‘Missing out’? The potential consequences of inaccurate teacher expectations on young gifted readers’ achievement outcomes

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Abstract

The present study investigated whether teachers held more accurate expectations for gifted or non-gifted students’ achievement in reading, and compared expectations for teachers involved in an intervention with those of control teachers. Participants included 275 Year 3-8 gifted students, 1413 non-gifted Year 3-8 students, and their 90 teachers within 12 schools in the three year Teacher Expectation Project (TEP). The intervention involved four days of professional development, aimed at enhancing intervention teachers’ ability to emulate the practices of high expectation teachers. All teachers provided their expectations for students’ reading achievement early and at mid-year. Standardised reading achievement data were collected at the same times. Trends in both intervention and control teacher estimations of student achievement outcomes were analysed over time, with significant variations noted in relation to teacher estimation accuracy. This paper considers the potential dual impact of inaccurate teacher estimations on gifted students’ opportunities for learning, and their future potential in reading.

Introduction

The current study aimed to investigate the role of accurate teacher expectations in identifying and responding appropriately to young gifted students’ advanced reading abilities. Teachers form expectations for their students based on personal beliefs about individual students’ capabilities (Rubie-Davies, 2015). Teachers’ differential expectations for students’ success in learning can have positive and negative influences on student learning opportunities and their future potential (Weinstein, 2002). Teachers will alter their teaching approaches so that high expectation students receive more challenging learning opportunities, while low expectation students experience work of a more repetitive, unstimulating nature (Rubie-Davies, 2007).

Students are also aware of, and may internalise their teachers’ differential expectations which are commonly conveyed in both verbal and non-verbal ways (Rubie-Davies, Peterson, Flint, Garrett, McDonald, Watson & O’Neill, 2012). Internalising teacher expectations may lead to
students achieving according to their teacher’s perceived expectations for their success in learning, known as the self-fulfilling prophecy (Weinstein, 2002). Although a significant body of research has accrued in the general field of teacher expectations, there has been limited focus on researching teacher expectations of gifted students.

Hodge and Kemp (2006) maintained that appropriate teacher expectations and opportunities for learning would only occur for gifted and talented students when teachers accurately assessed student potential or performance in a particular talent domain. Teacher accuracy was dependent on focused professional development in recognising domain-specific gifted behaviours (Siegle, Moore, Mann & Wilson, 2010). Otherwise, there was a concern that teachers would form personal conceptions of giftedness based on stereotypical or inaccurate beliefs, and then identify students who matched these beliefs (Speirs Neumeister, Adams, Pierce, Cassady & Dixon, 2007).

In acknowledging a lack of research into talented readers, Reis, S. M., Gubbins, J., Briggs, C. J., Schreiber, F. J., Richards, S., Jacobs, J. K., Eckert, R.D., & Renzulli, J.S. (2004) felt there was a potential issue in trying to determine a common definition of advanced ability in reading. While it was usual to identify gifted readers on the basis of relative comparisons within same-age peer groups, this could be challenging as peer groups naturally varied. Reis et al. (2004) concluded that a young reader demonstrating reading abilities at least two years in advance of their same-aged peers would be identified as gifted. Another, similar definition called for demonstrated reading abilities of two years above ‘grade’ level (Moore, 2005). Speirs Neumeister et al. (2007) highlighted the importance of investigating the particular teacher beliefs, stereotypes, biases, and expectations that influenced identification and opportunities for learning for gifted and talented students. Within the surveyed literature, the strongest links to teacher expectations of gifted readers were found within two research studies examining primary school teachers’ conceptions of giftedness.

A small-scale Australian study focused on six male and eight female students identified as potentially gifted by their parents or pre-school teachers (Hodge & Kemp, 2006). The study investigated student behaviours or attitudes with the potential to assist or hinder teacher recognition of giftedness. Findings suggested that teachers most frequently identified reading as an academic strength area, with students being rated more often as well above average on the basis of perceived strengths in literacy or numeracy. Teachers appeared to be placing emphasis on academic achievement when making decisions about the ability levels of children.

In an American study of 434 teachers from public schools serving a range of diverse students, Moon and Brighton (2008) investigated teacher beliefs about giftedness. Findings indicated that the vast majority of primary-grade teachers held traditional conceptions of the constructs related to gifted and talented students. Surveyed teachers seemed comfortable to
describe gifted students as possessing advanced vocabulary and early reading skills, along with demonstrated independence, intrinsic motivation, and independence in their work habits. However, the same teachers found it harder to conceptualise gifted students as those who lacked these characteristics.

These findings highlight the potential for teachers’ conscious or unconscious biases to influence the accuracy of their expectations, and consequently impact significantly on opportunities for young gifted students to develop their talents (Moon & Brighton, 2008). Students who had participated in preschool learning opportunities would often demonstrate advanced work habits, vocabulary and reading skills, and would be more readily identified as gifted. Conversely, students from low socioeconomic and non-English speaking backgrounds would frequently be described as lacking these same characteristics. Teachers need to be able to revise and increase their expectations of students who may initially appear unexceptional, but who actually possess high levels of potential or actual ability in one or more areas (Kolb & Jussim, 1994). It is vital for teachers to form accurate expectations of student abilities.

In response to a perceived lack of research relating to teacher expectations of gifted students generally, the current study has a specific focus on ascertaining the accuracy of teachers’ expectations for a sample of gifted and non-gifted readers. The data for the current study were drawn from a large, three year teacher expectation intervention project (TEP) designed to raise teachers’ expectations for all their students. The TEP measured student achievement in reading and mathematics, and teacher expectations of student achievement outcomes in both subjects at multiple time points in each of the three years of the project, along with teacher and student psychosocial beliefs (Rubie-Davies, 2015). The current study employs TEP student reading achievement, and teacher expectation data, gathered early on and mid-way through the project’s first year.

The 90 teacher participants were randomly assigned to a control or intervention group within each of the 12 schools involved from one New Zealand city. Forty-seven intervention teachers participated in four teacher professional development day-long workshops, and three follow-up cluster meetings in the first year of the project, aimed to introduce them to the beliefs and practices of high expectation teachers. The forty-three control teachers were not involved in these professional development opportunities, as one of the main aims of the TEP was to have the intervention teachers teach the intervention to the control teachers in the second year of the project. It was hoped that the intervention could become self-sustaining in the third year of the project and beyond, and lead to raised teacher expectations and improved student achievement outcomes for all 1688 student participants. Refer to Rubie-Davies (2015) for further information regarding the TEP.

The following questions were developed to guide the research process within this particular study:
• How accurate are the comparative expectations of intervention and control teachers for gifted and non-gifted students in reading at the very beginning of the project (Phase 1)?

• Do teacher expectations for gifted and non-gifted students in reading change from Phase 1 to Phase 2 (after 6 months) of the TEP project?

• How accurate are the comparative expectations of intervention and control teachers for gifted and non-gifted students in reading by Phase 2 of the TEP project?

**Method**

**Participants**

The Phase 1 participants were 1688 Year 3-8 student participants and their 93 teachers within 12 urban primary schools in one New Zealand city. Standardised reading achievement data for every student were compared to national means. Of the students, 275 were identified as reading 2 or more years above their chronological age, and were classified as gifted in accordance with the definition of Reis et al. (2004), and 1413 students were identified as non-gifted. Although there was a relatively even gender split of 821 boys (48.6%) and 867 girls (51.4%) across the total sample of 1688 student participants, within the sample group of gifted readers, 58.9% were girls (n = 162) and 41.1% were boys (n = 113). Of the 1688 primary school students included in the present study, 98.1% were between 7 and 12 years of age. In the current study, there were a total of 10 students in Year 3 classrooms, who were only 6 years of age, with 4 of these students identified as gifted readers. With regard to ethnicity, 713 students (42.2%) identified as New Zealand European, 312 (18.5%) as Māori, 258 as Pasifika (15.3%), 259 as Asian (15.3%), and 146 identified as ‘Other’ (8.7%). Within the sample group of gifted readers, 151 students (54.9%) identified as New Zealand European, 64 as Asian (23.3%), 22 as Māori (8.0%), 16 as Pasifika (5.8%) and 22 identified as ‘Other’ (8.0%).

Within the 12 schools involved in the TEP, 93 teachers originally agreed to be part of the study. Teachers were randomly assigned into intervention and control groups resulting in 48 intervention teachers and 45 control teachers (47 intervention teachers and 43 control teachers within the revised sample group of 90 teachers). The 90 (Phase 2) teacher participants represented approximately 86% of eligible teachers of whom 25 were male and 65 were female; 69 were European, 9 Māori, 9 Pasifika and 3 were Asian. Teaching experience ranged from 1-41 years with most (56%) having taught for 10 years or less. Teachers taught at differing levels: 26 (29%) taught Years 3-4 students, 34 (38%) taught Years 5-6 and 30 (33%) taught Years 7-8.
Schools represented all socioeconomic levels; four schools were from low socioeconomic areas (decile 1-3), two schools were from high socioeconomic areas (decile 8-10), with the remaining six schools falling in the mid-range (decile 4-7). There were 18 (20%) teachers in low socioeconomic areas, 18 (20%) were in high and the remaining teachers (60%) were in middle socioeconomic areas. Of the 275 students identified as gifted in reading, 93.5% attended mid to high decile schools, while 76.7% of the 1413 students identified as non-gifted in reading attended low to mid decile schools.

**Procedures**

The intervention teachers participated in four workshop days between March and May of the first year of the research project, aimed at enhancing their ability to emulate the practices of high expectation teachers. The professional development opportunities reflected the overarching purpose of the TEP, which aimed to evaluate for the first time whether teacher expectations for all students could be raised experimentally and then sustained.

The four workshops focused on key pedagogical areas relating to grouping and learning experiences; evaluation, motivation, autonomy, and teacher monitoring and feedback (framed under goal-setting in the study); and classroom climate. Intervention teachers were taught about non-verbal behaviour and how that may portray expectations. In the afternoon of each workshop, teachers planned how they would effect change in the area of focus for that workshop within their respective classrooms. A project partner was allocated to each school, to provide on-going collaboration and support for the intervention teachers in implementing new classroom practices. The control group was used to determine the degree to which the strategies taught to the intervention teachers resulted in a positive effect on student learning in the first year of the project. Control group teachers participated in their schools’ regular professional development but were not taught the strategies of high expectation teachers.

Baseline teacher data, and student achievement data in reading, were collected one month into the new school year (Phase 1). Participating teachers completed an initial survey of their expectations for all students’ achievement in reading over the coming year. It was felt that after one month of a new school year, teachers would have had time to get to know their students and form their own academic expectations of them. Raudenbush (1984) showed that teachers formed their expectations within the first two weeks of schooling. The teacher expectation survey was completed again by all teachers at mid-year.

Standardised reading achievement data were gathered independently by each of the 12 participating schools and forwarded to the TEP for uploading into a database. Students completed the same reading tests at each year level, across all schools. These assessments
were previously compiled by the second author. A data file specific to the current study was created within Statistical Package for Social Sciences (SPSS).

Measures

Two measures were used in this study: the measure of student achievement in reading and the teacher expectation survey. These measures will be described in more detail below.

asTTle reading comprehension

The asTTle reading comprehension test is an assessment tool developed in New Zealand for use with students from Years 4-12. Teachers can create 15-60 minute paper and pencil or online tests in reading comprehension, of between 30-35 mostly multi-choice items. Test items can be selected that best match the learning needs of specific student groups, and the tests assess reading capabilities in both the deep and surface features of reading comprehension (Ministry of Education, 2012a). Once the tests have been scored, the asTTle tool produces graphic reports that allow teachers to analyse student achievement against English curriculum levels, curriculum objectives, and population norms (Ministry of Education, 2012b). The student reports give teachers a score for each student and also an equivalent curriculum level. Individual student achievement standards can be explicitly defined, as asTTle further divides each curriculum level, from level 2 to 4 into three sublevels, for example, level 2 Basic, Proficient, and Advanced (Hattie & Brown, 2003).

Teacher expectation survey

As a means of measuring teachers’ expectations, the teachers were asked to compile a class list and estimate what level they expected each of their students to achieve in reading by the end of the current school year, relative to the New Zealand curriculum levels for their particular group of students. That is, teachers were provided with guidance as to what constituted below, average and above average levels in relation to the curriculum levels for each year group. In order to track any changes in teachers’ expectations over time, the survey was re-administered mid-way through the first year of the TEP. A 7-point Likert scale was used to assist teachers in their predictions of student achievement in reading, with the following gradations: 1 = very much below average, 2 = moderately below average, 3 = slightly below average, 4 = average, 5 = slightly above average, 6 = moderately above average, 7 = very much
above average. Teachers were also given the option of commenting about particular students’ special learning needs or abilities alongside their estimation of the reading achievement level.

Data analysis

Teachers’ expectations were regressed on student achievement in order to obtain residuals which would provide an estimate of teacher accuracy of their expectations for both gifted and non-gifted readers among control and intervention teachers. If expectations were completely accurate across the sample of teachers, the overall residuals would be zero. This method of using residuals to determine accuracy of teacher expectations has been used in previous studies (e.g., Alviderez & Weinstein, 1999). A repeated measures ANOVA was conducted to assess whether any differences between expectations and actual achievement over time were statistically significant.

Results

At the beginning of the year, intervention teachers overestimated their gifted readers’ achievement ($M = 0.26, SD = 0.82$) and underestimated their non-gifted readers ($M = -0.20, SD = 1.06$), relative to actual student achievement levels. In comparison, the control group teachers overestimated both their gifted ($M = 0.32, SD = 0.76$) and their non-gifted readers ($M = 0.20, SD = 0.95$). However, by mid-year some changes were evident. The intervention group teachers appeared to have become a little more positive in their views towards both their gifted ($M = 0.51, SD = 0.76$) and their non-gifted readers ($M = -0.14, SD = 1.09$), relative to actual achievement levels, whereas the control group’s views were similar for the gifted readers ($M = 0.34, SD = 0.79$) and a little more negative towards the non-gifted readers ($M = -0.03, SD = 0.93$).

A repeated measures ANOVA was conducted to assess whether these differences over time were statistically significant. The results indicated that the time by intervention interaction was statistically significant, $F(1, 1344) = 18.13, p = .001$, eta = .11, which indicates that the pattern of change varied depending on which group teachers belonged to and the effect size was medium (Cohen, 1988). Cohen describes an eta squared of .01 as having a small effect, .06 as having a medium effect and .14 as being a large effect. Hence, the differences between intervention and control teachers increased and the effects were important for students.

As indicated above, the mean expectation of the intervention teachers appeared to increase over time while that of the control group declined. The time x student group (gifted or non-gifted) interaction also varied significantly, $F(1, 1344) = 13.20, p = .001$, eta = .10, indicating that there were differential effects on teacher ratings of students over time depending on
whether students were gifted or non-gifted. It appeared from the means presented above that the teachers (and intervention teachers in particular) became more positive in their expectations of gifted readers’ achievement over time, relative to actual student achievement. The effect size was medium. However there was no statistically significant time x teacher group x student group interaction, $F(1, 1344) = .24, p = .62$. Whether teachers were in the intervention group or not, did not affect the achievement of students over time.

The standard deviations above suggested that although the intervention teachers’ expectations for the gifted readers in their classes were positive relative to actual student achievement levels, there was variation across teachers in their assessments. We were interested in exploring further if there were gifted readers whose teachers under-estimated their achievement and if so, if there were any similarities among these students. Because the gifted readers were categorised as such if they were reading 2 or more years above their chronological age, it might be expected that all such students would be rated well above average. Hence, we concentrated on exploring further gifted readers for whom teachers’ ratings were from 1 (well below average) to 5 (slightly above average).

Of the students who were gifted in reading as shown by their standardised assessments at both the beginning and middle of the year, 2 students were rated very much below average, 1 was rated moderately below average, 2 slightly below average, 24 average, and 25 slightly above average. In addition, 1 student who was rated very much above average at the beginning of the year was rated very much below average by the middle of the year. Two students who were rated moderately above average at the beginning of the year were rated only average at the middle of the year. Of the gifted readers rated as only slightly above average or less, 25 were boys whereas 32 were girls. Of the boys, 16 were New Zealand European, 2 were Māori, 1 was Pasifika, 5 were Asian and 1 was Other. Of the girls, 14 were New Zealand European, 6 were Māori, 4 were Pasifika, 6 were Asian, and 2 were Other. There was an increase in teacher expectations for only 3 boys between the beginning and middle of the year whereas expectations increased for 9 of the girls. On the other hand, teacher expectations declined for 7 of the boys and for 6 of the girls.

A chi-square test for goodness of fit showed that there was a statistically significant difference in the proportion of boys (41%) who were classified as gifted compared with girls (59%), $\chi^2 = 8.731$, $df = 1$, $p < .003$. However, of those students who were underestimated, there were no statistically significant differences in the proportions of girls and boys who were underestimated.

With regards to gender, there was no statistically significant difference in the proportion of New Zealand European, Māori, Pasifika, Asian and Other boys who were underestimated, compared with the sample of boys overall who were underestimated. However, for girls there
was a statistically significant difference in the proportions by ethnic group who were underestimated, $\chi^2 = 10.419$, $df = 4$, $p < .034$. Fewer New Zealand European girls were underestimated than might have been expected (actual = 14, expected = 19.31) whereas more Māori (actual = 6, expected = 2.56) and Pasifika (actual = 4, expected = 1.92) were underestimated. Hence, overall more girls than boys and more New Zealand European girls were classified as gifted in reading by their teachers than was warranted given achievement and more Māori and Pasifika girls were underestimated.

**Discussion**

It is encouraging to note that the intervention teachers had become slightly more positive in their expectations of gifted readers’ achievement outcomes over time. Such a positive indicator suggests that exposing the intervention teachers to the characteristic behaviours and practices of high expectation teachers during Phase 1 of the three year intervention strategy, could potentially lead to enhanced learning opportunities and achievement outcomes for this sample of young gifted readers over an extended period of time. However, there also appears to be some potential barriers that might work against, or minimise such a desired outcome.

Moltzen (2011a) notes that the majority of gifted and talented students display advanced abilities which make them readily identifiable when compared with their same-aged peers. However, in the current study, some intervention teachers appear to have difficulty ‘seeing’ a number of these students as gifted readers, leading them to be less accurate at estimating their projected achievement levels.

Teachers form expectations for their class, or for individual students, on the basis of their interpretations of previous evidence of student performance (Rubie-Davies, 2007). Personal beliefs about how students learn, combined with teacher perceptions of individual students in their class and their learning needs, influence expectations. Research also suggests that teachers form expectations of students in the first weeks of the school year and often maintain their initial expectations, even in the presence of counter-evidence (Weinstein, 2002). It may be that some intervention teachers allowed both their personal perceptions about individual students in their class, and their deficit beliefs about some students’ learning needs, to influence their expectations.

Teachers in the current study were not asked to form their achievement expectations on the basis of whether they identified students as being gifted in reading or not. The first author classified students identified as reading two or more years above their chronological age as the gifted sample group, in line with current research definitions (Moore, 2005; Reis et al, 2004). Teachers simply provided an expectation for each child in the class, and had the option of commenting about particular students’ special learning needs or abilities in reading.
alongside their estimation. Intervention and control teacher comments relating to the 1413 students identified as non-gifted readers were frequent, and spanned student attitudes, behaviour, learning and physical disabilities, concern about poor achievement or skill deficiencies in reading, and identified students with English as their second language (ESOL). In sharp contrast, there were only 4 comments relating to the 275 students identified as gifted readers, none of which identified them as being gifted. One teacher noted that a student was a new enrolment, while another reported a student as bilingual, and 2 further comments specifically identified students with English as their second language (ESOL).

Moon and Brighton (2008) suggest that teachers often “hold a deficit-oriented framework when considering the characteristics of young learners” (p.274). It is plausible that the intervention (and control teachers) in the current study were more focused on the perceived learning needs of their non-gifted readers in the first few weeks of the school year. Such an assumption is feasible within our New Zealand education system, where there is an explicit emphasis on raising literacy levels for Māori and Pasifika students, two of four identified groups of priority learners, along with students from low socio-economic families and students with special needs (ERO, 2012). Alternatively, it is possible that this deficit orientation was more generalised.

Tenenbaum and Ruck (2007) suggest that deficits might also be perceived as being associated with cultural and/or socioeconomic disadvantage which might lead to a potentially gifted or gifted student, not being identified. While it is affirmed that gifted and talented children are to be “found in every group within society, including different ethnic, socio-economic, gender and disability groups” (Ministry of Education, 2001, p.2), in the current study, in line with common stereotypes, more girls than boys, and more New Zealand European girls were classified as gifted by intervention teachers than was warranted by their achievement. There were also more gifted Māori and Pasifika girls, who were potentially impacted by inaccurate, lowered teacher expectations of their reading achievement levels.

Culturally diverse and economically disadvantaged students are commonly reported as being under-represented in programmes for gifted and talented students (e.g., Bevan-Brown, 2011; Moltzen, 2011b; Riley, Bevan-Brown, Bicknell, Caroll-Lind, & Kearney, 2004). While Moltzen (2011b) includes lower teacher expectations as a possible causal factor in the underachievement of gifted and talented ethnic minority students, Riley et al. (2004) report low teacher expectations as an inhibitor in identifying gifted culturally diverse students. As Bevan-Brown (2011) notes,

...many teachers do not expect Māori children to be gifted and this creates a double disadvantage. Not only are potentially gifted Māori children remaining unidentified, but due to the Pygmalion effect” they are not extending themselves. Rather they are performing down to expectation! (p. 103).
It is recognised that some students are more vulnerable to differential teacher expectation effects than others. For example, Jussim, Eccles and Madon (1996) reported that minority group students and those from low socioeconomic groups were more vulnerable to teachers’ expectations than white students and those from middle class backgrounds. Similarly, Kuklinski and Weinstein (2001) found that younger students’ achievement outcomes were more directly impacted by teachers’ expectations than were older students. Further, classroom teachers’ expectations had more influence over learning and achievement than younger students’ self-expectations.

Although some gifted students will lower their performance levels to match teachers’ limited and inaccurate expectations for their success, it has been noted that in a similar setting, other gifted students will view low, inaccurate teacher expectations as a challenge (Davis & Rimm, 2004). In this instance, rather than succumbing to inaccurate teacher estimations, some gifted students will set out to disprove them. Some gifted students may possibly be more resilient and less vulnerable to teachers’ expectations than non-gifted students. This could be explored in future studies.

Within the current study, there is a concern that teachers may not revise their initial expectations during the course of the year leading to a potentially long-term, negative impact on young gifted Māori and Pasifika readers’ learning opportunities. Hall (2001) asserts that gifted students can ill-afford to experience lowered teacher expectations for even one year.

Teachers working alongside students from low socioeconomic backgrounds or non-English speaking backgrounds need to be familiar with the characteristic behaviours of their young gifted readers when making decisions about student ability levels (Moltzen, 2011a; Moon & Brighton, 2008). Vosslamber (2002) believes that it is also vital for teachers not to rely solely on academic achievement in assessing student abilities in reading. Rather, teachers need to be aware of, and responsive to evidence of demonstrated potential, where students show real interest in, and enjoyment of the reading process.

**Conclusion**

Rubie-Davies (2007) suggests that if teachers can be taught specific teacher behaviours of high expectation teachers, then student outcomes could improve. In line with the overarching aims of the TEP, it is hoped that future studies will demonstrate further enhanced outcomes for gifted readers as the intervention teachers take time to further assimilate new understandings and strategies into their own classrooms. Much will depend on the degree of teacher accuracy in identifying potential and advanced reading abilities within diverse student learner groups. Teacher accuracy in assessing student achievement levels in reading will likely...
be dependent on the provision of appropriate learning opportunities. Appropriate learning opportunities are fundamental to ensuring that young gifted readers do not ‘miss out’ on realising their potential.
References


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