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Do student beliefs differ by ethnicity? Exploring self-perceptions

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Abstract

Studies that have investigated student beliefs by ethnicity have shown differing perceptions for some ethnic groups on constructs such as self-regulated learning, attribution and perceptions of class climate. Moreover, the findings have differed from one cultural context to another. However, the exploration of student beliefs about several psycho-social variables by ethnicity does not appear to have been undertaken. Hence, the current study examined student self-concept, motivation, perceptions of class climate and self-expectations of four different ethnic groups: European, Maori, Pasifika and Asian students within the New Zealand context. Group differences were found for some variables. Educational implications and directions for future research are presented and discussed.

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Keywords: student beliefs; ethnicity; self-concept; motivation; attribution; class climate; self-expectations; New Zealand

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1. Introduction: Student beliefs have previously been shown to influence academic achievement (see Hattie, 2009). Concurrently, the academic outcomes of minority group students are of concern in many countries (e.g., the US, UK, New Zealand, Germany, and the Netherlands). Nevertheless, while student beliefs of a range of constructs, for example motivation, have been explored, very few studies have focused on divergent beliefs of different ethnic groups as possibly contributing to achievement differences. This gap in the literature exists despite findings which suggest that there are strong relationships between students whose self-concept (Marsh & Yeung, 1997), motivation (Brophy, 2004), perceptions of teacher care (Wentzel, 1997), and class climate (Babad, 2009) are positive, and links with successful academic outcomes. Hence, student psycho-social beliefs should become a focus for exploring differences among ethnic groups. The current study investigated student self-concept, motivation, perceptions of class climate and self-expectations to explore for the first time, as far as we can determine, how student beliefs differ across several psycho-social variables, and how beliefs differ by ethnicity.

2. Theoretical Framework: There is a paucity of studies that have explored the psycho-social beliefs of different ethnic groups. Ma and Kishor (1997) showed that the relationship between self-concept and achievement was much stronger for Asian and European students than for African-American and Latino students. Within the broad field of motivation, student attributions for success and failure, and self-regulation, have been investigated by ethnicity. It appears that Asian students attribute their successes more to family than Western students. On the other hand, the attributions of Western students relate to internal causes such as ability (Ng, McClure, Wakely, & Hunt, 1995). In contrast, Japanese and Chinese students have been shown to attribute achievement to controllable causes such as effort, more so than White-Americans (Tuss, Zimmer, & Ho, 1995). In a Norwegian study of self-regulation (Elstad & Turmo, 2010), minority group students reported using learning strategies in science more than Norwegian students. Moreover, in this same Norwegian study, the minority group students reported greater science motivation and better relationships with their teachers than did the majority students. Variations in student perceptions of the class climate have also been examined and found to differ both within and between classes in diverse cultural contexts. In the United States, White and Hispanic-American students have been found to have more positive views of their learning environments than African-American and Asian students (Den Brok, Fisher, Rickards, & Bull, 2006; Levy, Den Brok, Wubbels, & Brekelmans, 2003). In contrast, in the Netherlands, Dutch children have reported less school satisfaction than ethnic minority students (Verkuyten & Thijs, 2002).

3. Purpose of the Study: It appears from the findings of the studies reported above that results have varied and clear understandings about how student beliefs can differ by ethnicity have not yet been established. To some degree this is due to the limited number of studies that have explored psycho-social variables by ethnicity. Where studies have examined ethnic variation, the focus has tended to be on one social construct. An extensive search of the literature suggests that the exploration of student beliefs by ethnicity and across a range of social-psychological variables has not previously been examined. This study aimed to provide a more comprehensive understanding of student beliefs for different ethnic groups by exploring beliefs across a range of psycho-social constructs (self-concept, motivation, perceptions of class climate and self-expectations), taking student ethnicity into account.

4. Research Methods:

4.1 Participants

After gaining ethical approval, 12 elementary schools in a large New Zealand city, agreed that their students could take part in the study. Schools were from all socioeconomic levels. Urban schools in New Zealand are multicultural although schools in higher socioeconomic areas have mostly European and Asian students, and those in poorer areas mostly European, indigenous Maori and Pasifika (students from the Pacific Islands, e.g., Samoa, Fiji, Tonga, Niue). Parental consent and student assent were obtained for 2352 students. Of these 473 were attending schools in low socioeconomic areas, 1359 were in schools in middle income areas and 520 attended schools in high socioeconomic areas. Students were in Year 3 (Grade 2 in the US) ($n = 189$), Year 4 ($n = 436$), Year 5 ($n = 426$), Year 6 ($n = 433$), Year 7 ($n = 417$) and Year 8 ($n = 451$) and the mean age of students was 9.64 years. There were slightly more boys ($n = 1200$) than girls ($n = 1152$). Where more than 10% of data were missing, the students were not included in the analyses and as a consequence and due to absences on the day of administration,

2176 actually completed the questionnaires. Of these students and with regard to the variable of interest, 1013 were New Zealand European, 406 were Maori, 354 were Pasifika, 335 were Asian and 68 were classified as Other.

4.2 Measures

The measures employed in the current study were designed to measure student self-concept, motivation, perceptions of class climate and student self-expectations. Students responded on a 1-5 Likert scale from False to True. Each of these measures will be described below and the internal consistency figures for each subscale for the current sample will be presented.

4.2.1 Student self-concept

The self-concept component of the questionnaire included five subscales from the SDQ-1 (Marsh, 1990): reading ($\alpha=.92$) (e.g., I am good at reading), math ($\alpha=.93$) (e.g., work in math is easy for me), general academic ($\alpha=.89$) (e.g., I do well in all school subjects), peer relations ($\alpha=.77$) (e.g., I have lots of friends), and personal worth ($\alpha=.83$) (e.g., I do lots of important things).

4.2.2 Student motivation

Motivation was measured using several subscales derived from different motivation scales and cited below. Several items in the original scales were adapted for use with elementary school students because they had originally been designed for secondary school students or they were not phrased in terms that corresponded to the anchors for our Likert scale. We wanted to include scales from a range of theoretical positions on motivation and hence the work of several motivation theorists was incorporated into the design of our questionnaire. The scales and item examples were: Perceived competence in mathematics ($\alpha=.74$) (e.g., I am sure that I can do even the hardest work in math this year) and reading ($\alpha=.70$) (e.g., If all the students were listed from worst to best in reading, I would be one of the best) (Wigfield & Eccles, 2002), intrinsic value in mathematics ($\alpha=.79$) (e.g., I like to do work in math a lot) and reading ($\alpha=.75$) (e.g., I find working on reading activities interesting), (Wigfield & Eccles, 2000) mastery goals in mathematics ($\alpha=.82$) (e.g., It's important to me that I improve my skills in math this year) and reading ($\alpha=.84$) (e.g., I really want to learn as much as I can in reading this year) (Cocks & Watt, 2004); self-efficacy in mathematics ($\alpha=.80$) (e.g., I am sure that I can do even the hardest work in math this year) and reading ($\alpha=.77$) (e.g., I am sure that I can learn everything the teacher teaches in reading this year) (Fast et al., 2010); utility value in mathematics ($\alpha=.67$) (e.g., I will use math in many ways when I grow up) and reading ($\alpha=.63$) (e.g., I use reading a lot outside of school) (Wigfield & Eccles, 2000), performance goal orientation in mathematics ($\alpha=.83$) (e.g., I would really like to show that math is easy for me) and reading ($\alpha=.81$) (e.g., I really want to do better than most other students in reading) (Wigfield & Cambria, 2010) and attributions for success ($\alpha=.71$) (e.g., Children succeed at school if they are born brainy) (Dixon, Peterson, Rubie-Davies, Widdowson, & Robertson, 2008).

4.2.3 Student perceptions of class climate

Student perceptions of class climate was assessed using six subscales developed by Rowe, Kim, Kamphaus, and Horne (2010): teacher academic support ($\alpha=.68$) (e.g., My teacher cares about how much I learn) and teacher personal support ($\alpha=.60$) (e.g., My teacher thinks it is important to be my friend), peer academic support ($\alpha=.79$) (e.g., The kids in my class like to help me learn) and peer personal support ($\alpha=.68$) (e.g., In this class, other students care about my feelings), academic competence ($\alpha=.72$) (e.g., I am smart enough to do my schoolwork), and school satisfaction ($\alpha=.87$) (e.g., I look forward to going to school).

4.2.4 Student expectations

The final scale was designed to measure student self-expectations ($\alpha=.81$) (e.g., I expect to do well at school this year) and whether students regarded their teachers' expectations for them as being too high ($\alpha=.81$) (e.g., My teacher gives me work that is much too hard for me to do) (Dixon et al., 2008).

4.3 Procedure

One researcher administered the questionnaire while two research assistants helped students as necessary, answered their questions and ensured that all items to which students wished to respond, had been completed before the questionnaire was collected. For students in Years 3–6, the researcher read all the items to the students while those in Years 7–8 completed the items independently. It took students approximately 40 minutes to complete the questionnaire although this time frame varied by class level, younger students taking longer than older students.

5 Findings: Separate MANOVAs were carried out for each factor. ANOVAs were carried out on the dependent variables if the MANOVA indicated that there were significant differences between ethnic groups in their beliefs. Post-hoc Tukey tests were included to determine where the main effects were. As this meant that 26 separate ANOVAs would be employed, in order to reduce the risk of a Type I error across multiple tests, a Bonferroni adjustment was made such that the significance level for all analyses was set at $p < .002$. Means for all analyses are presented in Table 1. Preliminary assumption testing was conducted for all factors to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted. Space limitations mean that only statistically significant results will be presented below. Further, because there were no statistically significant differences between the Other group and any other group for any of the analyses, this group has been omitted from the means table below, again for reasons of space.

5.1 Self-concept

A MANOVA was used to investigate ethnic differences in student self-concept. Five subscales were included as dependent variables: reading self-concept, mathematics, general academic, peer relations, and personal worth self-concept. There was a statistically significant difference by ethnicity on the combined dependent variables, $F(20, 7151) = 9.69, p < .001$; Wilks' Lambda = .92, partial eta squared = .02. When the results for the dependent variables were considered separately, the only statistically significant differences were for reading, mathematics and peer self-concept. Post hoc tests showed that for reading, the self-concept of European students was significantly greater than that for Maori ($p < .001$). However, for mathematics, the self-concept of Maori, Pasifika and Asian students was significantly greater than that for European students ($p < .001$ for all groups when compared with European). For peer relations, the self-concept of European and Maori students was significantly greater than that for Asian students ($p < .001$ for both groups compared with Asian).

5.2 Student motivation in reading

A MANOVA was employed to examine ethnic differences in student motivation in reading. Six subscales were included as dependent variables: perceived competence, self-efficacy, mastery goals, performance goals, intrinsic value and utility value in reading. There was a statistically significant difference by ethnicity on the combined dependent variables, $F(24, 7557.48) = 4.66, p < .001$; Wilks' Lambda = .95, partial eta squared = .01. When the results for the dependent variables were considered separately, the only statistically significant differences were for perceived competence and utility value in reading. Post hoc tests showed that for perceived competence in reading, the mean for European students was significantly greater than that for Maori ($p < .001$). Further, European students, significantly more than Maori or Pasifika students, viewed reading as having utility value ($p < .001$ for both groups when compared with European).

5.3 Student motivation in mathematics

A MANOVA was performed to explore ethnic differences in student motivation in mathematics. The six subscales included replicated those for reading. There was a statistically significant difference by ethnicity on the combined dependent variables, $F(24, 7553.99) = 7.09, p < .001$; Wilks' Lambda = .93, partial eta squared = .02. When the results for the dependent variables were considered separately, all reached statistical significance at $p < .001$. Post hoc tests showed that for perceived competence in mathematics, the mean for Asian students was significantly greater than that for any other group ($p < .001$ for all groups). For self-efficacy in mathematics, the means for both Pasifika and Asian students were greater than those of European ($p < .001$ for both comparisons). Asian students were more mastery oriented than both European and Maori ($p < .001$ for both comparisons) while Pasifika and Maori students were more performance oriented than European ($p < .001$ for both comparisons). The

means for Maori, Pasifika and Asian groups for intrinsic value in mathematics were greater than for European ($p < .001$ for all comparisons) while, in contrast, the Asian students more so than European, Maori and Pasifika scored higher for utility value in mathematics ($p < .001$ compared to European and Maori, $p < .002$ compared to Pasifika).

5.4 Attribution

An ANOVA was performed to explore ethnic differences in student attribution. There was a statistically significant difference by ethnicity in student perceptions that intelligence was more important than effort in achieving school success, $F(4, 2170) = 12.71, p < .001$. Post hoc tests revealed that Maori and Pasifika students, more than European, attributed success at school to innate intelligence ($p < .001$ for both comparisons).

Table 1 Means and standard deviations for student beliefs (self-concept, motivation in reading and math, attribution, perceptions of class climate and personal expectations) by ethnicity

	European (<i>n</i> = 1006)	Maori (<i>n</i> = 403)	Pasifika (<i>n</i> = 354)	Asian (<i>n</i> = 334)	Total (<i>n</i> = 2165)
Self-concept					
Reading	4.00 (.91)	3.77 (.97)	3.90 (.85)	3.91 (.85)	3.92 (.91)
Math	3.48 (1.06)	3.72 (1.02)	3.76 (.95)	3.96 (.97)	3.67 (1.04)
General academic	3.59 (.83)	3.65 (.85)	3.71 (.78)	3.76 (.81)	3.65 (.82)
Peer relations	3.66 (.86)	3.73 (.86)	3.63 (.83)	3.39 (.85)	3.63 (.86)
Personal worth	3.95 (.69)	3.93 (.75)	3.93 (.69)	3.89 (.70)	3.93 (.70)
	European (<i>n</i> = 1013)	Maori (<i>n</i> = 406)	Pasifika (<i>n</i> = 354)	Asian (<i>n</i> = 335)	Total (<i>n</i> = 2176)
Reading motivation					
Perceived competence	3.74 (.93)	3.47 (.94)	3.50 (.86)	3.56 (.85)	3.61 (.92)
Self-efficacy	4.01 (.84)	3.90 (.88)	3.91 (.82)	3.91 (.81)	3.96 (.84)
Mastery goals	4.26 (.81)	4.27 (.83)	4.27 (.78)	4.36 (.70)	4.46 (.63)
Performance goals	3.63 (.96)	3.62 (.93)	3.63 (.92)	3.49 (.96)	3.61 (.95)
Intrinsic value	3.73 (.96)	3.64 (1.04)	3.77 (.93)	3.74 (.92)	3.72 (.96)
Utility value	4.03 (.91)	3.83 (.93)	3.92 (.86)	4.05 (.79)	3.98 (.88)
	European (<i>n</i> = 1013)	Maori (<i>n</i> = 406)	Pasifika (<i>n</i> = 354)	Asian (<i>n</i> = 334)	Total (<i>n</i> = 2175)
Math motivation					
Perceived competence	3.30 (1.03)	3.44 (.96)	3.40 (.94)	3.79 (.93)	3.43 (1.00)
Self-efficacy	3.69 (.95)	3.86 (.88)	3.91 (.84)	4.10 (.84)	3.83 (.91)
Mastery goals	4.24 (.83)	4.28 (.77)	4.30 (.75)	4.51 (.69)	4.31 (.79)
Performance goals	3.47 (1.01)	3.73 (.94)	3.70 (.96)	3.68 (.99)	3.60 (.99)
Intrinsic value	3.37 (1.11)	3.66 (1.02)	3.78 (.97)	3.87 (1.03)	3.78 (.97)
Utility value	3.80 (.95)	3.89 (.95)	3.97 (.88)	4.23 (.82)	3.92 (.93)
	European (<i>n</i> = 1013)	Maori (<i>n</i> = 406)	Pasifika (<i>n</i> = 354)	Asian (<i>n</i> = 334)	Total (<i>n</i> = 2175)
Motivation					
Attribution	3.02 (1.11)	3.36 (1.08)	3.44 (1.07)	3.13 (1.10)	3.18 (1.11)
	European (<i>n</i> = 1002)	Maori (<i>n</i> = 399)	Pasifika (<i>n</i> = 354)	Asian (<i>n</i> = 332)	Total (<i>n</i> = 2155)
Class climate					
Teacher academic support	4.36 (.70)	4.34 (.75)	4.35 (.76)	4.32 (.67)	4.35 (.72)
Teacher personal support	3.94 (.86)	3.87 (.85)	3.84 (.96)	3.93 (.77)	3.91 (.87)
Peer academic support	3.31 (.98)	3.41 (.99)	3.55 (1.02)	3.28 (.90)	3.36 (.99)
Peer personal support	3.71 (.87)	3.71 (.87)	3.66 (.85)	3.70 (.82)	3.70 (.86)
Academic competence	3.87 (.85)	3.85 (.87)	3.78 (.84)	3.98 (.81)	3.87 (.85)
Satisfaction with school	3.95 (.94)	4.11 (.96)	4.25 (.86)	4.28 (.76)	4.09 (.91)
	European (<i>n</i> = 1006)	Maori (<i>n</i> = 405)	Pasifika (<i>n</i> = 354)	Asian (<i>n</i> = 334)	Total (<i>n</i> = 2167)
Expectations					
Personal expectations	3.85 (.70)	3.89 (.71)	3.93 (.69)	3.94 (.69)	3.89 (.70)
Too high expectations	2.78 (.90)	3.09 (.84)	3.20 (.79)	2.70 (.84)	2.90 (.88)

Note: Standard deviations are in parentheses. Totals include the Other group.

5.5 Class climate

A MANOVA was employed to examine ethnic differences in perceptions of the class climate. Six subscales were included as dependent variables: teacher academic support, teacher personal support, peer academic support, peer personal support, academic competence and satisfaction with school. There was a statistically significant difference by ethnicity on the combined dependent variables, $F(24, 7484.22) = 5.52, p < .001$; Wilks' Lambda = .94, partial eta squared = .02. When the results for the dependent variables were considered separately, there were statistically significant differences for perceptions of peer academic support and satisfaction with school. Post hoc tests showed that Pasifika students perceived higher levels of peer academic support than European students ($p < .001$) and together with Asian students were more satisfied with school than were European students (both $p < .001$).

5.6 Self-expectations

A MANOVA was used to explore ethnic differences in self-expectations. Two subscales were included as dependent variables: personal expectations for success and perceptions that teacher expectations were too high. There was a statistically significant difference by ethnicity on the combined dependent variables, $F(8, 4322) = 13.77, p < .001$; Wilks' Lambda = .95, partial eta squared = .03. When the results for the dependent variables were considered separately, only the perception that teachers' expectations were too high reached statistical significance ($p < .001$). Post hoc tests showed that both Maori and Pasifika students perceived that their teachers' expectations were too high, more so than European and Asian students ($p < .001$ for all comparisons).

6. Conclusions: The current study investigated student perceptions of self-concept, motivation in reading and mathematics, attribution, class climate and self-expectations by ethnicity. European students were more positive overall than Maori for measures related to reading (self-concept, perceived competence) and had more positive beliefs than Maori and Pasifika in relation to the utility value of reading. This is perhaps not surprising given that European students generally outperform Maori and Pasifika students in reading (Hattie, 2008). Interestingly, European students were more negative in their mathematics beliefs when compared with the other three groups. Their mathematics self-concept and beliefs about the intrinsic value of mathematics were more negative than those of all other groups. Other studies have found the majority White group to have more negative perceptions of some psycho-social variables than a minority group (Elstad & Turmo, 2010; Verkuyten & Thijs, 2002). It may be that whereas European students were historically the most successful group academically (compared to Maori and Pasifika), since the influx of Asian groups into some large cities in New Zealand over the last decade (now approximately 25% of the population in some areas), European students are now performing less well comparatively, especially in mathematics. This may explain their more negative views although to our knowledge no other research has examined variations in self-concept between European and Asian students in New Zealand and so this is an area that needs further exploration. European students also had more negative perceptions of the class climate when compared with other groups which replicates findings in the Dutch context (Verkuyten & Thijs, 2002) but not those in the US (Den Brok et al., 2006). European students perceived less peer academic support than Pasifika students and were less satisfied with school than both Pasifika and Asian students.

Conversely, Asian students' beliefs were more positive overall than those of other groups. The only scale where their perceptions were more negative than those of other groups was in peer relations self-concept; Asian students' beliefs were more negative than those of European and Maori students. Especially in mathematics, Asian students had very positive views. Besides the differences mentioned above in relation to European students, Asians also had more positive views than all other groups in relation to their perceived competence in mathematics and utility value of mathematics. Along with Pasifika, Asian students had higher self-efficacy in mathematics than European and were more mastery oriented than European and Maori students. Asian students have been called the 'model minority' (Wong, Lai, Nagasawa, & Lin, 1998) and this study has shown they have very positive views across a range of psychosocial variables, but while they are doing well academically, perhaps their peer relationships are not so positive. It was an interesting finding that the only variable on which they rated themselves more

negatively than any other group was on peer relations self-concept. Future studies could more closely examine the friendships of Asian students at elementary school.

A further unexpected finding was that Maori and Pasifika students were more performance oriented and believed, more than did European students, that being successful in school was due more to ability than to effort. Further, more than European and Asian students, Maori and Pasifika students considered that teacher expectations of them were too high. These findings are thought-provoking given that Maori and Pasifika students are from collectivist cultures where we might have expected less performance oriented views. In studies, in the US, for example, African American students have been found to be less performance oriented than white students and this has been attributed to their coming from a collectivist culture (Freeman, Gutman, & Midgley, 2002). As very little research has been carried out regarding Maori and Pasifika students' self-perceptions and beliefs about schooling (see Rubie, Townsend, & Moore, 2004 for one exception), this is an area that warrants future investigation.

The current study has contributed important understandings to the scant body of research which has investigated student beliefs about several psychosocial variables by ethnicity. Beliefs are powerful in contributing to student success at school (Marsh & Yeung, 1997) and yet exploring student perceptions, especially across several constructs and by ethnicity, is a neglected area of research. Additional studies that also explore multiple constructs will enable researchers to begin to form understandings about the interrelationships of psycho-social variables and relations with achievement. Moreover, the variations in beliefs by ethnicity found in this study point to a need for teachers to more closely consider ethnic variation when they plan, for example, to try to enhance student self-concept. This does not appear to be necessary for all students, particularly in some areas of their academic self-concept. Studies such as the current one show that, just as students differ in their academic achievement, so they differ in their self-beliefs, and in the same way that academic instruction is individualized, perhaps there is a need for a more focused response when teachers try to alter students' beliefs. Further, the dissimilarity in student beliefs even within the motivation subscales, shows that consideration needs to be given to exactly what is being measured. That some groups were found to have positive beliefs in one subscale of motivation yet negative in another, is an interesting finding in itself. This study paves the way for future exciting research that will add to the body of knowledge about student beliefs - what they believe and how beliefs can differ from student to student and from one psychosocial construct to another.

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