in these classes. They made clear distinctions in the ways they talked about, and interacted with, students for whom their expectations were high or low. On the other hand, low differentiating teachers treated all students similarly. They taught students in mixed ability groups, focused on developing student skills, provided similar activities for all students, and fostered a classroom

community. In these classes, differences in student achievement decreased because low achievers were exposed to high-level learning opportunities which, in many classes are only assigned to high achievers. Hence, low achievers in these classes increased their learning gains substantially – but not at the expense of high achievers.

12. High and Low Expectation Teachers

Rubie-Davies (Rubie-Davies, 2006, 2007, 2008, 2010; Rubie-Davies, Hattie, Townsend, & Hamilton, 2007; Rubie-Davies & Peterson, 2011) identified high and low expectation teachers. High expectation teachers were those who had high expectations for all students in relation to current achievement whereas low expectation teachers were the opposite. High expectation teachers believed that all students would make large learning gains in their classes and then supported their students so that they did achieve at much higher levels than their previous achievement had suggested was possible. In a series of studies, Rubie-Davies was able to identify differences between high expectation and low expectation teachers related to the ways classrooms were organized and the types of learning activities students were assigned, how the class climate was fostered, and how goal setting was used to increase student learning gains. High expectation teachers taught students in mixed ability groups and assigned challenging learning activities to all students. They created a very warm class climate in which they had strong, positive relationships with their students, and in which students were encouraged to support others and learn collaboratively. Further, teachers set clear learning goals with students, monitored their learning closely, and provided clear feedback about student progress in relation to their goals. The high expectation teachers reported strategies that ensured students were intrinsically motivated, as they were given the opportunity to make choices with respect to their learning activities, and were encouraged to take responsibility for their learning (Rubie-Davies, 2008). High

expectation teachers had large positive effects on student achievement and self-beliefs. All students gained in these classes.

13. Current Issues and Future Directions

Although much has been learned over five decades in relation to teacher expectations and teacher expectation effects, there are a number of unresolved issues and areas where further research is needed. These include the measurement of teacher expectations, the accuracy of teacher expectations, student social-psychological outcomes, long-term teacher expectations effects, stability of teacher expectations, and intervention studies.

14. Current Issues and Future Directions: Measurement of Teacher Expectations

Teacher expectations have mostly been measured either by asking teachers about student current achievement levels or ability (e.g., Alvidrez & Weinstein, 1999; Kuklinski & Weinstein, 2000) or by asking teachers to predict students' future achievement (e.g., Rubie-Davies, 2007). However, because there has not been one clear means by which teacher expectations should be measured, this has led to them being measured in a variety of ways other than the two outlined above. For example, in one study (Smith, Jussim, & Eccles, 1999), the researchers included teacher perceptions of performance, talent, and effort as their measure, rather than expectations of academic achievement. In some European studies (e.g., Timmermans et al., 2015), teacher recommendation about which type of school track students should attend has been used to indicate expectations. When different studies use different ways to measure teacher expectations, the result can be that the same construct is not being measured. This could be one explanation for why findings have not always been consistent in the field.

15. Current Issues and Future Directions: Accuracy of Teacher Expectations

Accuracy of teacher expectations refers to a teacher's ability to correctly judge or predict their students' academic achievement or educational outcomes in line with students'

actual achievement, in the form of grades or standardized test results (Feinberg & Shapiro, 2009). The field of teacher expectations is built on the self-fulfilling prophecy – the idea that expectations are inaccurate for some students but that teachers interact with students in ways that ultimately results in the expectations being fulfilled. Considering that accuracy is a core element of teacher expectations, there have been surprisingly few studies that have actually measured this component of expectations. Jussim (Jussim & Harber, 2005; Jussim et al., 2009) has argued that teacher expectations are generally accurate. However, several recent studies (de Boer et al., 2010; Hinnant, O'Brien, & Ghazarian, 2009; Meissel & Rubie-Davies, 2016; Timmermans et al., 2015) have suggested that teacher expectations, particularly for some students, are quite inaccurate. The equivocal results in this area mean that the issue is not fully resolved leaving the opportunity for future research to more fully explore accuracy or inaccuracy of teacher expectations.

16. Current Issues and Future Directions: Student Social-psychological Outcomes

Although many studies (e.g., Kuklinski & Weinstein, 2000) have explored the effects of teacher expectations on student achievement, very few studies have examined the psychological effects on students (see Rubie-Davies, 2006 ; Zhu et al., 2018 for two exceptions). Weinstein's work (2002) suggests that students are very aware of their teachers' expectations for them and that this affects their psychological well-being. Exploring the social-psychological effects is important because if there are effects on student self-belief, for example, this may affect student motivation, perseverance, and resilience. There are several social-psychological variables that remain to be explored as outcomes of teacher expectations. For example, it would seem likely that low teacher expectations may lead to lowered self-belief which, in turn, could lead to a decrease in motivation, persistence and engagement, yet there is a paucity of literature that has explored these possible paths, as outcomes of teacher expectations.

17. Current Issues and Future Directions: Long-term Effects

Another important area within the field that remains to be more fully investigated is that of the long-term effects of teacher expectations. Students have spoken about critical incidents that have led them to change their perceptions of their academic trajectory and appeared to have long-term effects (Weinstein, 2002) but few studies have carefully measured this phenomenon. One study (Alvidrez & Weinstein, 1999) showed that over- and underestimation of very young students predicted the number of advanced mathematics courses that students took ten years later. In a more comprehensive study of long-term teacher expectation effects (Rubie-Davies et al., 2014), the researchers examined the effect of teacher expectations on academic achievement across one year (within-year effects), the effect of one teacher as influencing achievement in subsequent years (cross-year effects), and the effect of one teacher in addition to the effect of the next teacher, and so on (compounded effects). The results suggested that the Kindergarten teacher set students on a particular trajectory (taking account of achievement) which was then exacerbated or built upon by subsequent teachers. However, it remains for future research to determine more fully the mechanisms of such long-term effects.

18. Current Issues and Future Directions: Stability of Expectations

A further area within the teacher expectation field that would seem important to investigate is the stability of expectations. Brophy (1983) suggested that teachers likely adjusted their expectations as they became familiar with their students and as students progressed. However, it has also been suggested that some teachers (e.g., over-reactive or biased teachers) may cling more rigidly to their initial expectations and may disregard disconfirming evidence (Kuklinski & Weinstein, 2000). There have been only two studies that have examined the stability of expectations. The first (Martinek, 1980) examined stability over a relatively short eight-week period whereas the second (Kuklinski &

Weinstein, 2000) examined stability in relation to high and low differentiating teachers over six months. In both cases, expectations were found to be relatively stable. However, questions remain in relation to stability. Yet to be examined is whether expectations remain stable over one year. A further area to be explored is whether if particular teachers hold, for example, high expectations one year, they also hold similarly high expectations for a different group of students the next year. Were this to be found, this would suggest a stable teacher trait that was related to expectations. Interestingly, one study (Li & Rubie-Davies, 2017) has shown that teachers who held high (or low expectations) for a particular group of students in one academic year, held similar expectations for other classes of different students that they were teaching in the same year. Again, this suggests a stable teacher expectation trait.

19. Current Issues and Future Directions: Intervention Studies

Because much is known now about teacher expectations and teacher expectation effects, it would seem that the results of such studies could be brought together to implement interventions designed to raise teacher expectations and increase student achievement. However, again, few studies have attempted this and only one large scale experimental study has been undertaken (Rubie-Davies, 2015; Rubie-Davies, Peterson, Sibley, & Rosenthal, 2015; Rubie-Davies & Rosenthal, 2016). Three examples are presented below.

Weinstein and colleagues (Weinstein, Soule, Collins, Cone, & et al., 1991) conducted a quasi-experimental study in which at-risk students were allowed to enroll in honors classes and at the end of one academic year, the students did achieve at much higher levels than previously. Unfortunately, these results were not sustained when students moved to teachers the next year who had not been involved in the project. Since that initial study, Weinstein and Worrell (2016) have set up a charter school based on high expectations and for first-in-family to go to college. Although also quasi-experimental, this study suggested that students

attending the charter school achieved at very high levels and entered four-year colleges (many of them prestigious) at much greater rates than similar cohorts in other high schools.

The Teacher Expectation Project (TEP) was the first fully experimental study to endeavor to change teachers' expectations and raise student achievement. The study involved teachers learning the practices of high expectation teachers and implementing them into their classrooms. Teachers attended four full-day workshops spaced three weeks apart. This enabled the teachers to make changes to their practice in the intervening period and report back at the next session. In the first workshop, teachers were introduced to the background literature and ways in which expectations are conveyed both verbally and non-verbally. The three subsequent sessions focused on Rubie-Davies' findings in relation to high expectation teachers, that is, that they taught students in mixed ability groupings, that they provided a warm class climate for their students, and that they set skill-based learning goals with students and provided students with clear feedback related to their progress in meeting their goals. Teachers learnt about the practices of high expectations, were introduced to the empirical evidence that supported what they were doing, and then spent the afternoons planning collaboratively how they would implement the practices into their classrooms. The researchers then met with the intervention teachers three further times during the year when the teachers shared the changes that they had made and provided specific examples and ideas that their colleagues could also use in their classes.

Student outcomes were measured at the beginning and end of the year. The study reported increased mathematics achievement for students in the intervention group (28% above those of controls) and, importantly, no matter the school, socioeconomic level, grade, ethnicity of gender of students, all intervention students achieved at higher levels than control group students after one year.

The TEP showed that when teachers instituted specific high expectation practices, their students benefited. The findings imply that the combination of the implementation of the three high expectation principles can have marked effects on student learning. Using mixed ability groupings decreased the salience of ability and fostered student collaboration. High level learning opportunities for all students ensured that all students could succeed at much higher levels than previously. Teachers developed strong, supportive relationships with students but also created a climate of peer collaboration and support coupled with strong links to the students' families. Further, because students had skill-based, achievable goals which were monitored closely by teachers, there was far more engagement and motivation in these classes (see McDonald et al., 2014 for intervention teacher comments related to how the expectation principles improved their class climate and student learning). This study suggests that other researchers could design equally or more effective teacher expectation interventions. Further, the TEP was only conducted with 8-12 year olds. It may be possible to design an intervention that would benefit students throughout the schooling sector. Raising teacher expectations and providing guidance about how teachers can institute high expectation principles into their classrooms provides an exciting direction for future research in the field.

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