Asia-Pacific Edu Res (2018) 27(3):245–255
https://doi.org/10.1007/s40299-018-0383-4

REGULAR ARTICLE

Motivational Strategies of University Students in New Zealand: The Role of Ethnicity

Farzad Radmehr[1] · Hon Luamanuvao Winnie Laban[2] · John Overton[2] · Leon Bakker[2]

Published online: 17 April 2018

Abstract This study explores motivational strategies of university student from five different main ethnic groups in New Zealand (NZ). To explore students' motivational strategies, a self-administered questionnaire was adapted. The study sample included 1854 students from a NZ university who participated in the survey. The findings showed that there were significant differences in the motivational strategies of Pasifika, Asian, and pākeha (NZ European) students. For instance, Pasifika and Asian students were more inclined to be motivated by extrinsic factors, such as the desire to satisfy familial expectations, than Māori or pākeha students. We argue that tertiary institutions should be aware of these complex ethnic dimensions to student motivation and learning, and promote relevant professional training concerning the differences between ethnic groups.

Keywords Ethnicity · Māori · Motivational strategies · Pasifika · Tertiary education

✉ Farzad Radmehr
f.radmehr@um.ac.ir; f.radmehr65@gmail.com

Hon Luamanuvao Winnie Laban
Winnie.Laban@vuw.ac.nz

John Overton
John.overton@vuw.ac.nz

Leon Bakker
leon.bakker@vuw.ac.nz

[1] Department of Applied Mathematics, Ferdowsi University of Mashhad, Mashhad, Iran

[2] Victoria University of Wellington, Wellington, New Zealand

Introduction

Learning is more than information-processing and factors such as motivation and context have significant impacts on student learning (Heikkilä et al. 2011). Furthermore, different types of motivation have different influences on student learning (Chang 2015). For example, learning that is motivated by extrinsic motivations is found to be more superficial and narrowly focused on assessment, whereas learning that is motivated by intrinsic motivations is found to be more concerned with mastering the learning task and developing a profound understanding of the content (Vansteenkiste et al. 2006).

The importance of culture in the motivation of students has attracted much attention over the past three decades. In the last decade, in particular, there has been more recognition of the importance of culture in shaping students' motivation (King and McInerney 2014, 2016). The majority of motivational studies have been conducted in Western educational contexts (King and McInerney 2016). Classrooms there nowadays are more culturally and ethnically diverse and consequently more attention is now paid to the motivational processes of non-white students (Zusho and Clayton 2011). Yet as far back as 1992, McInerney observed that deficit frames have been used erroneously to explain the poor educational performances of the children of minority ethnic groups (McInerney 1992). Recent research has attempted to explain differential performance in terms of cultural dimensions of motivation.

In general, three metatheoretical approaches are recognised in studying motivation across cultures: absolutist, relativist, and universalist (Zusho and Clayton 2011). Absolutists argue that motivational processes are culturally invariant (King and McInerney 2016) and relativists hold

the view that psychological processes should be studied in their local context based on indigenous and local frames of reference (King and McInerney 2014). The universalist perspective, however, acknowledges there are two motivational psychological processes: etic (culturally universal) and emic (culturally specific) (King and McInerney 2016). The etic refers to the belief that "there are certain basic psychological processes that are universal" (King and McInerney 2014, p. 177), and emic refers to the belief that culturally specific beliefs and practices might affect psychological processes (Meissel and Rubie-Davies 2016). Much has been learned, particularly from the universalist approach. Culture does indeed affect the motivation and performance of students in educational institutions. In a study of Aboriginal primary school students in Australia, for example, it was concluded that "cultural perspectives are salient predictors of academic engagement" (Mooney et al. 2016, p. 21). Cross-cultural psychologists, such as McInerney, have been at the forefront of developing understandings of the psychology of motivation in education and its cultural dimensions (McInerney and van Etten 2001, 2002; McInerney et al. 2011; King and McInerney 2014, 2016).

However, despite this large body of literature, there are aspects where we still lack detailed research, particularly when we examine different cross-cultural contexts, such as in New Zealand (NZ). There is a tendency to see students from dominant, largely white, cultures as being significantly different from non-Western students (for example, Ali et al. 2014) and to categorise like-cultures together. In this research in NZ, for example, we are especially interested in how the motivations and performance of Māori and Pasifika students (often lumped together both in terms of data collection and institutional systems) might differ from one another, as well as from other cultural groups. We also see particular value in exploring and extending the literature on motivational strategies, considering aspects such as contrasts between extrinsic and intrinsic motivations (Ryan and Deci 2000; Nasser and McInerney 2016) and internal and external attributions of behaviour (Mkumbo and Amani 2012).

This study explored the motivations of a large sample of students from different ethnic backgrounds in a NZ university by adopting a universalist approach in studying motivation across cultures. NZ has four main ethnic groups, including people of mainly European descent (74% of the total population), Māori[1] (15%), Asian (12%), and Pasifika[2] (7%)[3] (Statistics New Zealand 2015). In NZ there is social, economic, and political inequality between Europeans and Māori (Bishop et al. 2012) and Europeans and Pasifika (Marriott and Sim 2014). In addition, there are marked educational disparities between Europeans, Māori and Pasifika students. For example, it has been reported that Māori (10.3%) and Pasifika (14.3%) had lower rates of bachelor's level tertiary qualification completion compared to Europeans (20.4%) (Ministry of Education 2016).

There is a lack of research about the motivational strategies of different ethnic groups of students in tertiary education in NZ, although previous international studies have noted that ethnicity is one of the factors that impact student engagement (King and McInerney 2014, 2016; Klassen 2004). Conducting such cross-cultural studies is important to investigate the importance of culture and ethnicity in relation to student motivation and performance. This study contributes to the literature on the differences between five of the main ethnic groups in NZ. Previous studies (e.g. Marriott and Sim 2014) compared the differences between main ethnic groups in NZ in areas such as health, schools, and university academic achievement and employment. However, to date, motivational strategies of university students of different ethnic groups have not been compared, although a few studies have been conducted on the motivational strategies of these ethnic groups separately, for example, for Māori (Tassell et al. 2010) and for Pasifika (Benseman et al. 2006).

This study explores the motivational strategies of NZ Europeans (pākeha), non-NZ Europeans,[4] Asians, Māori, and Pasifika students at a NZ university. In doing so, it uses self-identified ethnicity as a proxy for cultural differences. We acknowledge that the cultural group that students choose to identify themselves with is an imperfect indicator of actual cultural characteristics but, for a broad-based survey such as that used here, it is the only available measure for cultural dimensions. The research question of this study is *what are the differences in the motivational strategies between university students from the different ethnic groups?* Thus, in effect, we are examining the relationships between self-identified ethnicity and motivational strategies and making inferences regarding broader cultural context and differences.

[1] The indigenous Polynesian people of New Zealand.

[2] People whose ancestors are from Polynesian, Melanesian, and Micronesian islands of the Pacific Ocean.

[3] The percentages do not add up to 100 % as people could report more than one ethnic group as their ethnicity (e.g. Māori/Pasifika).

[4] In this study, non-NZ Europeans considered as an ethnic group and not merged with NZ Europeans because their cultural background is different from pākeha who have been raised and educated in New Zealand.

Motivational Strategies

Motivational strategies have several components and a number of classifications have been proposed for this concept (e.g. Gargallo et al. 2009). In this study, a recent classification proposed by Gargallo et al. (2009) that incorporated previous classifications is considered both for identifying the components of motivational strategies and also for designing the instrument of the study. In this classification, motivational strategies have seven components. In this section, the relevant literature in relation to these components is described.

Intrinsic and Extrinsic Motivations

Intrinsic motivations refer to doing "an activity for its inherent satisfactions" (Ryan and Deci 2000, p. 56), while extrinsic motivations refer to doing an activity because of its instrumental value and to achieve a separable outcome (Ryan and Deci 2000). Previous research highlighted findings that students who are intrinsically motivated have a higher level of academic achievement (e.g. Areepattamannil et al. 2011), persistence (e.g. Vansteenkiste et al. 2006), and a lower level of academic anxiety (Khalaila 2015). In contrast, extrinsically motivated students are found to be engaged in surface learning (e.g. Walker et al. 2006) and consequently more likely to have a lower academic achievement (e.g. Becker et al. 2010). Intrinsic motivations were preferred over extrinsic motivations due to the direct association with psychological well-being (Ryan and Deci 2000; Baygi et al. 2017; Brahm et al. 2017).

Internal and External Attribution

Attribution refers to the process of assigning causes to behaviours of ourselves or others. In general, individuals attribute the causes of behaviours to internal or external factors (Mkumbo and Amani 2012). Internal attribution refers to the "causes that are associated with the person's innate characteristics" (Mkumbo and Amani 2012, p. 247), while external attribution refers to the "causes that are external to the person" (Mkumbo and Amani 2012, p. 247). The main four causes of achievement outcomes are *ability*, *effort*, *task difficulty*, and *luck* (Weiner 2010). *Ability* and *effort* are among the internal attributions, while *task difficulty* and *luck* are part of the external attributions (Weiner 2010). Individuals' perceptions of the causal structure of the environment are one of the main sources of motivation (Weiner 2010). Individuals attribute their success or failure to factors that help them to feel good about themselves (Weiner 2010). Consequently, people attribute their success to internal factors and their failure to external factors (Mkumbo and Amani 2012). In an educational context, students often attribute their success at examination to internal factors (e.g. efforts or abilities) and their failure to external factors (e.g. not receiving good teaching or a lack of teaching or learning facilities) (Mkumbo and Amani 2012). These attributions are important as they impact on how much time and effort students allocate to their study.

Task-Value Beliefs

Task-value beliefs refer to beliefs about reasons for engaging with a task (Senler and Sungur 2009). Four components were suggested for this notion, including *intrinsic value*, *attainment value*, *utility value*, and *cost* (Eccles and Wigfield 2002; Senler and Sungur 2009). Task value is an important part of the expectancy-value model of achievement (see Eccles and Wigfield 2002). In this model, individuals' expectancies, "beliefs about how well they will perform on upcoming tasks" (Senler and Sungur 2009, p. 107) and task-value beliefs are found to directly influence performance, task choice, and persistence (Eccles and Wigfield 2002). In particular, task-value beliefs have more influence on task choice, while expectancies have more influence on performance and persistence (Hagemeier and Murawski 2014).

Self-Efficacy and Expectations

Self-efficacy refers to the belief "in one's capabilities to organise and execute the courses of action required to produce given attainments" (Bandura 1997, p. 3). Individuals with different levels of self-efficacy perceive their abilities differently therefore responding to the environment and tasks in different ways (Fenning and May 2013). Self-efficacy beliefs assist individuals to determine their choices and the amount of effort they need to put into different tasks (Usher and Pajares 2008). It helps them to understand how much perseverance is required when dealing with tasks that have different levels of difficulty (Usher and Pajares 2008). Self-efficacy is more likely to increase during skill development, and also when individuals overcome an obstacle or succeed in a challenging task. Furthermore, when facing failure, self-efficacy may decrease if much effort has been made during the task (Bandura 1997; Usher and Pajares 2008).

Bandura (1997) suggested that "cultural values and practices affect how efficacy beliefs are developed" (p. 32). This claim has been supported by several cross-cultural studies. For instance, Klassen (2004) reported that the source of self-efficacy was different for Indo-Canadian secondary students, whose culture is influenced by

collectivism, and Anglo-Canadian students, whose culture is more influenced by individualism. In educational research, self-efficacy was found to be one of the predictors of students' academic achievement in different levels (Fenning and May 2013). Students with high confidence in their abilities monitor their work more effectively, solve problems more efficiently, and have more persistence compared to students with low self-efficacy (Usher and Pajares 2008).

Conception of Intelligence as Being Modifiable

Several researchers believe that intelligence is modifiable to some degree; however, no consensus has been achieved on the degree of its modifiability (Sternberg 2014). One aspect of motivation is beliefs about the nature of intelligence (Sternberg et al. 2011). Previous studies found that people have two different views about their intelligence: intelligence is fixed (an entity theory of intelligence); or intelligence is modifiable (Carr and Dweck 2011). Individuals who believe that intelligence is modifiable are more likely to put effort into improving their skills compared to others as they believe intellectual skills can be improved (Sternberg et al. 2011).

From this review, we have seen that, not only are there recognised factors and characteristics that motivate learning but also that these may not apply evenly to all ethnic groups. We have drawn on these characteristics to design our research tool, and in the following sections seek to identify any differences in the way various ethnic groups perceive effective university teaching.

Method

This cross-cultural study involves survey research (Fink 2010), exploring the differences between motivational strategies of university students from different ethnic groups. In this section, we outline how the participants were selected and their demographic characteristics before describing the study instrument.

Participants

All students of a NZ university were invited to participate in this study via email in November 2016. After sending the first email to a total of approximately 20,000 students on the university database, three email reminders were sent, with each reminder occurring approximately at weekly intervals. Ultimately, 1854 students completed the survey, including 965 pākeha, 358 Asian, 214 non-NZ European, 163 Māori, and 154 Pasifika students.

Instrument

To explore students' motivational strategies, a self-administered questionnaire designed by Gargallo et al. (2009) was adapted. This questionnaire explores learning strategies of university students in two scales: (a) affective, support, and control strategies and (b) information processing-related strategies. Motivational strategies are part of the first scale. To explore students' motivational strategies, 20 items were used. For each item, students indicated to what degree they agreed with the statement on a scale of 1 (totally disagree) to 10 (totally agree).

Three types of bias have been recognised in cross-cultural studies, including construct, method, and item bias (van de Vijver and Tanzer 2004; He and van de Vijver 2012). Construct bias happens if the construct explored in a study is not identical across cultural groups (van de Vijver and Tanzer 2004). Method bias refers to "nuisance factors that derive from the sampling, structural features of the instrument, or administration processes" (He and van de Vijver 2012, p. 5). Finally, item bias happens when an item "has a different meaning across cultures" (He and van de Vijver 2012, p. 7).

To adapt the instrument for the NZ ethnic context and to address the issue that Western questionnaires might not be perceived in the same way by students from different ethnic groups (e.g. van de Vijver and Tanzer 2004; He and van de Vijver 2012), four focus group interviews were conducted with 10 Māori, Asian, and Pasifika students. In these interviews, led by the first author, the questionnaire items were given to students and they discussed what they perceived by these questions. In a few cases, students suggested some changes to the wording of the items to make them more understandable for their ethnic groups. However, in the results, students did not show any major difference in their perceptions as the participants in this study were selected using convenience sampling, and because social desirability could impact student responses, care should be taken in generalisation the findings (He and van de Vijver 2012).

To explore the reliability of the instrument, the Cronbach's α (1951), a measure of internal consistency showing to what degree a set of items related to each other as a group, was calculated. Cronbach's α was 0.787 which is in the acceptable range. Furthermore, the invariance test was conducted for the total sample, and each ethnic group separately. The constructive reliability for the total sample was 0.850 and for the five ethnic groups were between 0.804 and 0.856 (i.e. NZ Europeans: 0.826, non-NZ Europeans: 0.839, Asians: 0.859, Māori: 0.804, and Pasifika: 0.856) indicating the questionnaire measured the same things across the five ethnic groups.

To identify ethnic groups of participants, their enrolment information in the university (i.e. self-identified ethnicity) was used. Again, care should be taken in interpreting the results of this study as self-identified ethnicity might not be the same as actual cultural dimensions relating to ethnicities.

During enrolment, students could identify up to three ethnic groups (Ethnicity 1, 2, and 3) for themselves. This ethnic information was then aggregated by the university to a single ethnic group for each student to facilitate analysis across students' ethnicity. The latter ethnic information is used in this study. This ethnic information, then, is based on self-identification of ethnicity, and not tied to where students were born. For instance, the Asian ethnic category comprises Asian students who were born in NZ and overseas. In addition, to separate students who were enrolled in STEM and non-STEM subjects, the following question was used:

(1) Is one of your degrees related to STEM (Science, Technology, Engineering, and Mathematics)?	Yes	No

Data Analysis

Data obtained were analysed using SPSS version 23. The distribution of students' responses to the questionnaire was not normal between the five ethnic groups. Therefore, a non-parametric test, the Kruskal–Wallis test (1952), was used to explore the differences between the motivational strategies of the five ethnic groups. The Kruskal–Wallis test is a non-parametric test which explores the differences between three or more independent groups on a continuous/ordinal dependent variable. When using this test, because the dependent variable does not meet the normality assumptions, the ranks between the independent groups are compared. The Kruskal–Wallis test only shows that at least two *independent* groups are significantly different on the dependent variable. To identify which specific groups are significantly different from others, a post hoc test should be used. In this study, the Dunn–Bonferroni test (Dunn 1964) was conducted. This test compares pairs of groups using rankings formed and based on data of all groups.

Results

The results of the Kruskal–Wallis test (Table 1) for STEM students showed that for 10 out of the 20 items of the survey, there were significant differences between the motivational strategies of students from the 5 ethnic groups. For non-STEM students, a significant difference between the 5 ethnic groups was found for 14 items. The results of the post hoc analysis for each item are provided in Table 2. By comparing the results of STEM and non-STEM subjects, we readily perceive that motivational strategies were more dependent on students' ethnicity within non-STEM subjects as 40 differences between two ethnic groups were found within non-STEM subjects, while 30 were found within STEM subjects (Table 2). Looking at the seven aspects of motivational strategies, there was a big difference between the number of significant differences found within STEM and non-STEM subjects for internal attributions and self-efficacy and expectation. The post hoc analyses indicated that there were no significant differences between the motivational strategies of NZ European and Māori within both STEM and non-STEM students. In addition, only two significant differences between the motivational strategies of Māori and non-NZ Europeans were found; both were for non-STEM students and related to items of *self-efficacy and expectations*. In relation to the differences between the motivational strategies of NZ Europeans and non-NZ Europeans, only one difference was found within non-STEM students in an item of *self-efficacy and expectations*.

While the number of differences between the motivational strategies of Māori and the two European ethnic groups was limited, there were several significant differences between motivational strategies of Pasifika and Asian students compared to NZ Europeans and non-NZ Europeans. Specifically, the motivational strategies of Pasifika students were significantly different from NZ Europeans and non-NZ Europeans in 12 items. Furthermore, the motivational strategies of Asians were significantly different from NZ Europeans in 13 items and from non-NZ Europeans in 12 items. Motivational strategies of Pasifika and Asians were significantly different in only four items. In terms of the differences in the motivational strategies of Māori compared to Asian and Pasifika students, eight significant differences between Māori and Asian, and six significant differences between Māori and Pasifika students were found. Of the six significant differences in the motivational strategies of Māori and Pasifika students, five were related to extrinsic motivation.

Discussion

This study confirms the results of international studies that indicated ethnicity is one of the factors that affect student motivational strategies (e.g. King and McInerney 2014, 2016; MacLeod et al. 2017; Klassen 2004). The study findings contributed to the existing literature by

Table 1 The Kruskal–Wallis test results

Categories	Items	Mean rank					$X^2(4)$	Effect size	*P* values
		NZ Europeans	Non-NZ Europeans	Asians	Māori	Pasifika			
Intrinsic motivation	(1) What I'm most excited about is understanding course content really well								
	STEM	365.96	415.42	404.82	372.78	431.23	8.702	0.068	0.069
	Non-STEM	518.95	574.82	591.77	580.56	566.23	11.346	0.078	0.023*
	(2) Meaningful learning at university is important to me								
	STEM	374.37	413.26	377.73	388.73	429.26	5.092	0.052	0.278
	Non-STEM	543.92	531.74	546.26	618.86	529.13	6.454	0.059	0.168
	(3) I study because I'm interested in learning								
	STEM	386.73	412.70	367.89	371.69	379.11	2.995	0.04	0.559
	Non-STEM	558.90	598.75	498.07	570.41	525.66	10.277	0.074	0.036*
Extrinsic motivation	(4) I study to not let down my family or the people who matter to me								
	STEM	354.82	305.83	497.75	325.88	535.23	86.766	0.216	< 0.001*
	Non-STEM	487.36	442.06	684.89	488.22	778.24	132.892	0.267	< 0.001*
	(5) I need other people to encourage me to study—my parents, friends, lecturers, etc.								
	STEM	357.13	315.33	502.23	358.54	442.03	63.155	0.184	< 0.001*
	Non-STEM	513.17	490.13	623.36	498.28	703.73	51.090	0.165	< 0.001*
	(6) I study to gain a qualification in order to get a job								
	STEM	368.13	338.18	441.18	352.33	494.88	30.580	0.128	< 0.001*
	Non-STEM	510.00	486.27	605.24	548.50	710.71	48.173	0.161	< 0.001*
Task values	(7) What I learn in some course subjects can be used in other courses and also with my future job								
	STEM	384.31	392.24	364.84	378.79	443.93	5.067	0.052	0.281
	Non-STEM	517.01	575.16	538.82	594.96	668.69	24.845	0.115	< 0.001*
	(8) It is important that I learn the course subjects because they are important for my future job								
	STEM	356.83	364.36	444.13	348.24	527.64	40.756	0.148	< 0.001*
	Non-STEM	497.68	506.08	637.31	577.86	662.37	48.549	0.161	< 0.001*
	(9) Learning the course subjects in this academic year is useful for me								
	STEM	367.47	381.75	410.61	388.32	454.97	9.673	0.072	0.046*
	Non-STEM	529.40	499.43	568.40	606.75	608.17	13.143	0.084	0.011*
	(10) It is important to understand the contents of the course subjects								
	STEM	371.86	401.04	399.60	368.03	435.26	5.843	0.056	0.211
	Non-STEM	538.23	545.29	540.00	596.07	581.50	4.528	0.049	0.339
Internal attributions	(11) My academic performance depends on my efforts								
	STEM	372.51	407.57	372.76	372.55	467.70	10.573	0.076	0.032*
	Non-STEM	536.02	548.10	516.25	572.67	614.84	8.699	0.068	0.069
	(12) My academic performance depends on my capability								
	STEM	370.92	387.66	420.91	326.37	433.93	12.518	0.082	0.014*
	Non-STEM	535.07	541.16	567.67	542.34	554.47	1.822	0.031	0.768
	(13) My academic performance depends on my organisational skills								
	STEM	375.04	375.88	384.56	370.28	482.37	11.056	0.077	0.026*
	Non-STEM	529.74	522.01	527.09	606.42	620.70	13.008	0.084	0.011*
External attributions	(14) My academic performance depends on luck								
	STEM	376.64	343.08	489.09	299.28	309.26	53.178	0.169	< 0.001*
	Non-STEM	519.02	529.18	690.22	448.28	501.20	61.894	0.183	< 0.001*
	(15) My academic performance depends on my lecturers, tutors, and mentors								
	STEM	374.28	365.76	425.17	374.96	381.22	6.952	0.061	0.138
	Non-STEM	540.78	564.24	532.05	558.23	555.45	1.186	0.025	0.880

Table 1 continued

Categories	Items	Mean rank					$X^2(4)$	Effect size	*P* values
		NZ Europeans	Non-NZ Europeans	Asians	Māori	Pasifika			
Self-efficacy and expectations	(16) I am able to learn the basic ideas taught in my courses								
	STEM	405.76	387.88	314.72	386.53	396.87	20.318	0.105	< 0.001*
	Non-STEM	579.00	597.70	458.19	549.48	471.70	33.470	0.134	< 0.001*
	(17) I am confident that I will understand the most difficult content in my courses								
	STEM	383.41	400.05	375.68	372.56	385.62	0.954	0.023	0.917
	Non-STEM	551.15	631.13	548.20	468.64	486.78	18.483	0.1	0.001*
	(18) I will complete the goals I set for myself for my studies								
	STEM	374.90	402.24	387.71	348.88	443.10	6.619	0.06	0.157
	Non-STEM	525.79	585.43	562.53	558.34	553.28	4.928	0.052	0.295
	(19) I am able to master the content taught in my courses								
	STEM	380.57	425.83	373.14	343.83	396.02	6.546	0.059	0.162
	Non-STEM	552.38	645.40	532.74	482.00	483.20	20.398	0.105	< 0.001*
Conception of intelligence as being modifiable	(20) Intelligence can be increased by making efforts in studying								
	STEM	370.50	399.75	387.96	373.58	453.61	7.414	0.063	0.116
	Non-STEM	512.51	567.35	541.50	601.46	642.61	20.782	0.106	< 0.001*

exploring motivational strategies of university students in a context that previous studies have not focused on.

In some NZ universities, academic and pastoral support for Māori and Pasifika students are offered together. However, the study findings suggest that Pasifika and Māori students should not be considered as part of the same group requiring a single approach for a seemingly homogenous Māori/Pasifika category of students. Motivational strategies of Pasifika students were significantly different from Māori for several items. Furthermore, the results showed that the motivational strategies of Pasifika students were significantly different from NZ Europeans and non-NZ Europeans. Interestingly, there was no significant difference between motivational strategies of Māori and pākeha.

Of the seven aspects of motivational strategies discussed in the "Motivational Strategies" section, five positively (intrinsic motivation, task value, internal attribution, self-efficacy and expectation, and conception of intelligence as being modifiable) and two negatively (extrinsic motivation and external attribution) impact on student learning. For the items where significant differences between motivational strategies of students were found, Pasifika students obtained the highest rank of the five ethnic groups in items of task value, internal attribution, and conception of intelligence as being modifiable. These findings sound promising, suggesting that the reason Pasifika students under-perform at the level of the main stream university students (Ministry of Education 2016) are not related to these three factors being perceived as lower than others. However, their self-efficacy within non-STEM subjects was lower compared to NZ Europeans in one item, and was lower compared to non-NZ Europeans on three items. This might be due to their lower performance compared to European university students. Pasifika students compared to Māori, NZ Europeans, and non-NZ Europeans were significantly more extrinsically motivated while their intrinsic motivation was not significantly higher/lower than the other ethnic groups. As a consequence of having a higher extrinsic motivation, Pasifika students may be more likely to be engaged in surface learning and have lower academic achievement compared to the other three ethnic groups; previous studies noted the association between extrinsic motivation, surface learning and having lower academic achievement (Walker et al. 2006; Becker et al. 2010). Academic and professional staff who are dealing with Pasifika students should be aware of this difference and work to ensure that these students experience meaningful learning.

A reason that Pasifika students are more extrinsically motivated than Māori and Europeans might be related to their orientation towards collectivism. We should be careful when correlating ethnicity and collectivism/individualism with motivation. For example, Shulruf et al. (2010) reported on a study where: "The mean scores on both Collectivism and Individualism of the Chinese sample were lower than those of the European New Zealander" and "this result does not indicate which population is more collectivist or individualist than the other" (p. 1119). Yet, using a cluster analysis technique they reported that 41% of

Table 2 Post hoc comparisons for the Kruskal–Wallis tests

Items*	NZE–M	NZE–P	NZE–A	NZE–NNZE	M–P	M–A	M–NNZE	P–A	P–NNZE	A–NNZE
1										
Non-STEM	0.625	1	0.038*	0.886	1	1	1	1	1	1
3										
Non-STEM	1	1	0.143	1	1	0.488	1	1	0.839	0.058
4										
STEM	1	< 0.001*	< 0.001*	0.423	< 0.001*	< 0.001*	1	1	< 0.001*	< 0.001*
Non-STEM	1	< 0.001*	< 0.001*	1	< 0.001*	< 0.001*	1	0.131	< 0.001*	< 0.001*
5										
STEM	1	0.110	< 0.001*	0.827	0.495	< 0.001*	1	0.978	0.009*	< 0.001*
Non-STEM	1	< 0.001*	< 0.001*	1	< 0.001*	0.008*	1	0.323	< 0.001*	0.003*
6										
STEM	1	0.001*	0.005*	1	0.007*	0.081	1	1	< 0.001*	0.002*
Non-STEM	1	< 0.001*	0.002*	1	0.002*	1	1	0.047*	< 0.001*	0.013*
7										
Non-STEM	0.179	< 0.001*	1	0.750	0.851	1	1	0.005*	0.282	1
8										
STEM	1	< 0.001*	< 0.001*	1	< 0.001*	0.043*	1	0.209	< 0.001*	0.043*
Non-STEM	0.158	< 0.001*	< 0.001*	1	0.505	1	0.943	1	0.003*	0.004*
9										
STEM	1	0.082	0.398	1	1	1	1	1	0.529	1
Non-STEM	0.194	0.177	1	1	1	1	0.120	1	0.111	0.619
11										
STEM	1	0.032*	1	1	0.206	1	1	0.069	1	1
12										
STEM	1	0.560	0.168	1	0.104	0.045*	0.817	1	1	1
13										
STEM	1	0.011*	1	1	0.075	1	1	0.064	0.047*	1
Non-STEM	0.207	0.057	1	1	1	0.332	0.476	0.114	0.199	1
14										
STEM	0.107	0.419	< 0.001*	1	1	< 0.001*	1	< 0.001*	1	< 0.001*
Non-STEM	0.337	1	< 0.001*	1	1	< 0.001*	0.588	< 0.001*	1	< 0.001*
16										
STEM	1	1	< 0.001*	1	1	0.269	1	0.188	1	0.067
Non-STEM	1	0.009*	< 0.001*	1	0.650	0.126	1	1	0.025*	0.001*
17										
Non-STEM	0.131	0.511	1	0.142	1	0.332	0.001*	0.981	0.007*	0.242
19										
Non-STEM	0.342	0.358	1	0.043*	1	1	0.001*	1	0.001*	0.022*
20										
Non-STEM	0.072	0.001*	1	0.907	1	1	1	0.062	0.752	1

NZE NZ Europeans, *NNZE* non-NZ Europeans, *M* Māori, *A* Asian, *P* Pasifika

*Only items that a significant difference between the ethnic groups was found from the Kruskal–Wallis test results are presented

the Chinese sample identified as collectivist, whereas only 22% of NZ Europeans were collectivist. In addition, 37% of NZ European identified as individualist while only 24% of Chinese sample identified as individualist. So there would seem to be some cross-cultural differences in these broad categories. Furthermore, a recent study that was conducted in NZ found that Pasifika show the most, and

NZ Europeans show the least, collective preferences (Podsiadlowski and Fox 2011).

A further feature of extrinsic motivation for Pasifika students was their apparently greater concern for studying to get a job. They may feel more pressure to study so they can secure a job after graduation in order to support their wider family. There may not be the same strong pressures to succeed coming from family and church for other ethnic groups.

Māori is the other main ethnic group in NZ where the performance of university students may be, on average, below that of European and Asian students. As mentioned earlier, the motivational strategies of Māori students were not significantly different from NZ Europeans, and only different from non-NZ Europeans in two items. Similar findings were obtained in relation to Māori and NZ Europeans' perspectives about collectivism (Podsiadlowski and Fox 2011). A reason that the motivational strategies of Māori were not significantly different from NZ Europeans might be the long-standing intercultural contact between these two ethnic groups that might lead to mutual acculturation and accommodation (Podsiadlowski and Fox 2011). Furthermore, Tassell et al. (2010) noted that traditional Māori values are not meaningful for all Māori students and Durie (2008) highlighted Māori youth life-style may reflect the global youth culture rather than traditional Māori culture. All of these might be the reasons for why the extrinsic motivation of Māori students was not significantly different from pākeha while it was significantly different from Pasifika students in some items.

On the items where significant differences between motivational strategies of students were found, Māori students obtained the lowest rank on the first item of the external attribution, 'my academic performance depends on luck', and also in items of external motivation, they have not obtained the highest ranks of the ethnic groups. These findings sound promising because a high level of external attribution and external motivation are not useful for student learning as stated in the literature (Becker et al. 2010; Mkumbo and Amani 2012). However, for self-efficacy, which does have a positive impact on student learning, Māori students' self-efficacy was significantly lower than non-NZ Europeans in two items. In relation to task-value beliefs that have a positive impact on student learning, Māori obtained a significantly lower rank compared to Asian and Pasifika on one item, 'It is important that I learn the course subjects because they are important for my future job'. This interesting result perhaps reflects the relative confidence Māori students may have in finding a job if they graduate, for despite relatively high rates of unemployment for Māori compared to the general population, there can be good opportunities for Māori graduates in both the private and public sectors.

Relatively little research has focused on Asian students in NZ (e.g. Lee et al. 2013). On the other hand, because some Asian students in the present study are international students, it is worthwhile noting the motivational strategies reported for Asian students in this study might be also an indication of motivational strategies of international Asian students, and therefore, the finding might be applicable beyond NZ. Our research found that the motivational strategies of this ethnic group had the most similarity with Pasifika students and the least similarity with pākeha. Research on Asian students in other contexts found that they have difficulties with English language proficiency and adjusting to the Western culture of learning which promotes dialogical practices (e.g. questioning, criticising, and debating) (Major 2005). Lee et al. (2013) reported 18 out of 21 students interviewed in their study mentioned writing essays and reports in English were the most difficult academic tasks for them. Furthermore, Lee et al. (2013) reported that some Asian students have difficulties participating in class discussion as they believe knowledge is not to be questioned and should be only accepted and learned. These challenges might be the reason why self-efficacy of Asian students was significantly lower compared to NZ Europeans and non-NZ Europeans on several items. Similar to Pasifika students, Asian students had a higher extrinsic motivation compared to the other three ethnic groups. Previous studies noted that the motivation of Asian students is influenced by collectivism (Salili 1996). As a result of that, their success is considered to be a part of family accomplishment and families are more involved in student learning (Lun 2010) which in turn could lead them to be highly extrinsically motivated. Furthermore, as they are not indigenous people of NZ nor European and less familiar with NZ culture and employment markets, they might feel less secure in finding a job in NZ, and therefore more extrinsically motivated to gain a qualification to get a job.

Conclusion

This study has demonstrated that motivational strategies of NZ university students vary in important ways across different ethnic groups. These variations are split along interesting lines. In many ways, pākeha and Māori students (along with 'non-NZ European' students) exhibit few significant differences between them. On the other hand, Pasifika and Asian students display some notable similarities. In general, we can suggest that Pasifika and Asian students seem to be guided more by extrinsic motivational factors, especially those relating to satisfying collective family expectations and the need to find a job after graduation. They are studying to satisfy, or not disappoint, 'my

family or the people that matter to me', more prominently compared to the other ethnic groups.

A second notable result from this research with regard to differences between ethnic groups of students concerned performance attributions. Interestingly, we see that Pasifika and Asian students attribute their performance to their own efforts, capabilities, and organisational skills more than pākeha and Māori students do. This aligns with the earlier result that they study with extrinsic motivations in mind more to satisfy, or not disappoint, others. These two results paint a picture of students who experience pressure of expectations and put pressure on themselves. Failure is likely to be attributed to their own shortcomings (for Pasifika students especially—Asian students also seem to factor in an element of luck) and bring disappointment to others. On the other hand, we see that pākeha and non-NZ European students display a greater degree of confidence in their own ability to master concepts and course material (self-efficacy). Again, as a generalisation, we can suggest a group of students less pressured by the perceived expectations of others and more confident in their own abilities, resulting, perhaps, in their relatively higher achievement.

Our results, then, would point to the need to understand and address the wider cultures and attitudes to teaching and learning across different ethnic groups, rather than tailoring specific responses in different faculties of a university. Where these cultures and attitudes may have a detrimental effect on academic retention and performance, as in the higher incidence of extrinsic motivations for studying, they should call for a more proactive response by educational institutions. They may involve greater awareness and more innovative practices in the teaching and learning space, for example by using culturally specific content to engage and inspire students and acknowledge the importance of collectivism (shared learning, group work, even family/community involvement) alongside the dominant individualism of student learning. Yet they also require earlier interventions: engagement of families in course selection and advice regarding the way intrinsic interest in a subject leads to better performance; support systems that aim to build confidence and belonging in the university environment, and not just capabilities in learning or knowledge-transfer; and to provide programmes to encourage families from different ethnic groups to see educational institutions as welcoming, supportive, inclusive and enjoyable places that are not just a means to an employment end but also places where they belong and can thrive as good citizens of society. Differing motivations to learn in university are therefore crucial to recognise and respond to if ethnic-based variations in performance are to be addressed and remedied.

Acknowledgements This research is funded by the Office of the Assistant Vice-Chancellor (Pasifika) and the Office of Pro Vice-Chancellor of Science, Engineering, and Architecture and Design faculties of Victoria University of Wellington (VUW), New Zealand. We would like to thank Gail Ah-Hi, Executive Officer to the Assistant Vice-Chancellor (Pasifika) of VUW, and Dr Mehdi Jabbari Nooghabi for their support for this Research Project.

References

Ali, J., McInerney, D. M., Craven, R. G., Yeung, A. S., & King, R. B. (2014). Socially oriented motivational goals and academic achievement: Similarities between native and Anglo Americans. *The Journal of Educational Research, 107*(2), 123–137.

Areepattamannil, S., Freeman, J. G., & Klinger, D. A. (2011). Influence of motivation, self-beliefs, and instructional practices on science achievement of adolescents in Canada. *Social Psychology of Education, 14*(2), 233–259.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman and Co., Publishers.

Baygi, A. H., Ghonsooly, B., & Ghanizadeh, A. (2017). Self-fulfillment in higher education: Contributions from mastery goal, intrinsic motivation, and assertions. *The Asia–Pacific Education Researcher, 26*(3–4), 171–182.

Becker, M., McElvany, N., & Kortenbruck, M. (2010). Intrinsic and extrinsic reading motivation as predictors of reading literacy: A longitudinal study. *Journal of Educational Psychology, 102*(4), 773.

Benseman, J., Coxon, E., Anderson, H., & Anae, M. (2006). Retaining non-traditional students: Lessons learnt from Pasifika students in New Zealand. *Higher Education Research and Development, 25*(2), 147–162.

Bishop, R., Berryman, M., Wearmouth, J., Peter, M., & Clapham, S. (2012). Professional development, changes in teacher practice and improvements in indigenous students' educational performance: A case study from New Zealand. *Teaching and Teacher Education, 28*(5), 694–705.

Brahm, T., Jenert, T., & Wagner, D. (2017). The crucial first year: A longitudinal study of students' motivational development at a Swiss Business School. *Higher Education, 73,* 459–478. https://doi.org/10.1007/s10734-016-0095-8.

Carr, P. B., & Dweck, C. S. (2011). Intelligence and motivation. In R. J. Sternberg & S. B. Kaufman (Eds.), *The Cambridge handbook of intelligence* (pp. 748–770). Cambridge, NY: Cambridge University Press.

Chang, Y. (2015). Science motivation across Asian countries: Links among future-oriented motivation, self-efficacy, task values, and achievement outcomes. *The Asia–Pacific Education Researcher, 24*(1), 247–258.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297–334.

Dunn, O. J. (1964). Multiple comparisons using rank sums. *Technometrics, 6*(3), 241–252.

Durie, M. (2008). Bioethics in research: The ethics of indigeneity. In *Paper presented at the 9th Global Forum on Bioethics in Research*, Auckland, New Zealand.

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*(1), 109–132.

Fenning, B. E., & May, L. N. (2013). "Where there is a will, there is an A": Examining the roles of self-efficacy and self-concept in college students' current educational attainment and career planning. *Social Psychology of Education, 16*(4), 635–650.

Fink, A. (2010). Survey research methods. In P. Peterson, E. Baker, & B. McGaw (Eds.), *International encyclopedia of education* (pp. 152–160). Los Angeles: Elsevier.

Gargallo, B., Suárez-Rodríguez, J. M., & Pérez-Pérez, C. (2009). The CEVEAPEU questionnaire. An instrument to assess the learning strategies of university students. *Revista Electrónica de Investigación y Evaluación Educativa, 15*(2), 1–26.

Hagemeier, N. E., & Murawski, M. M. (2014). An instrument to assess subjective task value beliefs regarding the decision to pursue postgraduate training. *American Journal of Pharmaceutical Education, 78*(1), 1–13.

He, J., & van de Vijver, F. (2012). Bias and equivalence in cross-cultural research. *Online Readings in Psychology and Culture*. https://doi.org/10.9707/2307-0919.1111.

Heikkilä, A., Niemivirta, M., Nieminen, J., & Lonka, K. (2011). Interrelations among university students' approaches to learning, regulation of learning, and cognitive and attributional strategies: A person oriented approach. *Higher Education, 61*(5), 513–529.

Khalaila, R. (2015). The relationship between academic self-concept, intrinsic motivation, test anxiety, and academic achievement among nursing students: Mediating and moderating effects. *Nurse Education Today, 35*(3), 432–438.

King, R. B., & McInerney, D. M. (2014). Culture's consequences on student motivation: Capturing cross-cultural universality and variability through personal investment theory. *Educational Psychologist, 49*(3), 175–198.

King, R. B., & McInerney, D. M. (2016). Culturalizing motivation research in educational psychology. *British Journal of Educational Psychology, 86*(1), 1–7.

Klassen, R. M. (2004). A cross-cultural investigation of the efficacy beliefs of South Asian immigrant and Anglo Canadian nonimmigrant early adolescents. *Journal of Educational Psychology, 96,* 731–742.

Kruskal, W. H., & Wallis, W. A. (1952). Use of ranks in one-criterion variance analysis. *Journal of the American Statistical Association, 47*(260), 583–621.

Lee, B., Farruggia, S. P., & Brown, G. T. (2013). Academic difficulties encountered by East Asian international university students in New Zealand. *Higher Education Research and Development, 32*(6), 915–931.

Lun, V. M. C. (2010). Examining the influence of culture on critical thinking in higher education. PhD Thesis, Victoria University of Wellington, New Zealand.

MacLeod, J., Yang, H. H., & Xiang, Z. (2017). Understanding college students' intrinsic motivation and social interdependence in intercultural computer-supported collaborative learning between USA and China. *The Asia–Pacific Education Researcher, 26*(3–4), 205–217.

Major, E. M. (2005). Co-national support, cultural therapy, and the adjustment of Asian students to an English-speaking university culture. *International Education Journal, 6*(1), 84–95.

Marriott, L., & Sim, D. (2014). *Indicators of inequality for Māori and Pacific people*. Working paper 09/2014. Wellington: Victoria University of Wellington.

McInerney, D. M. (1992). Cross-cultural insights into school motivation and decision making. *Journal of Intercultural Studies, 13*(2), 53–74.

McInerney, D. M., & van Etten, S. (Eds.). (2001). *Research on sociocultural influences on motivation and learning* (Vol. 1). Greenwich, CT: Information Age Publishing.

McInerney, D. M., & van Etten, S. (Eds.). (2002). *Research on sociocultural influences on motivation and learning* (Vol. 2). Greenwich, CT: Information Age Publishing.

McInerney, D. M., Walker, R. A., & Liem, G. A. D. (Eds.). (2011). *Sociocultural theories of learning and motivation*. Greenwich, CT: Information Age Publishing.

Meissel, K., & Rubie-Davies, C. M. (2016). Cultural invariance of goal orientation and self-efficacy in New Zealand: Relations with achievement. *British Journal of Educational Psychology, 86*(1), 92–111.

Ministry of Education. (2016). *Participation rates* (data file). Wellington: Education Counts.

Mkumbo, K. A., & Amani, J. (2012). Perceived university students' attributions of their academic success and failure. *Asian Social Science, 8*(7), 247–255.

Mooney, J., Seaton, M., Kaur, G., Marsh, H. W., & Yeung, A. S. (2016). Cultural perspectives on Indigenous and non-Indigenous Australian students' school motivation and engagement. *Contemporary Educational Psychology, 47*(1), 11–23.

Nasser, R., & McInerney, D. (2016). Achievement-oriented beliefs and their relation to academic expectations and school achievement among Qatari students. *Educational Psychology, 36*(7), 1219–1241.

Podsiadlowski, A., & Fox, S. (2011). Collectivist value orientations among four ethnic groups: Collectivism in the New Zealand context. *New Zealand Journal of Psychology, 40*(1), 5–18.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Educational Psychology, 25,* 54–67.

Salili, F. (1996). Learning and motivation: An Asian perspective. *Psychology and Developing Societies, 8*(1), 55–81.

Senler, B., & Sungur, S. (2009). Parental influences on students' self-concept, task value beliefs, and achievement in science. *The Spanish Journal of Psychology, 12*(01), 106–117.

Shulruf, B., Zeng, M., Watkins, D. & Hong, F. (2010). Differences between Chinese and New Zealand students: The impact of the statistical method. In *Abstract of a paper presented in the 27th international congress of applied psychology*, Melbourne, Australia, July 11–16, 2010.

Statistics New Zealand. (2015). *2013 Census—Major ethnic groups in New Zealand.* http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/infographic-culture-identity.aspx.

Sternberg, R. J. (2014). Teaching about the nature of intelligence. *Intelligence, 42,* 176–179.

Sternberg, R. J., Jarvin, L., & Grigorenko, E. L. (2011). *Explorations in giftedness*. Cambridge, NY: Cambridge University Press.

Tassell, N. A., Flett, R. A., & Gavala, J. R. (2010). Individualism/collectivism and academic self-enhancement in New Zealand Māori university students. *Journal of Pacific Rim Psychology, 4*(2), 138–151.

Usher, E. L., & Pajares, F. (2008). Sources of self-efficacy in school: Critical review of the literature and future directions. *Review of Educational Research, 78*(4), 751–796.

Van de Vijver, F., & Tanzer, N. K. (2004). Bias and equivalence in cross-cultural assessment: An overview. *European Review of Applied Psychology, 54*(2), 119–135.

Vansteenkiste, M., Lens, W., & Deci, E. L. (2006). Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation. *Educational Psychologist, 41*(1), 19–31.

Walker, C. O., Greene, B. A., & Mansell, R. A. (2006). Identification with academics, intrinsic/extrinsic motivation, and self-efficacy as predictors of cognitive engagement. *Learning and Individual Differences, 16*(1), 1–12.

Weiner, B. (2010). The development of an attribution-based theory of motivation: A history of ideas. *Educational Psychologist, 45*(1), 28–36.

Zusho, A., & Clayton, K. (2011). Culturalizing achievement goal theory and research. *Educational Psychologist, 46*(4), 239–260.