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Profiles of professional engagement and career development aspirations among USA preservice teachers

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ABSTRACT

Future teachers have been found to exhibit different profiles of professional engagement and career development aspirations (PECDA) even at the very outset of their teaching career (Watt & Richardson, 2008). Highly engaged persisters, highly engaged switchers, and lower engaged desisters differed in their initial motivations for having chosen teaching as a career, perceptions about the profession, career intentions, and demographic characteristics. The present study builds upon and extends this line of research by exploring profiles with a sample from the United States, a culturally similar, yet different setting. Among 246 elementary and secondary preservice teachers from 2 midwestern universities, 3 distinct clusters were identified: highly engaged persisters, lower engaged desisters, and classroom engaged careerists. Teaching motivations and perceptions were compared for the 3 types, as well as changing satisfaction ratings from the start until completion of their teaching qualification; patterns were enriched using qualitative responses from open-ended survey questions. Explanations are advanced in terms of cultural differences in teaching career structures.

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1. Introduction

Over recent years there has been a shift in the focus of research from why people enter into a teaching career, to an ensuing interest in determining what helps to retain and sustain teachers in what can often be a psychologically demanding and difficult job. There are significant losses of beginning teachers during their first five years in the profession; estimates in the USA range from 25% in the first three years (Henke, Chen, & Geis, 2000; Johnson & Birkeland, 2003), up to 40% (Chang, 2009) or 45% within five years (Ingersoll, 2003). Ingersoll and colleagues in particular have established in the USA that areas of teacher shortage are primarily due to a “revolving door” through which large numbers of teachers depart teaching long before retirement (e.g., Ingersoll, 2001, 2012; Ingersoll & Strong, 2011). Studies of teacher retention or attrition have mostly been informed by conceptual lenses directly derived from economic labour market theories of supply and demand (Guarino, Santibanez, & Daley, 2006). Explanations for why beginning teachers leave the profession have often alighted on the “reality shock” of the conflicting roles demanded of them and their unpreparedness to adequately deal with those demands (e.g., Ingersoll & Strong, 2011; Veenman, 1984). While this explanation has been anecdotally persistent, there may be other explanations. It is our contention that beginning teachers’ motivations constitute an understudied dimension of their professional engagement and career development aspirations.

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Governments and teacher employing authorities around the world are intent upon improving the quality of the teaching workforce in order to promote improved student learning outcomes (OECD, 2005). The focus on teacher quality as the most important factor impacting student learning (Hattie, 2009) foregrounds the notion that there are different types of teachers who possess different ambitions, goals, aspirations, values, abilities and skills, and that these differences may be important in relation to teachers' career aspirations, development and commitment, and thereby student learning. Indeed, the strong effects of teachers on student learning can be traced to the classic Coleman report, which concluded teacher characteristics explain a greater amount of variance in student learning than any other school resource (Coleman et al., 1966).

Until recently, research into factors related to teacher motivation and engagement has been limited by the absence of an integrative theoretical framework to guide the selection and organisation of factors that influence teaching choice and persistence. This has produced a lack of cohesion in this literature, and a less than systematic approach. The FIT-Choice (Factors Influencing Teaching Choice; www.fitchoice.org) framework was developed by Watt and Richardson to provide a precise conceptualisation of components, link the various elements together, suggest causal sequences, and outline relations between individuals' motivations, perceptions and their professional development (see Richardson & Watt, 2006, 2010; Watt & Richardson, 2007, 2008). Background experiences, self-perceptions, task perceptions and values are theorised to shape individuals' choice behaviours regarding whether to undertake a teaching career. Individuals are subsequently influenced by their experiences during their teacher education, shaping their professional engagement and career development aspirations.

The FIT-Choice framework is founded upon the expectancy-value framework of Eccles and colleagues (see Eccles (Parsons) et al., 1983; Eccles, 2005, 2009) within the specific context of teaching as a career choice. This framework has been subsequently validated across a range of cultural settings and different samples (for example, see special issue of the 2012 *Asia-Pacific Journal of Teacher Education*, 40(3)). The expectancy-value framework of Eccles and colleagues is the most prominent motivational model investigating issues relating to choice and persistence. Although initially developed as a framework for explaining students' choices to participate in mathematics at school, it has since been applied to other academic school disciplines, as well as to choices to participate in specific types of careers (e.g., Watt, 2006, 2008) and has proven fruitful for guiding investigations into teaching as a career choice.

Given that teachers in most countries constitute a large, heterogeneous workforce it seems naïve to imagine that they all enter the career for the same reasons. It makes good conceptual and theoretical sense that there are different "types" of future teachers who, at the outset of their careers, are characterised by different profiles of the amount of effort they will expend in doing the job, the length of time they plan to stay in teaching, the degree to which they will engage in professional learning to develop and sustain their career, whether they aspire to leadership roles in schools, and the degree of satisfaction they experience with their career choice. Indeed, we identified significant variation in the reasons for career choice among preservice Australian teachers (Watt & Richardson, 2008). Moreover, it is possible that different motivational profiles would predict different aspired career trajectories and important longer-term career and educational outcomes.

Previously we have established that, at the point of entry into teacher education, Australian preservice teachers are well aware that the job is difficult, and salary and status low, yet they have still chosen a teaching career, and report high satisfaction with that choice (Richardson & Watt, 2006). Further, a substantial proportion already planned to leave the profession within their first five years even prior to professional entry (Watt & Richardson, 2008). The variety of reasons for which they planned to leave included many that were positive and planful, for example as a "stepping stone" to broader education careers such as youth ministry or workplace trainers, as well as those who identified as "restless spirits" and did not wish to remain in any one career for the long term. A smaller proportion had been "turned off" teaching due to negative teacher education and practicum experiences in schools (Watt & Richardson, 2008). This provides a new perspective on, and explanations for, early career teachers' attrition. The highly engaged switchers had not yet commenced in teaching and therefore could not have been put off by their early professional experiences. Instead, their motivations and profiles of professional engagement explained their intended short period of time in teaching.

1.1. A typological approach to the study of future teachers' professional engagement and career development aspirations

In contrast to a variable-centred approach where the focus is on normative patterns and development, typological approaches frame the study of teachers' development for coherent subgroups, leading to developmental profiles and pathways for identified types, and potentially different implications for supporting the career development of each. Our thinking about different types of teachers was influenced by large-scale typological studies of teachers and other health professionals in Germany (see Kieschke & Schaarschmidt, 2008), the Netherlands (de Heus & Diekstra, 1999), and the USA (Maslach, Jackson, & Leiter, 1996). We applied a typological approach to the study of future teachers' professional engagement and career development aspirations, and used this as an organising framework to examine different initial teaching motivations, perceptions about the profession, and career choice satisfaction through the teaching degree. Just prior to completion of their teaching qualification, we hypothesised and discovered that different subtypes of graduating teachers could be discerned based on their profiles of professional engagement and career development aspirations (PECDA; Watt & Richardson, 2008) who differed in teaching motivations, but interestingly, not by secondary/elementary strand.

The PECDA scale was developed to provide a multidimensional measure tapping planned effort, planned persistence, professional development and leadership aspirations. To understand who plans to remain in the profession as engaged and

committed teachers requires a measure of intentions which can further be linked back to initial teaching motivations. Previously, we empirically derived a typology of three clusters in the Australian context, named “highly engaged persisters”, “highly engaged switchers”, and “lower engaged desisters”. *Highly engaged persisters* scored high on all PECDA factors including leadership aspirations, and the majority (84%) nominated that they wanted to spend their whole career in teaching. Highly salient reasons for their choice related to teaching being an intrinsically rewarding “dream ambition”. It was their perception that not only did teaching offer a satisfying career; it also provided opportunities to fulfil their real and anticipated family responsibilities. Although they were aware that the salary rewards for teaching are not high, they nonetheless looked upon the occupation as fitting with their goals and ambitions. The *highly engaged switchers* were similar on all but one dimension – they were not planning to stay long in the teaching profession, because they were intent upon another career within a defined period of time (typically 3–5 years) outside classroom teaching. This cluster contained people who could be described as “restless spirits” who required new challenges thrown up by a diversity of occupations, as well as those who regarded teaching as a “stepping stone” to next careers (e.g., youth ministry, sports coaching). This group planned to be effortful, undertake professional development, aspired to leadership positions in schools and were highly satisfied with their career choice, yet they did not plan to persist long in the job. The final cluster, *lower engaged desisters* were, as their name suggests, relative to the other two clusters, significantly lower on all four PECDA dimensions. They were least likely to plan to stay in teaching for a variety of reasons stemming from poor university and practicum experiences, to disaffection with the reality of schools, the demands of teaching, the paucity of career prospects and rewards, difficulties in working with children and adolescents, and insecurity of employment.

The robust size of the lower engaged desisters (28% of sample) profile is challenging; they showed a rather negative motivational profile, were more likely to have chosen teaching as a “fallback” career, and decreased in satisfaction with their choice of teaching for reasons including negative practicum experiences, heightened recognition of the demanding nature of teachers’ work, compounded by lack of school structural supports. This group tended to hold prior qualifications, to have pursued previous high status careers, and to have decided on a teaching career the most recently. The highly engaged switchers (27%) possessed altruistic motivations and remained satisfied with their choice of teaching through their degree, but had another plan and desire for new challenges which would see them plan to leave typically within 5 years. This provided a new and positive perspective on early career attrition; it is important that policymakers be aware of this group in succession planning. On the other hand, it may be that if their leadership ambitions and desire for new challenges can be met, this group may be retained for longer than they plan. This group was the youngest, least likely to have children, to come from non-English home language backgrounds, or to have had previous work experiences; they came from the highest socioeconomic backgrounds.

Highly engaged persisters (45%) had decided on a teaching career the longest ago, had lower status prior work experiences, contained the highest proportion of non-English home language backgrounds, were the most likely to have children, and came from the lowest socioeconomic backgrounds. This group was the most intrinsically motivated and altruistic, exhibiting what might appear as a desirable profile for beginning teachers; however, they were the most psychologically vulnerable to stressors or “reality shock” during their early career (Richardson & Watt, 2010). In part, the explanation seemed to lie in their maintained idealistic motivations despite experienced difficulties, manifested in declining self-efficacies, career aspirations and satisfaction. If left unfulfilled, teachers’ motivations may create a double-edged sword and lead to burnout and disappointment (de Jesus & Lens, 2005). In contrast, highly engaged switchers and lower engaged desisters exhibited downward motivational adjustments; this may be an adaptive coping strategy to recalibrate motivations that can be more reasonably achieved.

1.2. Are there similar “types” among future USA teachers?

To examine the robustness or otherwise of these intriguing types of future teachers required a second study. Would these teacher types be discernible among an independent sample of future teachers from a different, yet culturally similar context in the first instance? In cross-country dimensional comparisons Australian and USA citizens exhibit similar tendencies for individualism (Hofstede, 1980, 2001; Triandis, 1989, 1995, 2001), autonomy (Schwartz, 1992, 1994, 2003), secular-rationality, and self-expression (Inglehart, 1997; Inglehart & Baker, 2000; Inglehart & Welzel, 2010). According to Inglehart and Welzel (2010) Australia and the USA are cultural neighbours, although they are not proximal geographically. Australians have also been heavily exposed to USA films, new and old technologies, television and other forms of media; share cultural, social and political values; and have taken on much that is recognisably American in terms of lifestyle. Yet, there are differences between the two countries.

Although the status, reputation, and salaries of teachers are roughly comparable, distinct contextual differences remain that on the other hand might reveal differences in a future teacher typology. In a comparison of compensation and benefits, beginning teachers in the USA earned more than their Australian counterparts, although the personal and professional leave provisions were more generous in Australia (Akiba & Le Tendre, 2009). However, based on 2006 data for experienced teachers who had been in the profession 15 years, the ratio of salary to GDP per capita for 30 countries revealed that on average, Australian teachers received a higher salary than USA teachers, whose salaries were considerably below the international average (Akiba, Chiu, Shimizu, & Liang, 2012). Yet, the substantial variability in USA beginning teachers’ salaries dependent on the particular State is such that average figures can be misleading. Another contextual difference in terms of certification requirements between the USA State from which participants were sampled and Australian teachers,

was the need for the USA participants to be able to pass tests of their knowledge and skills through teacher certification examinations encompassing a range of subject domains and basic skills (NCTAF, 1996).

Our study has arisen in response to the need to examine the robustness or otherwise of profiles of people who have decided to undertake a teaching qualification, in terms of their entry motivations, and professional engagement and career development aspirations on completion of their degree at the point of professional entry. Two components comprise the present study. First is the extensive survey phase in order to identify initial motivations and career choice satisfaction at the point of entry to teacher education. The second component involved following up the same participants just prior to their degree completion, to examine changes in their career choice satisfaction, and their professional engagement and career development aspirations, using a combination of closed-ended rating-scale items and open-ended questions designed to elicit rich qualitative data. The qualitative data provided more detail and depth of information in relation to respondents' satisfaction, career plans and commitment.

Brookhart and Freeman (1992) in a review of the literature on the characteristics of initial teacher education candidates, identified exactly the need for theoretically driven studies encompassing quantitative and qualitative data that provide for comparisons across samples and settings, using longitudinal designs which allow for matching of entry motivations and candidates' perceptions in relation to entry into teaching. Our study addresses the need for such approaches, informed by an analytical lens drawn from the extant motivational literature. By sampling a group of people who have enrolled in teacher education in the USA setting, and tracking them over the course of their degree programmes, we will be able to identify the complex of motivational factors that shape their particular types of professional engagement and career development aspirations.

2. Method

2.1. Participants and procedure

Data were collected from elementary and secondary beginning preservice teachers ($N=246$), at 2 universities in the Midwest. Chi-square tests determined similar composition across the 2 cohorts in terms of gender, English home language background, and whether participants had any children. However, participant-reported parental income bracket was higher at University 2, $F(1, 366) = 15.147, p < .001$, partial $\eta^2 = .040$. The first university offered a teaching qualification in several modes across several campuses; main campus weekday teacher education students were invited to participate in the present study. University 2 offered one mode of delivery on a single campus, including two student intakes, both of whom were invited to participate. Surveys were administered at the start of teacher education coursework in 2003, and again just prior to degree completion. Degree timeframes were 3 years at University 1, and 1–2 years at University 2 respectively for graduate-entry and undergraduate teaching qualifications. At Time 1 there were 515 secondary/elementary participants (372 women; $N = 272$ at University 1 with 96% response rate; $N = 243$ at University 2 with 91% response rate), of whom 246 were retained in the sample at Time 2. Motivations and perceptions concerning teaching were measured at Time 1, professional engagement and career development aspirations at Time 2, and career choice satisfaction at both timepoints.

Of the 420 Time 1 participants who completed their teaching qualification according to university records (190 at University 1 = 70%, 230 at University 2 = 95%) we therefore retained 59%, 29 (15%) at University 1 and 217 at University 2 (94%; including 1 participant who completed the Time 2 survey, then discontinued his degree in the last semester due to feeling overwhelmed by classroom practicum experiences). The low sample retention from degree entry to degree exit at University 1 was due to difficulties in identifying when students were due to complete their course because of high programme flexibility which may also have impacted degree completion rates. To check whether those we retained in our study significantly differed from others who completed their degree, but were lost from our study, we conducted 2 MANOVAs which did reveal some differences. There was a significant multivariate effect on the combined dependent set of motivation factors, $F(12, 388) = 5.147$ Pillai's Trace = .137, $p < .001$, partial $\eta^2 = .137$. Univariate tests with $df = 1, 399$ revealed that those retained in the study scored significantly lower ($p < .004$ applying Bonferroni correction) on motivations of:

- job security ($F = 11.831$ partial $\eta^2 = .029$, $M = 4.472$ $SD = 1.404$ for retained, $M = 4.944$ $SD = 1.274$ for attrited),
- shape future ($F = 25.104$ partial $\eta^2 = .059$, $M = 5.777$ $SD = 1.121$ for retained, $M = 6.291$ $SD = 0.831$ for attrited),
- social equity ($F = 15.609$ partial $\eta^2 = .038$, $M = 4.891$ $SD = 1.613$ for retained, $M = 5.502$ $SD = 1.393$ for attrited),
- work with children/adolescents ($F = 19.603$ partial $\eta^2 = .047$, $M = 5.969$ $SD = 1.031$ for retained, $M = 6.395$ $SD = .814$ for attrited),
- perceived ability ($F = 14.417$ partial $\eta^2 = .035$, $M = 5.844$ $SD = .887$ for retained, $M = 6.165$ $SD = .749$ for attrited), and
- intrinsic value ($F = 31.602$ partial $\eta^2 = .073$, $M = 5.667$ $SD = .969$ for retained, $M = 6.185$ $SD = .816$ for attrited).

A second MANOVA identified a significant multivariate difference on the dependent set of perceptions about teaching including Time 1 satisfaction with choice, $F(6, 401) = 8.096$ Pillai's Trace = .108, $p < .001$, partial $\eta^2 = .108$. Univariate follow-up tests with $df = 1, 406$ ($p < .008$ applying Bonferroni correction) revealed significantly lower perceptions of social status for those retained in the study ($F = 35.442$ partial $\eta^2 = .080$, $M = 4.033$ $SD = 1.110$ for retained, $M = 4.702$ $SD = 1.127$ for attrited), and significantly higher experiences of social dissuasion ($F = 15.283$ partial $\eta^2 = .036$, $M = 4.078$ $SD = 1.407$ for retained, $M = 3.480$ $SD = 1.668$ for attrited).

Table 1
Subscale alphas and sample items.

Higher-order factor	1st-order factor (Cronbach's α)	# Items	Sample item
Phase 1: Motivations for teaching "I chose to become a teacher because..." 1 (not at all important) – 7 (extremely important)			
N/A	Ability ($\alpha = .778$)	3	teaching is a career suited to my abilities
N/A	Intrinsic career value ($\alpha = .701$)	3	I am interested in teaching
N/A	Fallback career ($\alpha = .518$)	3	I chose teaching as a last-resort career
Personal utility value	Job security ($\alpha = .818$)	3	teaching will be a secure job
	Time for family ($\alpha = .791$)	5	teaching hours will fit with the responsibilities of having a family
Social utility value	Job transferability ($\alpha = .676$)	3	a teaching job will allow me to choose where I wish to live
	Shape future of children/adolescents ($\alpha = .773$)	3	teaching will allow me to have an impact on children/adolescents
	Enhance social equity ($\alpha = .873$)	3	teaching will allow me to work against social disadvantage
	Make social contribution ($\alpha = .796$)	3	teachers make a worthwhile social contribution
	Work with children/adolescents ($\alpha = .895$)	3	I want a job that involves working with children/adolescents
N/A	Prior teaching and learning ($\alpha = .860$)	3	I have had inspirational teachers
N/A	Social influences ($\alpha = .883$)	3	my family think I should become a teacher
Phase 1: Perceptions about teaching 1 (not at all) – 7 (extremely)			
Task demand	Expertise ($\alpha = .696$)	3	Do you think teaching requires high levels of expert knowledge?
	Difficulty ($\alpha = .655$)	3	Do you think teaching is hard work?
Task return	Social status ($\alpha = .875$)	6	Do you believe teaching is a well-respected career?
	Salary ($\alpha = .898$)	2	Do you think teachers earn a good salary?
N/A	Social dissuasion ($\alpha = .691$)	3	Did others influence you to consider careers other than teaching?
Phase 2: Professional engagement and career development aspirations: PECDA 1 (not at all) – 7 (extremely)			
N/A	Planned effort ($\alpha = .887$)	4	How much effort do you plan to exert as a teacher?
N/A	Planned persistence ($\alpha = .974$)	4	How sure are you that you will persist in a teaching career?
N/A	Professional development aspirations ($\alpha = .877$)	5	To what extent do you aim to undertake further professional development?
N/A	Leadership aspirations ($\alpha = .861$)	4	To what extent do you aim to take up a leadership role in schools?
Phases 1 & 2: Satisfaction with choice 1 (not at all) – 7 (extremely)			
N/A	Satisfaction with choice ($\alpha = .939, .938$)	2	How satisfied are you with your decision to become a teacher?

2.2. Measures

Demographic factors were assessed at Time 1 (age, gender, home language background, parental income background, prior qualifications and career history, timing of teaching career choice, having children or not), along with teaching motivations and career choice satisfaction. Professional engagement and career development aspirations were assessed at Time 2, along with career intentions, career choice satisfaction, and open-ended qualitative responses. Table 1 provides a summary of subscales for latent constructs, sample items, and subscale reliabilities.

2.3. Motivations for teaching

Motivations for teaching were measured by the Factors Influencing Teaching Choice scale (FIT-Choice scale; Watt & Richardson, 2007), containing 57 items which tap 12 latent motivation factors, as well as 5 factors for perceptions about the profession, and one for career choice satisfaction. Measured motivation factors were intrinsic value, self-perceptions of individuals' own teaching abilities, the extent to which teaching had been a "fallback" career choice, social influences, prior positive teaching and learning experiences, a higher-order Personal utility values factor (with component factors: job security, time for family, job transferability), and a higher-order Social utility values factor (with component factors: shape future of children/adolescents, enhance social equity, make social contribution, work with children/adolescents). All factors were measured by multiple-item indicators rated from 1 (not at all important) to 7 (extremely important) prefaced by the stem "I chose to become a teacher because...".

2.4. Perceptions about the teaching profession

As part of the FIT-Choice scale, participants indicated their agreement with 17 items tapping 5 latent factors: expert career, high demand, social status, salary, and social dissuasion. Multiple-item indicators were rated from 1 (not at all) to 7 (extremely). Full scale details and adequate construct validity and reliability for the FIT-Choice scale among the USA sample were reported by Watt et al. (2012); similar construct validity and reliability were also reported in a separate USA sample (Lin, Shi, Wang, Zhang, & Hui, 2012).

2.5. Professional engagement and career development aspirations

Professional engagement and career development aspirations (PECDA; Watt & Richardson, 2008) were assessed at Time 2 by 17 items which tapped planned effort, planned persistence, professional development aspirations, and leadership

Table 2

Confirmatory factor analysis for PECDA: factor loadings (LX) and measurement errors (TD; completely standardised solution).

Factors	Item	LX	TD
Planned effort	SET_A5	0.872	0.239
	SET_A8	0.834	0.305
	SET_A11	0.956	0.087
	SET_A14	0.966	0.066
Planned persistence	SET_A7	0.968	0.063
	SET_A10	0.966	0.066
	SET_A13	0.954	0.091
	SET_A16	0.970	0.060
Professional development aspirations	SET_B1	0.758	0.426
	SET_B3	0.865	0.252
	SET_B5	0.773	0.402
	SET_B7	0.901	0.189
	SET_B9	0.924	0.146
Leadership aspirations	SET_B2	0.819	0.330
	SET_B4	0.706	0.502
	SET_B6	0.723	0.478
	SET_B8	0.965	0.069

Note: Freed error covariance TD SET_B4, SET_B6 = .287.

aspirations. Construct validity was assessed using confirmatory factor analysis (CFA), specifying items as indicators only of their respective constructs, estimating construct correlations freely, along with measurement errors per item indicator (see Table 2). The CFA showed good fit in the present study: Normal theory weighted least squares χ^2 ($df = 112$) = 582.601, TLI = .898, CFI = .916, SRMR = .057. Correlations among all measured constructs are presented in Table 3.

2.6. Professional plans

Participants were asked to select one of the following options: “I do not want a teaching career”; “I want to teach in the short-term but later want to pursue a different profession”; or “I want my whole career to be in the teaching profession”, as part of the Time 2 survey. As well, qualitative explanations were elicited, and participants were asked to nominate their intended career and timeframe to pursue it where applicable.

2.7. Career choice satisfaction

Satisfaction with the choice of a teaching career was assessed at both timepoints by 2 items rated from 1 (not at all) to 7 (extremely; see Table 1). Participants who had previously pursued or seriously considered pursuing a career other than teaching designated what career, and rated their satisfaction with it from 1 (not at all) to 7 (extremely).

2.8. Analyses

Professional engagement profiles were developed based on the Time 2 PECDA factors: planned effort, planned persistence, professional development aspirations, and leadership aspirations. Hierarchical cluster analysis was employed using Ward's method, which minimises within-cluster variance. The number of clusters was decided based on the cluster dendrogram, number of “steps” in the scree-type plot of fusion coefficients relative to number of clusters, and on the basis of substantive interpretability. MANOVA tested for significant effects of cluster membership on variables employed in the cluster analysis, with differences between cluster pairs identified using Tukey post hoc tests. MANOVAs subsequently compared motivations for choosing a teaching career for derived clusters, and perceptions about the teaching profession. ANOVA compared career intentions to not teach at all, teach in the short term and then switch to another career, or teach for one's whole career. Repeated-measures ANOVA tested for differences in satisfaction with teaching as a career choice, and cluster-specific changes in satisfaction ratings through teacher education. Within identified profiles we framed our analysis of participants' open-ended qualitative responses concerning their professional plans.

Chi-square tests compared future teacher types on their demographic characteristics measured as categorical variables (i.e., gender, ethnicity, elementary vs. secondary enrolment, having children or not and whether teaching was their first career choice), and one-way ANOVAs tested for cluster differences on the other background factors of age, socioeconomic background,² level of prior qualifications, the timing of how many years ago they had first seriously considered teaching as a

² Parental combined income was assessed as an indicative measure for background socioeconomic status (SES), collected in 9 increments of \$30,000 from 1 (\$0–30,000) to 9 (\$240,000 or higher).

Table 3
Pearson correlations among manifest constructs.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	
1. Time for family	1																					
2. Job security	.488**	1																				
3. Job transfer	.477**	.515**	1																			
4. Shape future	.056	.217**	.105	1																		
5. Social equity	-.027	.090	.050	.631**	1																	
6. Work with youth	.023	.124	.054	.614**	.503**	1																
7. Social contribution	-.038	.147*	.086	.556**	.649**	.409**	1															
8. Perceived ability	.165*	.303**	.285**	.343**	.303**	.407**	.378**	1														
9. Prior T&L	.030	.102	.062	.328**	.247**	.250**	.298**	.274**	1													
10. Social influence	.261**	.326**	.382**	.220*	.159*	.174**	.256**	.344**	.255**	1												
11. Intrinsic value	-.025	.196**	.141*	.346**	.192**	.434**	.268**	.440**	.375**	.226**	1											
12. Fallback career	.257**	.236**	.215**	-.171*	-.252**	-.280**	-.222**	-.164*	-.150*	.133*	-.293**	1										
13. Difficulty	-.136*	.015	.048	.275**	.332**	.197**	.207**	.150*	.182**	.154*	.113	.004	1									
14. Expertise	-.013	.099	.200**	.134*	.158*	.178**	.170**	.297**	.076	.249**	.259**	-.199**	.223**	1								
15. Social status	.168*	.274**	.255**	.223**	.169**	.188**	.228**	.193**	.199**	.242**	.224**	-.022	.016	.226**	1							
16. Salary	.109	.275**	.142*	.078	.043	.023	.090	.135*	.074	.065	.055	-.067	-.060	.098	.426**	1						
17. Social dissuasion	.080	-.013	.018	-.125	.033	-.137*	-.006	-.164*	-.084	-.066	-.052	.072	-.023	-.043	-.087	-.033	1					
18. Effort P2	-.075	.016	-.016	.168*	.294**	.332**	.149*	.279**	.112	.021	.249**	-.206**	.258**	.218**	.075	-.006	-.024	1				
19. Persistence P2	-.024	.038	.056	.209**	.212**	.260**	.211**	.224**	.144*	.046	.341**	-.308**	.073	.300**	.131*	.088	-.127	.338**	1			
20. Prof. devt. P2	-.139	.011	.038	.102	.251**	.300**	.135*	.262**	.004	-.061	.114	-.262**	.158*	.170**	.021	.028	-.155*	.543**	.367**	1		
21. Leadership P2	.060	.114	.130*	.134*	.129*	.180**	.108	.200**	.049	.116	.146*	-.064	.077	.163*	-.015	-.039	.047	.304**	.108	.364**	1	
22. Satisfaction P2	-.101	-.002	.038	.115	.111	.243**	.089	.198**	.103	-.068	.272**	-.343**	.064	.195**	.163*	.053	-.119	.498**	.622**	.492**	.232**	1

Note: ** $p < .01$; * $p < .05$; P2 denotes data from the second timepoint, all other data collected at the first timepoint, Listwise $N = 232$.

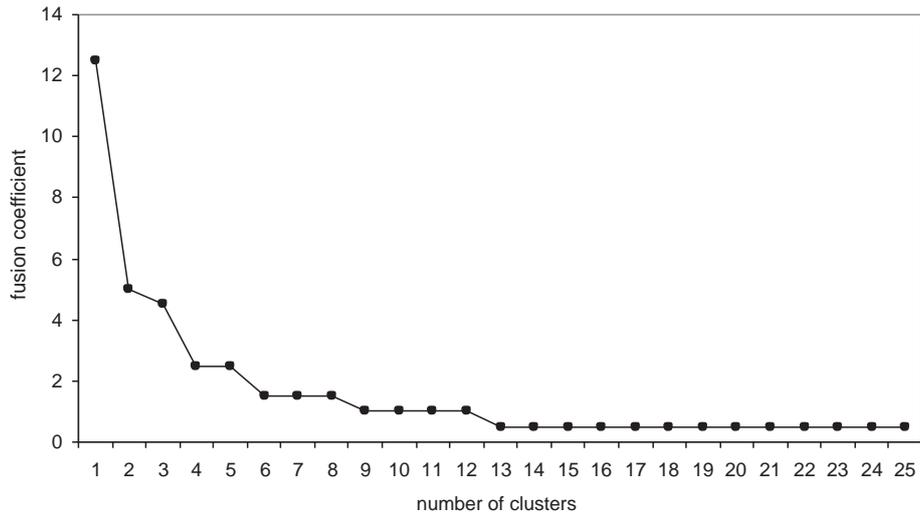


Fig. 1. Fusion coefficients plotted by number of clusters.

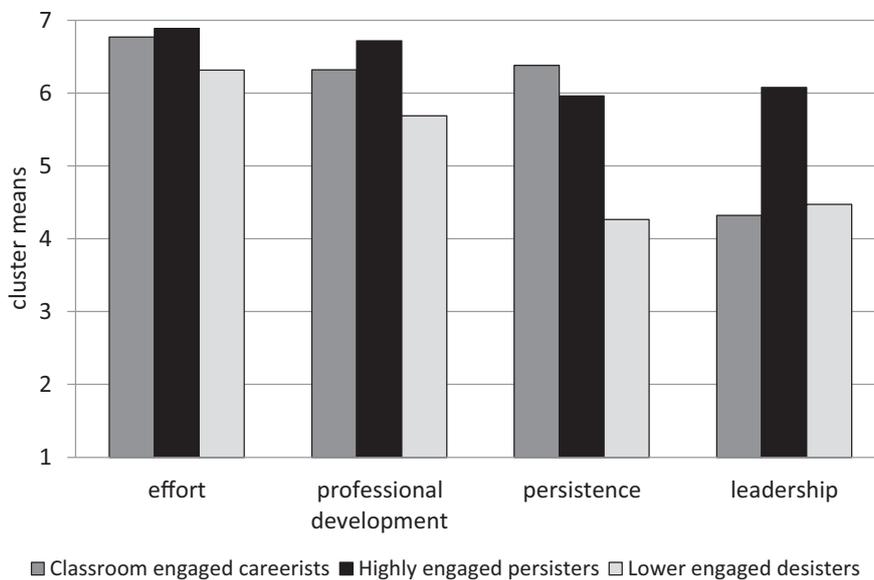


Fig. 2. Mean professional engagement and career development aspiration scores for “classroom engaged careerists” (Cluster 1), “highly engaged persisters” (Cluster 2), and “lower engaged desisters” (Cluster 3).

career, having previously pursued or seriously considered another career to teaching (0 = not, 1 = seriously considered, 2 = pursued), occupational status for each of previously pursued and seriously considered careers,³ and levels of satisfaction with previously pursued and seriously considered careers. In all analyses, statistical significance was denoted by $p < .05$, using Bonferroni correction in multivariate tests.

3. Results

Three clusters of future teachers were empirically and theoretically supported based on their profiles of planned effort, planned persistence, professional development aspirations, and leadership aspirations (Fig. 1; 5 cases excluded from missing data). There were significant effects of cluster for factors included in the clustering algorithm, Pillai's Trace $F(8, 472) = 55.07$, $p < .001$, partial $\eta^2 = .483$ ($F(2, 238) = 42.74$ partial $\eta^2 = .264$ for effort, $F(2, 238) = 77.70$ partial $\eta^2 = .395$ for professional development, $F(2, 238) = 89.68$ partial $\eta^2 = .430$ for persistence, $F(2, 238) = 100.07$ partial $\eta^2 = .457$ for leadership; see Fig. 2). Cluster 1 contained 48 participants who gave moderately high ratings for effort, persistence and professional development.

³ We coded occupational statuses using O*NET, a comprehensive database of occupational information provided by the United States Department of Labor Employment and Training Administration (1998) based on factors including average salary and amount of educational preparation and training required (for additional details see Richardson & Watt, 2006).

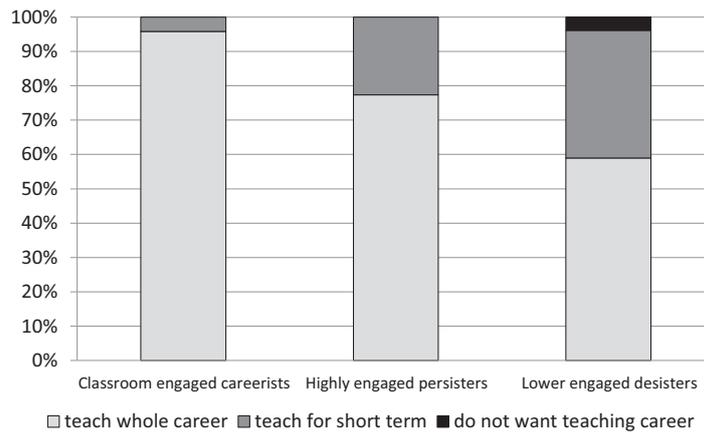


Fig. 3. Professional plans for different teacher types.

Interestingly they recorded the lowest of all scores on leadership and so we named this group the “classroom engaged careerists”. Cluster 2 contained 115 participants whose responses were similar to Cluster 1 for effort, persistence and professional development, yet also scored high on leadership aspirations. Consequently, we named this group the “highly engaged persisters”, which resembled the prior Australian cluster who had that name. Cluster 3 contained 78 participants who reported significantly lower scores than Cluster 2 on all four subscales, and significantly lower than Cluster 1 on effort, persistence and professional development. Although their mean scores on planned effort and professional development aspirations were relatively high on the 7-point scale, they were lower than for other clusters. Their mean scores for planned persistence were low relative to both the scale and other clusters, and mean scores on leadership were relatively low on the scale, and significantly lower than Cluster 2, but not Cluster 1. We consequently named Cluster 3 the “lower engaged desisters”, resembling the prior Australian cluster of that name.

The overwhelming majority of classroom engaged careerists (95.8%) planned to teach for their whole career, in contrast to lower proportions for highly engaged persisters (77.4%), and lower engaged desisters had the smallest number of participants planning to teach their whole career (59.0%; Fig. 3). The pattern was reversed for proportions of participants within each cluster who planned to teach in the short-term and then switch to another career: lower engaged desisters had the highest proportion (37.2%), followed by highly engaged persisters (22.6%), and classroom engaged careerists (4.2%). Only 3 participants planned to not teach at all, and they were all members of the lower engaged desisters cluster. ANOVA demonstrated these cluster differences in professional plans were statistically significant ($F(2, 238) = 13.068, p < .001$, partial $\eta^2 = .099$, all Tukey post hoc paired comparisons significant at $p < .05$).

3.1. Changing satisfaction levels through teacher education

There was no significant main effect of time through the teaching degree on participants' satisfaction with their choice of a teaching career. There was a significant main effect of cluster, $F(2, 236) = 44.226, p < .001$, partial $\eta^2 = .273$, explained by classroom engaged careerists and highly engaged persisters (Clusters 1 and 2) starting out with and retaining the highest levels of satisfaction, whereas lower engaged desisters (Cluster 3) reported significantly lower satisfaction indicated by Tukey post hoc tests. However, there was a significant interaction effect between cluster and time, $F(2, 236) = 6.109, p = .003$, partial $\eta^2 = .049$. Follow-up repeated-measures ANOVAs revealed that classroom engaged careerists *remained stable* in their satisfaction ($F(1, 47) = 1.092, p = .301$), highly engaged persisters *increased* ($F(1, 113) = 7.087, p = .009$, partial $\eta^2 = .059$), and lower engaged desisters showed a trend to *decrease* in satisfaction ($F(1, 76) = 3.827, p = .054$, partial $\eta^2 = .048$; Fig. 4).

3.2. Differences in motivations and perceptions for different teacher types

Teacher types differed in their motivations for having chosen teaching as a career (Pillai's Trace, $F(24, 436) = 1.969, p = .004$, partial $\eta^2 = .098$). As predicted, the classroom engaged careerists (Cluster 1) and the highly engaged persisters (Cluster 2) scored significantly higher than their lower engaged counterparts on a range of motivations. They were more highly motivated to teach on the basis of their perceived teaching abilities and reported a greater desire to work with and shape the future of children and adolescents. Classroom engaged careerists and highly engaged persisters also scored significantly higher than lower engaged desisters on intrinsic value and social equity motivations. The remaining motivations were rated similarly across clusters (see Table 4).

Teacher types also differed in their perceptions regarding the teaching profession (Pillai's Trace, $F(10, 462) = 2.920, p = .001$, partial $\eta^2 = .009$). The multivariate effect was accounted for by lower engaged desisters perceiving the expert status of the teaching career significantly lowest, and classroom engaged careerists reporting significantly least social dissuasion ($p < .05$ for paired comparisons using Tukey post hoc tests). The three clusters held similar perceptions for job difficulty, salary, and the social status of the profession (see Table 4).

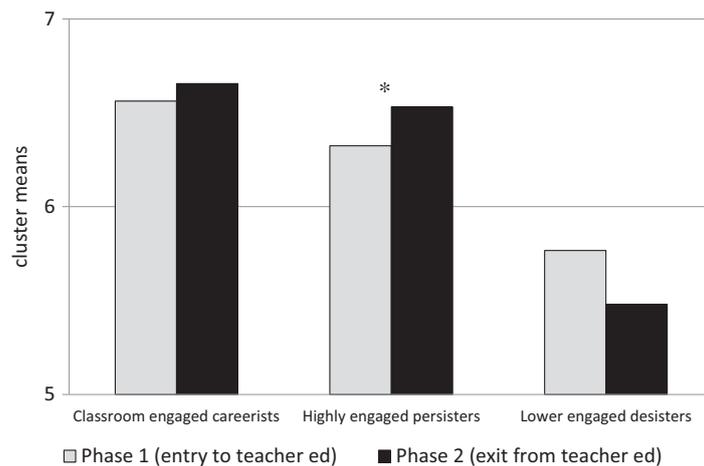


Fig. 4. Change trajectories for satisfaction with the choice of teaching as a career for different teacher types. Note: ** denotes statistically significant changes within cluster.

Responses to a range of open-ended questions further elaborated the cluster profiles, in terms of their reasons for wanting to become a teacher, what they most hoped to achieve, whether they planned to teach at all, teach for the short-term, or stay in teaching their whole career. Those who indicated a desire to move to another job after a period teaching were also asked to nominate the new job and a timeframe in which they hoped this move would occur.

3.3. Classroom engaged careerists

The majority of people in Cluster 1 indicated a desire to spend their whole future career in teaching. Only one person indicated an interest in a new job within about 10 years following graduation, but even then was not very specific about the job she had in mind. The open-ended comments foregrounded reasons for career choice and why these individuals wanted to spend their whole career in teaching. This group intently focused on the desire to work with children and adolescents in classrooms, and the inherent enjoyment and satisfaction of that work. They were passionate about teaching, believed they had the interest, skills and values to do the job well, and found the work satisfying, fulfilling, varied and rewarding – psychologically, morally and emotionally. The overwhelming majority enjoyed working with youth, and wanted to have a positive impact on their lives. For instance:

- I love children & work well with them. They inspire me. I want to be a positive innovative influence for the future of this world. . . Helping children become competent in literacy – reading writing phonics. Providing a safe environment. (ID 4285, Elementary teacher)
- I love helping others. I want to shape the lives of my students and teach them to be “life-long learners”. . . Foster academic social & emotion development. (ID 5031 Elementary teacher)
- I've wanted to be a teacher my whole life. I like the feeling of teaching kids. . . I hope to be able to make connections with all of my students. . . It is what I love doing. (ID 5030, Elementary teacher)
- Teaching has proved to be a very rewarding job. I could not see myself in any other profession. . . I hope to instil a love for learning in my students & create life-long learners. Teaching is all I ever wanted to do. It is my passion. (ID 5077, Secondary teacher)
- I enjoy helping young learners find understanding and the excitement that can come with that. Seeing the possibilities with them. . . I feel I was called to be a teacher by the gifts I was given. (ID 5131, Secondary teacher)
- To inspire, challenge, and guide children to reach their full potential in and outside of school. . . To help students learn their potential as learners in school & in life. . . It is fulfilling & rewarding. The students are great. I get to help others. (ID 5074, Secondary teacher)

These comments serve to highlight the theme of teaching being a vocation or a calling and something these future teachers were “destined to”. The intrinsic rewards of teaching were captured in phrases that characterised teaching as the “right career”, “my passion”, “love teaching”, and a job that “best suits my talents”. This cluster were focused on interacting with children and adolescents to “develop”, “inspire”, “challenge”, “guide”, “make a difference”, and “bring about excitement in learning”. They regarded teaching as providing the opportunity to exert a positive influence on the personal, social, and academic development of youth. They did not mention spending only a short time in teaching before moving on to another career, or a desire for leadership or administrative roles in educational contexts beyond the classroom.

Ten people in this cluster had pursued prior careers, mostly of similar or higher occupational status to teaching, including law, civil engineering, research science, landscape architecture and information technology; yet, they were satisfied with their career choice into teaching. Those who entered into teaching from prior careers appeared to have found an occupation

Table 4
Teaching motivations and perceptions for different teacher types.

		Dependent measure – motivations											
		Time for family	Job security	Job transfer	Shape future ^a	Social equity ^a	Work with children/adolescents ^a	Social contribution	Perceived ability ^a	Prior teaching & learning	Social influence	Intrinsic value ^a	Fallback career
Classroom engaged careerists	M (SD)	3.516 (1.365)	4.385 (1.326)	3.585 (1.438)	6.052 (1.040)	5.311 (1.332)	6.160 (.913)	5.963 (.933)	6.119 (.847)	6.007 (1.111)	3.800 (1.798)	6.015 (.829)	1.637 (.948)
Highly engaged persisters	M (SD)	3.822 (1.356)	4.529 (1.412)	3.715 (1.343)	5.871 (1.094)	5.105 (1.518)	6.170 (.940)	5.952 (1.066)	6.018 (.733)	5.712 (1.375)	3.574 (1.686)	5.745 (.854)	1.619 (.804)
Lower engaged desisters	M (SD)	3.835 (1.441)	4.422 (1.394)	3.418 (1.286)	5.476 (1.139)	4.329 (1.782)	5.560 (1.103)	5.631 (1.090)	5.480 (.885)	5.591 (1.108)	3.502 (1.752)	5.356 (1.125)	1.898 (.997)
<i>F</i>		.916	.226	1.093	4.637	7.389	9.492	2.414	11.572	1.598	.432	7.478	2.358
<i>p</i>		.402	.798	.337	.011	.001	.000	.092	.000	.205	.649	.001	.097
Partial η^2		.008	.002	.010	.039	.061	.077	.021	.092	.014	.014	.062	.020
		Dependent measure – perceptions about teaching											
		Difficulty	Expertise ^a	Social status	Salary	Social dissuasion ^b							
Classroom engaged careerists	M (SD)	6.368 (0.487)	5.514 (0.910)	4.257 (1.120)	3.104 (1.198)	3.472 (1.330)							
Highly engaged persisters	M (SD)	6.304 (0.682)	5.572 (0.949)	3.954 (1.130)	2.810 (1.370)	4.088 (1.373)							
Lower engaged desisters	M (SD)	6.136 (0.621)	5.105 (1.210)	3.954 (1.068)	2.901 (1.225)	4.443 (1.412)							
<i>F</i>		2.467	4.948	1.428	0.876	7.319							
<i>p</i>		.087	.008	.242	.418	.001							
Partial η^2		.021	.041	.012	.007	.059							

Note: Superscripts denote significant differences with Tukey post hoc tests $df=2, 228$ (for motivations) and $df=2, 234$ (for perceptions) as follows:

- ^a Cluster 3 significantly different from both other clusters.
- ^b Cluster 1 significantly different from both other clusters.

which fitted their goals, values and lifestyle expectations, and reported the same intrinsic rewards as those for whom teaching was their first career. However, their comments provided a more measured account of their choice, hopes and plans. For instance, there were personal and pragmatic factors they had clearly taken into account when making their decision to become a teacher. As they observed:

- Time to raise a family/health and retirement benefits/working with children. . . Second career very happy with my choice. (ID 5161, Elementary teacher)
- This is my 2nd career and I expect that I will be teaching throughout the rest of my life. (ID 5187, Secondary teacher)
- I enjoy interaction with others (young people) and just plain love to talk about science. . . I have had another career previously. (ID 5111, Secondary teacher)
- To bring about excitement in learning to each and every child. It is my hope to find a way to improve education for each of my students. . . This is not a job to me. It feels comfortable in a classroom to me. I have worked in book-keeping ~15 years – this teaching is where I desire to be. (ID 4219, Elementary teacher)

3.4. Highly engaged persisters

The highly engaged persisters cluster was the largest group. At first glance, people who constituted this cluster appeared rather similar to Cluster 1, in that they too enjoyed working with youth, teaching was their “dream” job, had a high level of commitment to making a positive difference in young people’s lives, sought to engage students in learning, contribute to society, and found this type of work intrinsically rewarding and gratifying. The comments of elementary and secondary future teachers were similar concerning their reasons for choosing teaching, career plans and goals:

- I enjoy the company of children and learning about how they grow. . . To teach in a classroom where all students feel comfortable eager to learn and work hard to achieve their individual goals. . . I enjoy teaching children and thrive on their achievements. (ID 4096, Elementary teacher)
- Socially proactive career. I can make a difference. . . Affecting student lives in a positive way. Developing educated United States and world citizens. . . It is important! (ID 4279, Elementary teacher)
- I want to teach children how to be kind and tolerant. I want to leave this world a better place than how I found it. . . Cultural competency that spans races, ages, and genders. . . Educating to change the world is so important. (5102, Elementary teacher)
- A contribution to society. Civic duty. It is what I do well & enjoy doing. . . To impact the lives of children in a positive manner bringing betterment to our community and society as a whole. . . It is my life calling. (ID 4100, Secondary teacher)
- I have a knack for explaining things, and I’d like to help kids learn. . . To be able to reach as many students as possible. . . I feel that is where I’m needed. (ID 4047, Secondary teacher)

This cluster contained a similar proportion of people ($n = 20$) who had pursued other careers as the first cluster, and of similar occupational status such as engineering, law, psychology, medical science, chemistry, biology, insurance administration, veterinary technician, legal secretary, and the music industry. They were as enthusiastic about the prospect of teaching as those who had not previously pursued other careers:

- An overwhelming feeling to make a difference in the world, and the lives of children. . . To reach all students in my class regardless of learning difficulties & learning styles. To continually develop professionally & learn new techniques. . . This is a 2nd profession for me. (ID 4043, Elementary teacher)
- I was accepted into a PhD program but was not interested in the research. I enjoyed teaching students as a teaching assistant in college. . . I am hoping to be able to connect to all the children and to be able to meet their educational needs. . . This is a second career for me. (ID 5097, Elementary teacher)
- To help make a difference to contribute to society. . . This is already a second career for me. (ID 5121, Secondary teacher)

The distinguishing feature of highly engaged persisters was that these individuals nominated specific future careers which they would leave the classroom in order to pursue. Other nominated future careers included law, politics, sports coaching, social work, dental hygiene, professor, PhD studies, university and school administration. This was not due to any dissatisfaction with their choice of teaching, however, they nominated a timeframe during which they hoped to have moved into work mostly associated with education and the development of others in contexts outside the actual classroom. Their desire to become a teacher was strongly felt and they valued the role that teachers play, but their career ambitions could see them leave classroom teaching for broader educative roles:

- To become a teacher for a few years and then get a job as a school psychologist. (ID 5008, Elementary teacher)
- I am hoping to make students aware of their own potential. I am looking for a job where I can be of value to students and colleagues. . . Library Science. (ID 5017, Elementary teacher)
- Being an effective teacher and really engage my students into learning. . . Athletic Director. (ID 5009, Elementary teacher)

Table 5

Cluster composition by gender, language spoken, elementary/secondary level, children, consideration or pursuit of other jobs, level of prior qualification, and teaching as a first choice.

	Cluster 1: Classroom engaged careerists (N = 48) n (%)	Cluster 2: Highly engaged persisters (N = 115) n (%)	Cluster 3: Lower engaged desisters (N = 78) n (%)	Totals
Male	12 (25.0%)	27 (23.5%)	26 (33.3%)	65
Female	36 (75.0%)	88 (76.5%)	52 (66.7%)	176
English home language	45 (93.8%)	109 (96.5%)	77 (98.7%)	231
Other home language	3 (6.2%)	4 (3.5%)	1 (1.3%)	8
Elementary	26 (54.2%)	61 (53.0%)	25 (32.1%)	112
Secondary	22 (55.8%)	54 (47.0%)	53 (67.9%)	129
No children	40 (83.3%)	102 (88.7%)	71 (91.0%)	213
Children	8 (16.7%)	13 (11.3%)	7 (9.0%)	28
Considered other job	11 (22.9%)	37 (32.2%)	25 (32.1%)	73
Pursued other job	10 (20.8%)	20 (17.4%)	14 (17.9%)	44
Neither	27 (56.2%)	58 (50.4%)	39 (50.0%)	124
GED	0 (0.0%)	1 (0.9%)	0 (0.0%)	1
High school diploma	24 (50.0%)	52 (45.2%)	55 (70.5%)	131
Vocational training certificate	1 (2.1%)	0 (0.0%)	0 (0.0%)	1
Associate degree	1 (2.1%)	6 (5.2%)	1 (1.3%)	8
Bachelor degree	12 (25.0%)	35 (30.4%)	15 (19.2%)	62
Bachelor degree with Honours	6 (12.5%)	11 (9.6%)	2 (2.6%)	19
Masters or PhD	4 (8.3%)	10 (8.7%)	5 (6.4%)	19
Undergraduate	30 (62.5%)	67 (58.3%)	61 (78.2%)	158
Graduate	18 (37.5%)	48 (41.7%)	17 (21.8%)	83
Teaching first career choice	24 (50.0%)	56 (48.7%)	38 (49.4%)	118
Teaching not first career choice	24 (50.0%)	59 (51.3%)	39 (50.6%)	122

- I have enjoyed teaching and working with children in the past and I hope to make a difference in my students' lives... I want to help enable young people to be good citizens and productive members of society by focusing on teaching skills... I'd like to leave my options open... Sports writer. (ID 5072, Secondary teacher)
- To help people... I hope to prepare students for continued education... I think it's easy to get "burnt out"... Teach at Community College. (ID 5078, Secondary teacher)
- I wanted to help the kids that didn't care in high school... To fit my curriculum in one year in a way most helpful to my students... Because I think I will burn out... Attorney. (ID 5070, Secondary teacher)

The option of moving from classroom teaching into an administrative position within educational contexts was attractive and something members of this cluster held as a longer term career goal. They commented on their leadership aspirations in these terms:

- I love teaching and would like to work at the administrative level someday. (ID 5156, Elementary teacher)
- Possibly considering administration later. I love it it's exciting and there is so much room for growth and learning opportunities. (ID 5188, Elementary teacher)
- To develop a new model for early childhood education and make kids want to learn. I want experience teaching [then] early childhood administration. (ID 5171, Elementary teacher)

3.5. Lower engaged desisters

Lower engaged desisters were mixed in their reasons for choosing teaching. As with both other clusters there was mention of wanting to work with youth and make a difference in their lives, together with teaching being a worthwhile and morally good career with its own rewards. Other reasons such as it being a family friendly career, including long vacations which allowed the possibility of pursuing personal hobbies were also offered.

- I enjoy working with children; hours are nice when I have my own family, want to help kids learn... Success for my students in & out of the classroom... Just what I imagine right now. (ID 5034, Elementary teacher)
- Summers off. Don't have to apply what I've learned just have to teach it. It is fun working with kids and watching them learn... Have fun & have a flexible enough of a job to allow me the time off that I want to relax & enjoy life... I will make enough money to support myself while having time for many hobbies on the side. (ID 5203, Secondary teacher)

A subgroup were very aware they had invested time and money into getting their teaching degree and acknowledged this as an important motivation for going into teaching. This cluster contained the highest proportion of people who indicated that they had a plan to move onto another job in future, mostly within the timeframe of 5 years. Some of their reasons concerned lifestyle, the desire for variety and change, lack of career plan, and the demanding nature of the work teachers do. Those without a career plan were simply uncertain about what they wanted to do, whereas others were unsure as to whether they would “like it or be good at it”. Others observed they had “other interests in life”, wanted to “try new things”, and teach only while they were young. This cluster contained double the number of future secondary ($n = 53$) than elementary teachers ($n = 25$), and had the hallmarks of different and varied ambitions that would be realised by pursuing a career outside teaching, or in the field of education more generally. The new jobs they nominated included helping and caring professions such as psychology and social work, also epidemiology, genetics, administration, law, business, politics, public policy, writing and sports coaching.

3.6. Demographic characteristics within clusters

Gender and language spoken at home were not relevant factors in cluster composition (gender, $\chi^2(2, N = 241) = 2.410$; English vs. other; $\chi^2(2, N = 239) = 2.291$; Table 5). Whether people had children also did not differ across clusters ($\chi^2(2, N = 241) = 1.733$). Interestingly the clusters differed on teacher education strand ($\chi^2(2, N = 241) = 9.660$) with lower engaged desisters containing greater proportions of future secondary teachers (67.9%) than classroom engaged careerists (45.8%) and highly engaged persisters (47.0%). The clusters also differed according to the degree type ($\chi^2(2, N = 241) = 8.436$) with a larger percentage of lower engaged desisters enrolled in an undergraduate teaching degree (Table 5).

No differences in ages were observed between clusters ($F(2, 237) = 1.068$). Although minimum, maximum and mean ages were very similar across all three teacher types, the ages of the lower engaged desisters appeared more tightly clustered at the younger end (classroom engaged careerists $M = 25.65$, $SD = 8.16$; highly engaged persisters $M = 25.17$, $SD = 7.61$; lower engaged desisters $M = 23.81$, $SD = 7.96$; see Fig. 5).

No differences in parental income backgrounds were observed between clusters, $F(2, 204) = 1.364$. Participants were generally not from affluent family backgrounds and the modal combined parent annual income category was \$60,001–\$90,000 (see Fig. 6).

The clusters did not significantly differ in terms of whether or not individuals had seriously considered or pursued a different career prior to enrolling in teacher education (Table 5; $F(2, 238) = .029$). There were also no differences in relation to the occupational status of careers individuals from each cluster had pursued ($F(2, 40) = .449$) or considered ($F(2, 68) = 2.446$). Types of jobs likely to have been undertaken and thought about included high status jobs such as engineering, business manager, lawyer and medical doctor. However, highly engaged persisters were more highly qualified

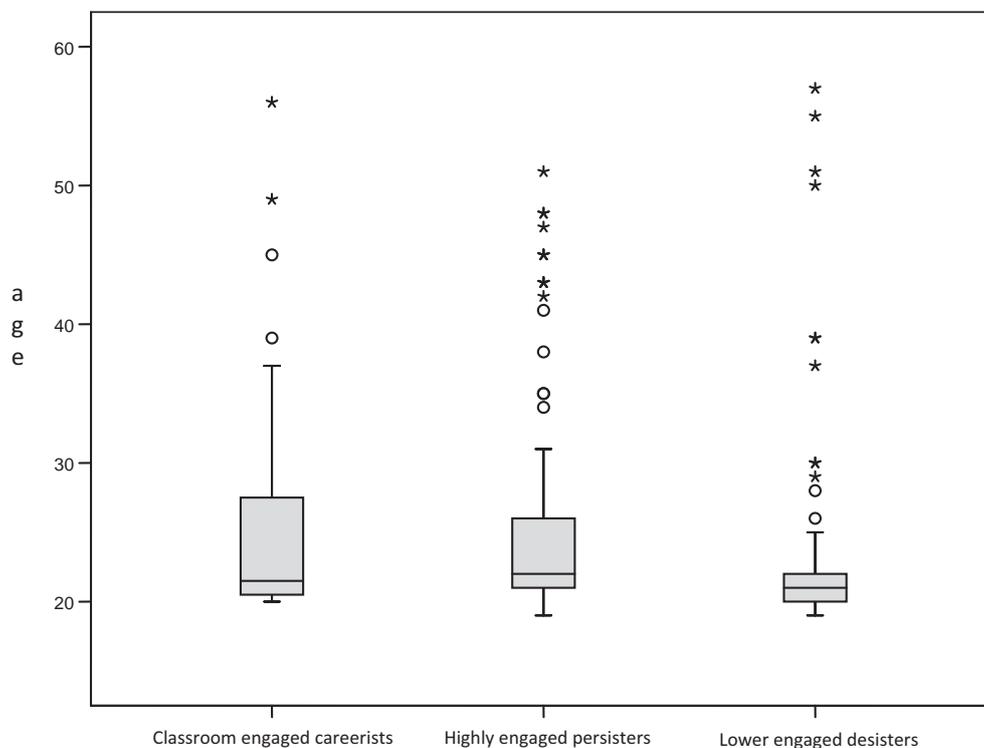


Fig. 5. Cluster profiles for age of beginning teacher education.

Note: The box length is the interquartile range and the solid bar represents the median value. 'o' denotes outliers with values between 1.5 and 3 box lengths from the upper or lower edge of the box, '*' denotes extreme cases with values more than 3 box lengths from the upper or lower edge of the box.

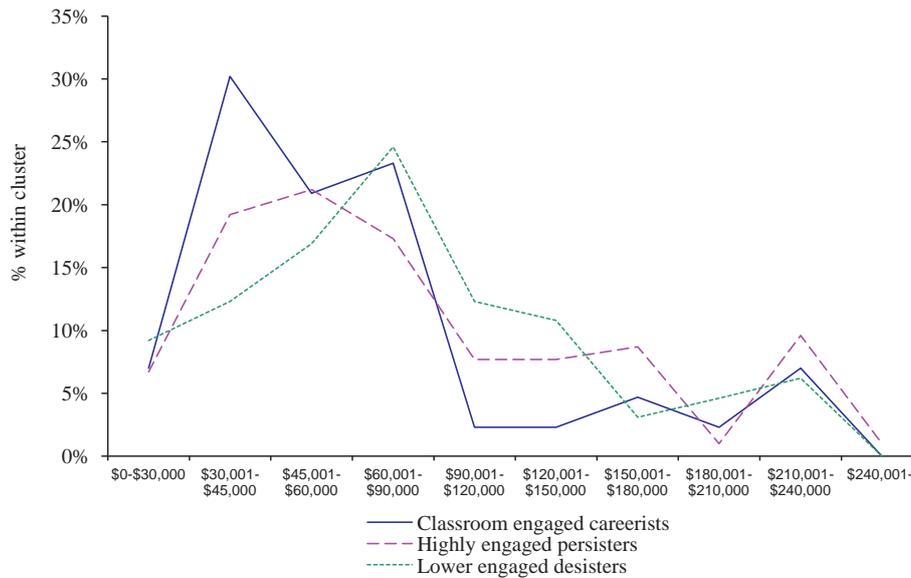


Fig. 6. Cluster profiles for combined parent income (indicative SES background).

than lower engaged desisters (see Table 5; $F(2, 238) = 4.959, p = .008$, partial $\eta^2 = .040$; $p = .007$ by Tukey post hoc tests); highly engaged persisters contained a greater proportion of individuals holding a bachelor degree or higher.

Of the 44 individuals who reported having pursued a career other than teaching prior to enrolling in teacher education (classroom engaged careerists $n = 10$, highly engaged persisters $n = 20$, lower engaged desisters $n = 14$), there were no significant cluster differences in satisfaction with those previously held careers ($F(2, 41) = .133$; classroom engaged careerists: $M = 4.50, SD = 1.58$; highly engaged persisters: $M = 4.30, SD = 1.66$; lower engaged desisters: $M = 4.14, SD = 1.75$).

In response to the question “Was teaching your first career choice?”, although there was no difference between clusters, $\chi^2(2, N = 240) = 0.25$ (see Table 5), the timing of when each cluster had chosen teaching as a career differed significantly ($F(2, 223) = 3.665, p = .027$, partial $\eta^2 = .032$). Classroom engaged careerists had decided to become teachers earlier than lower engaged desisters ($p = .026$ by Tukey post hoc tests), whereas highly engaged persisters fell in between and did not differ statistically significantly from either of the others. On average, classroom engaged careerists had decided to teach 3.55 years ago ($SD = 1.30$), highly engaged persisters 2.96 years ago ($SD = 1.66$), and lower engaged desisters the most recently at 2.78 years ago ($SD = 1.58$).

4. Discussion

Three clusters of future teachers were empirically and theoretically supported: “highly engaged persisters” had high responses across their planned effort, professional development, persistence, and leadership aspirations, and statistically significantly highest scores on leadership aspirations. This cluster resembled that identified in the earlier Australian sample and contained similarly the highest proportion of participants, of whom more than three-quarters wanted to teach for their whole career, and just over one-fifth to teach in the short term. “Lower engaged desisters” also resembled the previously identified cluster. They reported significantly lower scores on all professional engagement and career development aspirations than the “highly engaged persisters”; and, significantly lower scores than the “classroom engaged careerists” excepting their leadership aspirations which were similar. Although their mean scores on planned effort and professional development were quite high, they were lower than those of other clusters; planned persistence and leadership aspirations were also quite low relative to the scale. Three-fifths planned to teach their whole career, just under two-fifths in the short term, and 3 planned not to teach at all. Intriguingly, the final cluster “classroom engaged careerists” did not resemble any previously identified type. They gave similarly high ratings to the highly engaged persisters for planned effort, persistence and professional development, but, had significantly lower leadership aspirations. The overwhelming majority (95.9%) planned to teach their whole career.

As in the Australian study, “highly engaged persisters” increased in their high satisfaction with teaching as a career choice stable through their preservice teacher education programmes, and “highly engaged desisters” started out and remained lowest; the newly identified “classroom engaged careerists” retained high stable satisfaction. Classroom engaged careerists and highly engaged persisters scored significantly higher than their lower engaged counterparts on a range of teaching motivations: they were more motivated to teach on the basis of their perceived teaching abilities, intrinsic value, to work with youth, shape the future of youth, and enhance social equity. There were no significant cluster differences on any of the personal utility value motivations (job security, time for family, job transferability), or the negative “fallback career” motivation. For perceptions of teaching, lower engaged desisters perceived the expert status of a teaching career lowest;

classroom engaged careerists reported significantly least social dissuasion. The three clusters held similar perceptions about teaching difficulty, salary, and social status.

The only demographic characteristic on which clusters differed, was higher levels of prior qualification among highly engaged persisters. Classroom engaged careerists had also decided upon teaching the longest ago, and lower engaged desisters the most recently. Interestingly, lower engaged desisters contained a higher proportion of future secondary teachers and also more individuals who had enrolled in undergraduate teacher education, prompting us to speculate whether the longer degree preparation time and/or fewer educational and professional experiences prior to enrolment may have been factors for this group's losses in career choice satisfaction. There were no significant differences according to age, gender, language spoken at home, parental income background, whether participants had children or not, whether teaching was their first career choice, or whether they had considered or pursued a different career prior to enrolling in teacher education.

Limitations of the study should be taken into account in interpreting these findings. The low sample retention at University 1 implies strong need for replication of our findings to confirm the identification of the new classroom engaged careerists cluster in the USA context. Future research could fruitfully examine profiles of future teachers' professional engagement and career development aspirations across more different settings, to examine how salient cultural dimensions may shape particular profiles of beginning teachers' planned pathways. The USA is in many ways culturally similar to Australia; more different contexts may discern different profiles yet. On the other hand, just as initial teaching motivations appear rather similar across the contexts so far compared (e.g., APJTE 2012 special issue 40(3); Watt et al., 2012), it is possible that rather robust types of future teachers may be supported. Further replications can begin to tease out which profiles may be "core" to beginning teachers, and those which may be fashioned by cultural particularities.

4.1. Theoretical and educational significance

Having demonstrated that there are different empirical types of USA future teachers in terms of their professional engagement and career development aspirations, does any of this help us to understand which people are likely to remain in teaching and be professionally engaged, as well as why, especially within their first five years? Employing authorities and Ministries of Education in many countries around the world have found the first five years to be a critical time, with similar patterns of attrition of beginning teachers observed. Yet, little consideration has been given to their motivations for career choice and whether there might be distinct types of future teachers who hold very different career plans, hopes, and goals, and that these might not necessarily be fulfilled by a traditional career in classroom teaching. Teaching is after all a job, and like any job it attracts people for particular reasons at particular points in a person's life. For some it may be a desire to give back to their community, to contribute to a better more just society, or to work with people, especially children and adolescents; for others, teaching may seem an ideal family-friendly job. It is perhaps incorrect to assume that once people have achieved their goals that they will necessarily persist in the job. Continuing to follow these participants through their early years in the profession will yield valuable information to begin to address these questions.

The assumption that those who become teachers would remain in the profession their whole life seems in conflict with contemporary advice to workers across career domains, to expect to have multiple jobs during their lifetime. As with other forms of work, teaching has been impacted by changes in the nature of work, career structures, employee and employer loyalty, and the psychological meaning of work. Employees have had to learn a new work order characterised by performance, flexibility, and multiple changes of employers, with career advancement based on individual learning-related, portable skills (Miles & Snow, 1996). Skilled professionals with a range of work experiences in different domains now take responsibility for their own career development as their skills are deployed across different organisations and types of work. In such fluid work contexts, personal identification with meaningful work becomes a litmus test of persistence.

Our longitudinal data point to the fact that people who enter into teacher education programmes may not plan to teach for their whole career, and do have plans to move into other careers once they have fulfilled their professional goals as teachers. Across the three clusters in both the USA and Australian samples, the desire to work with children and adolescents, and having the skills and abilities to do so, was strongly felt and registered even among those who planned to move onto another career. This would seem important for teacher educators to know and to inform planning to attract and retain teachers in the profession. If teachers' motivations are distracted by excessively bureaucratic policies that take them away from the relational work they expect and value doing with youth, then it is likely these teachers will experience frustration and a lack of career satisfaction (Butler, 2012).

Highly engaged persisters and desisters types appeared quite robust across the two culturally similar contexts we have examined. Australian "highly engaged switchers" and USA "classroom engaged careerists" were in some ways a reversal of each other; the former had high leadership aspirations and low planned persistence, the latter had low leadership aspirations and high planned persistence. It is likely that the differences in career structure towards educational leadership positions across the two settings could explain why classroom engaged careerists intended to remain in classroom teaching their whole careers, and the absence of the "highly engaged switchers" cluster identified in the Australian context. Historically, typical pathways to school leadership positions in Australian schools follow demonstrated effective experience in classroom teaching over an extended period, whereas in the USA, different training is mostly required for these consequently divergent career paths. Further research is required in additional cultural contexts which offer different school leadership pathways, in order to test this explanation and establish the robustness or otherwise of these types.

Findings signal the timely need to re-examine processes for teacher recruitment, aspects of teacher education programmes, and current models of career induction and mentoring. Teacher education and teacher employing authorities need to take seriously these different types of future teachers having different profiles of professional engagement and motivations for teaching. Future teachers' different profiles of expectations, values, goals, plans, and career aspirations will inevitably lead to different profiles of professional identity and trajectories of development. The highly engaged persisters and classroom engaged careerists look as if they will be enthusiastic teachers who are in teaching for all the right reasons; however if the leadership goals of the highly engaged persisters cannot be met in conjunction with their classroom teaching goals, and if the classroom engaged careerists find themselves in schools and district cultures that do not allow them to work effectively with youth and to feel they are making a difference to the lives of the children with whom they are in daily contact in classrooms, their enthusiasm for the job and their intention to persist in the profession may be significantly tempered. Understanding which future teachers are professionally engaged, committed and plan to persist in the profession will help focus recruitment and retention efforts.

Three distinct future teacher types showed that different combinations of reasons were relevant to each group's choice of teaching as a career, and these reasons were further illustrated and discussed in relation to qualitative data from open-ended survey questions. Identification of "at risk" lower engaged desisters will provide important guidance regarding who requires strongest support during their period of professional induction. Consideration of and engagement with beginning teachers' career motivations, expectancies and values may help to pave the transition to becoming a teacher. More proactive policies to ease the transition from teacher education to the world of schools are likely to hold promise for early career teachers (Borman & Dowling, 2008); understanding the particular profiles of future teachers' motivations, career choice satisfaction and career intentions, will be critical to such endeavours. Teacher motivations have received insufficient research attention and yet seem central to future teachers' professional engagement and career development aspirations. If we can better understand them, for different types of future teachers, we can focus upon how best to prepare, engage and sustain future teachers to deal with the realities of their early teaching careers.

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References

- Akiba, M., & Le Tendre, G. K. (2009). *Improving teacher quality: The U.S teaching force in global context*. New York: Teachers College Press.
- Akiba, M., Chiu, Y.-L., Shimizu, K., & Lian, G. (2012). Teacher salary and national achievement: A cross-national analysis. *International Journal of Educational Research*, 53, 171–181.
- Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research*, 78, 367–409.
- Brookhart, S. M., & Freeman, D. J. (1992). Characteristics of entering teacher candidates. *Review of Educational Research*, 62, 37–60.
- Butler, R. (2012). Striving to connect: Extending an achievement goal approach to teacher motivation to include relational goals for teaching. *Journal of Educational Psychology*, 104, 726–742 <http://dx.doi.org/10.1037/a0028613>
- Chang, M.-L. (2009). An appraisal perspective of teacher burnout: Examining the emotional work of teachers. *Educational Psychology Review*, 21, 193–218.
- Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., et al. (1966). *Equality of educational opportunity*. Washington, DC: Government Printing Office.
- de Heus, P., & Diekstra, R. F. W. (1999). Do teachers burn out more easily? A comparison of teachers with other social professions on work stress and burnout symptoms. In R. Vandenberghe & A. M. Huberman (Eds.), *Understanding and preventing teacher burnout: A sourcebook of international research and practice* (pp. 269–284). Cambridge, UK: Cambridge University Press.
- de Jesus, S. N., & Lens, W. (2005). An integrated model for the study of teacher motivation. *Applied Psychology – An International Review (Psychologie Appliquee – Revue Internationale)*, 54(1), 119–134.
- U.S. Department of Labor Employment and Training Administration. (1998). *O*NET: The occupational information network*. Washington, DC: US Government Printing Office.
- Eccles, J. S. (2005). Subjective task value and the Eccles et al. model of achievement-related choices. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 105–121). New York: Guilford Press.
- Eccles, J. S. (2009). Who am I and what am I going to do with my life? Personal and collective identities as motivators of action. *Educational Psychologist*, 44(2), 78–89.
- Eccles (Parsons), J., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J. L., & Midgley, C. (1983). Expectancies, values, and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motivation* (pp. 75–146). San Francisco, CA: WH Freeman.
- Guarino, C. M., Santibanez, L., & Daley, G. A. (2006). Teacher recruitment and retention: A review of the recent empirical literature. *Review of Educational Research*, 76, 173–208.
- Hattie, J. A. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London; New York: Routledge.
- Henke, R. R., Chen, X., & Geis, S. (2000). *Progress through the teacher pipeline: 1992–93 college graduates and elementary/secondary school teaching as of 1997*. Washington, DC: National Center for Educational Statistics.
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related value*. Beverley Hills, CA: Sage Publications.
- Hofstede, G. (2001). *Culture's consequences: Comparing values behaviors institutions and organizations across nations*. London: Sage Publications.
- Ingersoll, R. M. (2001). Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*, 38, 499–534.
- Ingersoll, R. M. (2003). *Is there really a teacher shortage?* Seattle: University of Washington, Center for the Study of Teaching and Policy.
- Ingersoll, R. (2012). Beginning teacher induction: What the data tell us. *Phi Delta Kappan*, 93(8), 47–51.
- Ingersoll, R. M., & Strong, M. (2011). The impact of induction and mentoring programs for beginning teachers. *Review of Educational Research*, 81, 201–233.
- Inglehart, R. (1997). *Modernization and postmodernization: Cultural economic and political change in 43 societies*. Princeton: Princeton University Press.
- Inglehart, R., & Baker, W. (2000). Modernization, cultural change and the persistence of traditional values. *American Sociological Review*, 19–51.

- Inglehart, R., & Welzel, C. (2010). Changing mass priorities: The link between modernization and democracy. *Perspective on Politics*, 8(2), 551–567.
- Johnson, S. M., & Birkeland, S. E. (2003). Pursuing a "Sense of Success": New teachers explain their career decisions. *American Educational Research Journal*, 40, 581–617.
- Kieschke, U., & Schaarschmidt, U. (2008). Professional commitment and health among teachers in Germany: A typological approach. *Learning and Instruction*, 18, 429–437.
- Lin, E., Shi, Q., Wang, J., Zhang, S., & Hui, L. (2012). Initial motivations for teaching: Comparison between preservice teachers in the United States and China. *Asia-Pacific Journal of Teacher Education*, 40(3), 227–248.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach burnout inventory manual* (3rd ed.). Mountain View: CPP, Inc.
- Miles, R. E., & Snow, C. C. (1996). Twenty-first century careers. In M. B. Arthur & D. M. Rousseau (Eds.), *The boundaryless career* (pp. 97–115). New York: Oxford University Press.
- National Commission on Teaching and America's Future. (1996). *What matters most: Teaching for America's future*. New York: NCTAF.
- OECD. (2005). *Attracting developing and retaining effective teachers—Final Report: Teachers Matter*. Paris: Author.
- Richardson, P. W., & Watt, H. M. G. (2006). Who chooses teaching and why? Profiling characteristics and motivations across three Australian universities. *Asia-Pacific Journal of Teacher Education*, 34(1), 27–56.
- Richardson, P. W. & Watt, H. M. G. (2010). Current and future directions in teacher motivation research. In T.C. Urdan & S.A. Karabenick (Eds.), *The decade ahead: Applications and contexts of motivation and achievement; Advances in Motivation and Achievement Vol. 16B*, (pp. 139–173). Bingley, U.K.: Emerald.
- Schwartz, S. H. (1992). Universals in the content and structure of values: Theory and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (pp. 1–65). New York: Academic Press.
- Schwartz, S. H. (1994). Beyond individualism/collectivism: New cultural dimensions of values. In U. Kim, H. C. Triandis, C. Kagitcibasi, S.-C. Choi, & G. Yoon (Eds.), *Individualism and collectivism: Theory, method and applications* (pp. 85–119). Newbury Park, CA: Sage.
- Schwartz, S. H. (2003). Mapping and interpreting cultural differences around the world. In H. Vinken, J. Soeters, & P. Ester (Eds.), *Comparing cultures, dimensions of culture in a comparative perspective*. Leiden, The Netherlands: Brill.
- Triandis, H. C. (1989). The self and social behavior in different cultural contexts. *Psychological Review*, 96, 269–289.
- Triandis, H. C. (1995). *Individualism and collectivism*. Boulder, CO: Westview Press.
- Triandis, H. C. (2001). Individualism and collectivism. In D. Matsumoto (Ed.), *Handbook of crosscultural psychology*. New York: Oxford University Press.
- Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research*, 54, 143–178.
- Watt, H. M. G. (2006). The role of motivation in gendered educational and occupational trajectories related to math. In H. M. G. Watt & J. S. Eccles (Eds.), *Understanding women's choice of mathematics and science related careers: Longitudinal studies from four countries*. *Educational Research and Evaluation*, 12(4), 305–322.
- Watt, H. M. G. (2008). What motivates females and males to pursue sex-stereotyped careers? In H. M. G. Watt & J. S. Eccles (Eds.), *Gender and occupational outcomes: Longitudinal assessments of individual, social, and cultural influences* (pp. 87–113). Washington, DC: American Psychological Association.
- Watt, H. M. G., & Richardson, P. W. (2007). Motivational factors influencing teaching as a career choice: development and validation of the FIT-Choice scale. *Journal of Experimental Education*, 75, 167–202.
- Watt, H. M. G., & Richardson, P. W. (2008). Motivations, perceptions, and aspirations concerning teaching as a career for different types of beginning teachers. *Learning and Instruction*, 18, 408–428.
- Watt, H. M. G., Richardson, P. W., Klusmann, U., Kunter, M., Beyer, B., Trautwein, U., & Baumert, J. (2012). Motivations for choosing teaching as a career: An international comparison using the FIT-Choice scale. *Teaching and Teacher Education*, 28, 791–805.