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Beryl Exley
Queensland University of Technology

Sue Walker
Queensland University of Technology

Joanne Brownlee
Queensland University of Technology

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Abstract: The last two decades have seen the massification of preservice teacher education and critiques of its quality in Australia and elsewhere. Part of the strategy of massification has been the establishment of satellite campuses in growth corridors. This paper enters the debate on the quality of preservice candidates. The purpose of this research is two-fold: to note comparisons and parallels in demographics across main and satellite campuses, and to advance research on the epistemological beliefs of first year preservice teachers according to campus location. In doing so, we offer an alternative metric for characterising these two groups of students. The results show that the students from both campuses are demographically diverse but are similar in terms of the beliefs they hold about knowing and learning. These findings talk-back to the critique of entry standards for preservice teachers in general and satellite campus students in particular.

The Massification of Teacher Education

There is no denying the importance of education to any nation-building program, nor the correlation of teacher quality and educational productivity. Without high-quality teachers the goal of high achievement for all students will simply not be met. These imperatives, *inter alia*, have driven the phenomenon known as the 'massification' of higher education in many industrial economies, including Germany, France, Japan, Taiwan, the United States (Darling-Hammond, Holtzmann, Gatlin & Vasquez Heilig, 2005) and Australia (Bates, 2005). This process has transformed higher education from institutions that only permitted 'elite' entry to a select range of courses, to mass entry to a greater range of courses (Morgan, 1997) including education studies. At the same time, there have been additional policy moves, which involved the establishment of satellite campuses, to improve preservice teacher education of hitherto excluded populations.

In Australia in the late 1980s, 75 Colleges of Advanced Education and 19 universities were transformed into 37 universities. However, since this time, like many cosmopolitan cities throughout the world, Australian cities and regional centres have expanded outwards, driven by the ideal of home ownership and/or providing a safe, semi-rural, sub-urban environment for families (see *Sunshine state tops population growth*, 2005). This development meant that the target population for university entry was now living ever increasing distances from where most of the 37 university campuses were located.

In the last two decades, however, policy redirected these (re)formed universities to set up small satellite campuses in newly identified growth corridors. These policies were a part of the package of reform attempting to redress rising youth unemployment and low education retention rates in low-socio economic areas (Organisation for Economic Co-operation and Development, 2001; Queensland Government, 2003a, b). Whilst these campuses are

physically located in existing or newly identified growth corridors, they articulate with the larger main campus and their immediate local community in diverse ways.

      Although satellite campuses can only provide a narrow range of course offerings, teacher education has almost always been on offer due to concerns of an imminent teacher shortage (Ministerial Council on Education, Employment, Training and Youth Affairs, 2004, p. 6). Significant aims have been achieved for teacher education in the short term: enrolment numbers have risen and preservice teachers now represent a broader range of socio-economic classes, age and geographical locations. A consequence though has been that new cohorts from non-university educated familial backgrounds and those not meeting standard entry criteria have sought to study at these campuses (Schirato, 2006). The resulting effect has been a change to the demographics of preservice teacher enrolment with reports of preservice teachers gaining entry with lower scores, increases in alternative entry enrolments, and the conjecture that traditional academic standards have given way to pragmatism and poorer graduate outcomes. Aspersions have been cast upon the quality of these candidates, particularly in relation to their entry and exit characteristics vis-à-vis graduands from the more established campuses.

Teacher Quality

      While teacher quality has been called into question for students completing their teacher education courses on satellite campuses, similar claims are also being made with regard to pre-service teachers in general. Research reviewed for the Education Commission of the States report by Allen (2005, p. v) argues that preservice teacher quality in the US is sliding. It provides strong evidence that college graduates with the highest levels of intellectual proficiency are less likely to go into teaching than other college graduates. Another research report reviewed by Ackley, Fallon and Brouwer (2007, p. 658) found that almost all of the undergraduate and graduate teacher education institutions in the United States use grade point average (GPA) scores as a selection criterion, but a direct relationship between candidates' GPA scores and their later functioning as teachers has not been demonstrated. 'The same can be said of writing samples and completion of an introductory education course, of pre-admission field hours and basic skills competence tests, and of letters of recommendation' (Ackley, Fallon & Brouwer, 2007, p. 658). Both the measures used by the Allen report (2005) and that which is reviewed by Ackley, Fallon and Brouwer (2007) do not consider that influences on teacher quality include the content and pedagogies explored during the teacher education qualification. Quite simply, the teacher education institution is by no means a passive entity. Furthermore, neither set of indicators have really been corroborated as a valid predictor of competence in teaching.

      Similar claims about low levels of competence in teaching have been made in the Australian context. Leigh and Ryan stated that 'the aptitude of new Australian teachers has fallen considerably' (2005, p. ii). Yet, an analysis of their report draws into question the metric of employing a single literacy and numeracy measure for immediate school leavers entering teacher education courses as a proxy for projected teacher quality. Their study is flawed on two accounts. Their claim, cited above, erroneously generalises their findings to make claims about all participants in undergraduate preservice teacher education when the range of preservice teachers includes more than those who have just completed secondary school. Another flaw is borne out of the metric employed. This metric was (by admission) limited in that it only assessed pre-service teachers' literacy and numeracy in their ninth year of formal schooling. This narrow focus excluded measures of other professional knowledge bases for teaching such as content knowledge of areas of teaching, teaching process knowledge (Shulman, 1987) and teachers' knowledge of their own and the students' pedagogic identities (Exley, 2005). Over the last three decades a growing research literature

has focused on teachers' knowledge of pedagogic identities by investigating personal epistemology and its relationship to the quality of learning and teaching. This literature offers promising insights into how to promote and indeed measure quality learning in teacher education.

Epistemological Beliefs: Beliefs about Knowing and Learning

Epistemological beliefs are those beliefs an individual holds about the nature of knowing and knowledge (Pintrich, 2002; see also Walker et al, in press, for an historical overview). Considerable research in this area focuses on the nature of, and changes in, epistemological beliefs. Perry's (1970) seminal research found that progression through university studies for male liberal arts students represented a continuum from dualism (knowledge is simple and certain and able to received through a process of transmission), to multiplism (knowledge is based on personal opinions) through to relativism (knowledge is complex, tentative and opinions need to be evidenced-based). Other research has replicated these findings (see for example Kuhn and Weinstock, 2002). These developmental theories acknowledge changes from non-availing to availing beliefs depending on the extent to which such beliefs help (avail) or hinder learning (Muis, 2004). As students progress through their higher education courses, it is likely that beliefs will become more availing, as views about knowledge become more complex and uncertain.

Drawing on the seminal work of Perry from the 1970s, Schommer's empirical work (1993) suggested that epistemological beliefs are not unidimensional and stage-like but rather are multidimensional and independent, and according to Chan, have cultural implications (2004). This means that those individuals can hold a combination of sophisticated and naïve beliefs in one or more of five dimensions. These five dimensions were initially described as (a) Omniscient Authority (beliefs about the source of knowledge), (b) Certain Knowledge (beliefs about the certainty of knowledge versus construction of knowledge), (c) Simple Knowledge (beliefs about structure/integration of knowledge), (d) Quick Learning (beliefs about the speed of learning), and (e) Innate Ability (beliefs about the stability of knowledge). Kardash and Wood (2000) developed an Epistemological Beliefs Questionnaire (EBQ), and in doing so, restructured the five dimensions, as detailed in Table One, below. The dimension described by Schommer as Omniscient Authority (beliefs about the source of knowledge) was a factor that was not found to exist in Kardash and Wood's further study. Kardash and Wood also purported that Schommer's 'Certain Knowledge' dimension subsumes both 'knowledge construction' and 'attainability of truth'.

Kardash & Wood (2000)	Schommer (1993)	Explanation
Beliefs about the structure of knowledge	Simple knowledge	When individuals believe that knowledge is categorical and unconnected, their thinking across boundaries is hindered. In contrast, individuals who view knowledge as integrated are more likely to be analytical and evaluative in their thinking.
Speed of knowledge acquisition	Quick learning	Individuals can either believe that learning takes place quickly or not at all. Individuals who believe in quick learning when the task actually requires complex processing may experience difficulties in integrating information into a coherent whole (Schommer, 1990).
Knowledge construction Attainability of truth	Certain knowledge	Individuals who subscribe to notions that knowledge is absolute and unchanging are less likely to crucially appraise information (Kardash & Scholes, 1996), and according to McDevitt (1990, cited in Schommer, 1994), are less likely to take responsibility for their own learning, thereby remaining passive in the learning process.
Characteristics of student success	Innate ability	Individuals who believe that characteristics of student success is based on innate ability may resort to learned helplessness, and thus resist challenging tasks. In contrast, students who believe that student success is the result of effort are more likely to engage in higher order reasoning and reflection (Bendixen et al, 1994).

Table One: Dimensions of Epistemological Beliefs

A focus on epistemology is particularly relevant in preservice teaching, given students' potential to influence the learning and development of children (Stacey, Brownlee, Thorpe, Reeves and Class EAB016, 2005). Numerous studies in the last two decades have demonstrated that epistemological beliefs have an impact on teacher practice and learning outcomes for students (Richardson, Anders, Tidwell & Lloyd, 1991; Schommer, 1993; Hashweh, 1996; Schommer, Calvert, Garigliette & Bajaj, 1997; Kang & Wallace, 2005). The current research will contribute to more useful understandings of preservice teacher education quality by characterising preservice student teachers according to campus location.

The Study

The purpose of this part of the study was to investigate how demographics and epistemological beliefs varied across preservice teachers located on two campuses of the multi-campus Queensland University of Technology, hereafter known as QUT. This is preliminary data from the first phase of a longitudinal study that is intended to investigate students' epistemological beliefs as they progress through their university studies.

Context

QUT is home to Australia's largest Faculty of Education, and a relatively new entrant into the satellite campus market. QUT markets itself as a 'highly successful, energetic and innovative university of 40 000 students, with a strong applied emphasis. Its well known positioning as a *university for the real world* reflects strong and productive links with industry, the profession and the community in teaching and research' (Queensland University of Technology, 2007). Since its metamorphosis from a College of Advanced Education to a university in 1989, the QUT Faculty of Education has been situated at the inner-city Kelvin Grove campus, 3 kilometers from the central business district of Brisbane city, the capital of the state of Queensland. In 2007 the Faculty equivalent full-time student load (EFTSL) was 3516, with 890 EFTSL enrolled in the preservice Bachelor of Education (Primary) degree (BEd Prim). The BEd (Prim) degree typically takes eight semesters, or four years fulltime, to complete.

In 2005 this qualification was offered for the first time at the newly established Caboolture Shire satellite campus. Caboolture Shire is located 50 kilometres (approximately 31 miles) north of the city of Brisbane in one of the fastest growing local government areas in Australia. Over the last ten years, Caboolture Shire has consistently recorded an annual growth rate well above the national average. In 2006, Caboolture Shire's population was 134 829 persons (*Caboolture March Quarter 2007,* 2007), with projected population of 416 000 by 2021 (Delaforce & Buckley, 2003). The trend unemployment rate has remained consistent over the past two years, hovering around 6.8% in the December Quarter of 2006, a considerable reduction of the almost 12% unemployment of December 2001 (*Caboolture March Quarter 2007,* 2007).

One hundred and twenty prospective students listed the BEd (Prim) degree at Caboolture as their first preference, whilst a total of 471 people listed the course at Caboolture as a preference (New Course in Demand, 2005). Although it was initially planned to offer 25 places for BEd (Prim) students, the commencing cohort size was more than doubled when a large number of 'qualified applications' was received (Queensland University of Technology, 2005, p.7). Such offerings became possible with the allocation of more student places by the Australian Commonwealth Government and QUT's commitment to the Northern Corridor region (Delaforce & Buckley 2003). These figures suggest that the new millennium version of massification of higher education was at the very least going to increase university accessibility in growth corridors.

Participants

In Semester 1, 2007, 292 students were enrolled in the Bachelor of Education (Primary) degree at either the Kelvin Grove or Caboolture campus. This research focuses on the 236 students (Kelvin Grove = 190, Caboolture = 46) who attended the first lecture and completed the EBS. The satellite campus cohort (Caboolture) who entered in 2007 undertook an identical course to that offered at the Kelvin Grove campus. The logic of offering an identical course was to allow students who needed to move between campuses the freedom to do so without compromising their course progression. Up until this point, such arrangements were simply not possible.

Data Collection and Analysis

In the first week of Semester One, 2007, all first year BEd (Prim) (n=236) students present for the first lecture were invited to complete a survey about their demographic details and their epistemological beliefs (Epistemological Beliefs Survey) (Kardash & Wood, 2000). The EBS assesses students' beliefs about the structure of knowledge (integration of knowledge), speed of knowledge acquisition (learning is quick or not at all), knowledge construction (learning takes place through a process of constructing personal meaning), characteristics of student success (e.g., views about innate ability), and attainability of truth (the certainty of knowledge). Responses are scored on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Following Kardash and Wood (2000) items were summed for each subscale to produce factor scores for Structure, Speed, Knowledge Construction, Success, and Truth. Reliability (Cronbach's alpha) of the subscales ranged from .54 to .74. Higher scores on all factors represent more sophisticated beliefs.

Results

The focus of this study was to investigate (i) who these students are, and (ii) how their epistemological beliefs vary for pre-service teachers studying across the city (Kelvin Grove) and satellite (Caboolture) campuses of QUT.

Student Demographics

Of the Kelvin Grove students, 38% (n=89) came directly from Secondary Schooling compared with 34% (*n*=19) of the Caboolture campus students. In Queensland, students completing the required number of 'Authority' units are issued with a Tertiary Entrance Score, called an Overall Position (OP). OPs can range from one to 25, with one being the 'highest'. The Kelvin Grove student group had OPs in the 2-12 range. The mean was 9.17 with a standard deviation of 2.71. The Caboolture student group's OPs ranged from 4-15, with a mean of 10.74 and a slightly larger standard deviation of 2.92.

These figures indicate that 62% of Kelvin Grove students and 66% of Caboolture students are not immediate Queensland school leavers with a qualifying OP. Yet in their public critique of the supposedly falling standards of teacher education students in Australian universities, Leigh and Ryan (2006) only considered a metric of aptitude based on immediate school leavers. The QUT student demographics clearly show that immediate school leavers only represent approximately one-third of the cohort from each campus.

The two student groups also differed on four other entry measures:

1. *Commenced or completed Higher Education Studies*: 30% (n=71) of Kelvin Grove and 27% (n=15) of Caboolture students had undertaken, but not necessarily completed, some Higher Education Studies.
2. *Completed TAFE (Technical and Further Education) diplomas and advanced diplomas:* Only 4% of the Kelvin Grove cohort (n= 10) had completed a TAFE diploma or advanced diploma, compared with 11% of the Caboolture students (n=6).
3. *Completion of Professional Qualifications*: Only 1% of the Kelvin Grove cohort (n=3) identified as having a Professional Qualification, compared with 5% of the Caboolture cohort (n=3).
4. *QUT Alternative Entry Scheme*, which recognises students who are technically ineligible for any of the above categories but show potential for academic success: Alternative Entry applications were successful for 5% of Kelvin Grove students (n=12), compared with 13% of the Caboolture group (n=7).

Age variation provided another point of difference between the two cohorts, especially in terms of the under 20 group (Kelvin Grove = 74%; Caboolture = 55%) and the 25-29 year olds (Kelvin Grove = 6%; Caboolture = 20%). Whilst both campuses had commencing students ranging in age from under 20 to between 40 and 44, no notable difference existed between the two campuses for students aged 20-24, 30-34, 35-39, 40-44.

Epistemological Beliefs Survey

Comparisons between the Kelvin Grove and Caboolture campus groups were made with respect to the factor scores on the EBS. Analyses of Variance (ANOVA, *p* < .05) were used to test for differences between groups. The one-way ANOVAs used student cohort as the independent variable and EBS factor scores as dependent variables. Means and standard deviations on each of the subscales are presented in Table Two.

Overall findings indicated that students, as a whole group scored highest on Speed and lowest on Structure indicating that students were more likely to believe knowledge consists of a series of facts rather than an integrated body but that, conversely, knowledge acquisition

might take time. Using Wilks' lambda statistic, a one-way ANOVA revealed a significant difference between groups with respect to the factor score for Truth, $F(1, 231) = 6.53$, $p = .011$. Examination of group means indicated that the students at the Caboolture campus had more sophisticated beliefs about the attainability of truth. However, this was the only significant difference found between the two cohorts. It is also noteworthy that the only subscale on which significant differences between groups were found is, with only three items, the least reliable of the five subscales on the EBS.

	Kelvin Grove Campus (*n* = 190)		Caboolture Campus (*n* = 46)		Total (*N* = 233)	
	M	**SD**	**M**	**SD**	**M**	**SD**
Speed	3.97	0.40	4.05	0.30	3.98	0.39
Construction	3.67	0.49	3.58	0.34	3.65	0.46
Success	3.54	0.53	3.57	0.50	3.55	0.52
Truth	3.36	0.68	3.64	0.70	3.41	0.70
Structure	2.88	0.49	2.80	0.41	2.86	0.48

Table Two. Means and Standard Deviations on EBS Factors by Campus Cohort

Discussion

The purpose of this small-scale part of the larger longitudinal study was two fold: to advance reporting of the demographic characteristics of first year preservice teachers according to campus location; and advance research on the epistemological beliefs of first year preservice teachers according to campus location.

In terms of differences in demographics, this research documented the widening demographic gap between preservice teachers at city-based and satellite campuses. School leavers from the Kelvin Grove cohort had slightly better tertiary entrance scores than the Caboolture cohort, whereas a larger percentage of the non-school leavers at the Caboolture campus had undertaken further study or applied for an alternative entry as compared to the Kelvin Grove cohort. On average, the Kelvin Grove cohort was considerably younger, with 89% of first year BEd (Prim) students aged 24 and under, compared with 69% of the Caboolture cohort. In summary, these demographics confirm that QUT's BEd (Prim) students are demographically diverse and that this difference is rendered invisible in Leigh and Ryan's (2006) discussion paper. Importantly, these demographics show there are generalisable differences between student groups from each campus.

In terms of similarities in demographics, the findings suggest the two groups of students to be more alike than dissimilar on two accounts. Both groups had more non-school leavers than school leavers in their midst. 'The notion that school leavers experience a sense of vocation to teach as teenagers, complete an undergraduate qualification by the time they are 21 [years old] and then stay in a teaching career for the next 40 years is already patently inaccurate' (Queensland University of Technology, 2005), as reflected in the data described above. Many mature adults now commence a teaching career in mid-life and bring to their studies years of work and life experience.

Casting a critical lens on this demographic data reveals two further issues. The data, as presented here, serves to promote students' absences or deficits thereby re/producing negative stereotypes for particular students groups. Also, the absence of consideration of learner characteristics forces the course coordinator and pedagogic designers to work from a point of ignorance. This does not bode well for considering support that will enable all students to grow and develop into quality teachers. The recently released Commonwealth of Australia's House of Representatives Standing Committee on Education and Vocational Training (2007, p. xxii) 'Top of the Class Inquiry into Teacher Education' described the need for research to examine the effects of student background, learner characteristics and course location. These

important variants, which may help to identify preservice teacher education students' strengths and learning needs, were not represented in Leigh and Ryan's (2006) data and remain underexplored. This absence draws attention to the relative invisibility of students-as-learners in general and the small cohorts on satellite campuses in particular. It is more instructive to examine the characteristics of all beginning undergraduate preservice teachers rather than make claims on the basis of a minority sampling.

It is the purpose of this paper to illuminate other comparative measures of preservice teacher quality on course entry. The study compared the main and satellite campus first year preservice teachers' epistemological beliefs as measures of students-as-learners. The two groups were more alike than dissimilar on their beliefs about knowing and learning as measured by the EBS. Significant differences between groups were only evident on one sub-scale, that of Truth. The students at the satellite campus held more sophisticated beliefs about the nature of truth than the students at the large city campus. Students at the city campus were more likely than those at the satellite campus to believe that truth was absolute which might suggest a more passive approach to learning, because knowledge is not conceived as being constructed but rather as being "received". These findings suggest that these first year students may experience some difficulties in adjusting to learning expectations. Students with naïve beliefs about knowing and learning, which do not promote independent learning, may experience difficulty at university. For example, Braton and Strømsø (2004) noted that Norwegian teacher education students who believed that truth was stable were not predisposed to using mastery goals in their learning. These goals are important because these promote "gradual self-improvement and increased competence through the involvement with laborious tasks" (p. 384). Universities need to be responsible for ensuring that students' conceptions and expectations are explicitly addressed (Hofer, 2004; Nelson, Kift, Humphreys & Harper, 2006). The first year of higher education can be a valuable opportunity to help students to reflect on and possibly re-construct their views about learning and knowledge (Chai, Khine, & Teo, 2006; Harvey, Drew & Smith, 2006; Hofer, 2004), with a view to supporting this transition into effective learning in higher education. This means that first year courses need to account for not only content knowledge but how students learn (Hofer, 2004).

Taken together, these findings raise questions about stereotypes of students, particularly those attending universities in low socio-economic areas, studying at satellite campuses and/or those who are the first in their immediate family to participate in tertiary studies. Thus this stage of the research has answered questions about the characteristics of pre-service teacher candidates according to campus location and epistemological beliefs. In contrast to Leigh and Ryan's (2006) report on teacher education quality, Hofer and Pintrich (1997) propose there is potential for individual's understandings of knowing and learning to change over time, particularly as a result of their degree studies. We will continue to examine this cohort as they transition through the stages of their preservice teacher education. The purpose of our research is not to suggest a measure of epistemological belief as criterion for course entry. There is, after all, an expectation that during the course of four years the preservice teachers will develop the qualities and attributes of a good teacher. In essence, the quality of the students when they graduate is more important than their academic achievement when they enter the course.

References

Ackley, B., Fallon, M., & Brouwer, N. (2007). Intake assessments for alternative teacher education: Moving from legitimation to predictive validity. *Assessment & Evaluation in Higher Education,* 32(6), 657-665.
Allen, M. B. (2005). *Eight questions on teacher recruitment and retention: What does the research say?* Denver: Education Commission of the States.

Bates, R. (2005). On the future of teacher education: Challenges, context and content. *Journal of Education for Teaching: International Research and Pedago*gy, 31(4), 301-305.

Bendixen, L. D., Dunkle, M. E. & Schraw, G. (1994). Epistemological beliefs and reflective judgment. *Psychological Reports, 75*, 1595-1600.

Braton, I., & Strømsø, H. (2004).   Epistemological beliefs and implicit theories of intelligence as predictors of achievement goals. *Contemporary Educational Psychology, 29,* 371–388.

Caboolture March Quarter 2007. (2007). Retrieved November 1, 2007 from Caboolture Shire Council website:
http://www.caboolture.qld.gov.au/uploadedFiles/business/Fact%20Sheet%20-%20March%20Quarter%202007.pdf

How to cite references (1996). Retrieved November 21, 2001, from Murdoch University Library website: http://wwwlib.murdoch.edu.au/libinfo/gdes/refgdes/cite/cite.html

Chai, C. S., Khine, M. S., & Teo, T. (2006). Epistemological beliefs on teaching and learning: A survey among pre-service teachers in Singapore. *Educational Media International, 43*(4), 285-298.

Chan, K. (2004). Preservice teachers' epistemological beliefs and conceptions about teaching and learning: Cultural implications for research in teacher education. *Australian Journal of Teacher Education, 29*(1), 1-13.

Commonwealth of Australia, House of Representatives Standing Committee on Education and Vocational Training. (2007). *Top of the Class: Report on the Inquiry into the Teacher Education.* Canberra: House of Representatives Publishing Unit.

Darling-Hammond, L., Holtzman, D., Gatlin, S. J., & Vasquez Heilig, J. (2005). *Does teacher preparation matter? Evidence about teacher certification, teach for America, and teacher effectiveness.* Retrieved November 1, 2007 from
http://www.stanford.edu/~ldh/publications/LDH-teacher-certification-april2005.pdf

Delaforce, W. H. & Buckley, J. A. (2003). *The Northern Corridor Education Precinct – The three leaf clover: Education providers and the community – A story of collaboration, commitment and the grass roots*. Retrieved 1 November, 2007 from Queensland University of Technology website: http://eprints.qut.edu.au/archive/00002342/.

Exley, B. (2005). *Teachers' Professional Knowledge Bases for Offshore Education: Two case studies of Western teachers working in Indonesia.* Unpublished PhD Thesis, Queensland University of Technology, Brisbane, Australia.

Harvey, L., Drew, S., & Smith, M. (2006*). The first year experience: A review of the literature for the Higher Education Academy.* York, England: The Higher Education Academy.

Hashweh, M. Z. (1996). Effects of science teachers' epistemological beliefs in teaching. *Journal of Research in Science Teaching, 33*(1), 47-63.

Hofer, B., & Pintrich, P. R. (1997). The development of epistemological theories: Beliefs about knowledge and knowing and their relation to learning. *Review of Educational Research, 67*(1), 88-144.

Hofer, B.K. (2004). Exploring the dimension of personal epistemology in differing classroom contexts: Student interpretations during the first year of college. *Contemporary Educational Psychology*, 29(2), 129-163.

Kang, N., & Wallace, C. S. (2005). Secondary science teachers' use of laboratory activities: Linking epistemological beliefs, goals, and practices. *Science Education*, *89*(1), 140–165.

Kardash, C. M. & Scholes, R. J. (1996). Effects of preexisting beliefs, epistemological beliefs and need for cognition on interpretation of controversial issues. *Journal of Educational Psychology, 88*, 2, 260-271.

Kardash, C. M., & Wood, P. (2000, April). *An individual item factoring of epistemological beliefs as measured by self-reporting surveys*. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans.

Kuhn, D., & Weinstock, M. (2002). What is epistemological thinking and why does it matter? In B. Hofer & P. Pintrich (Eds.), *Personal Epistemology: The psychological beliefs about knowledge and knowing* (pp. 121-144). Mahwah, NJ: Lawrence Erlbaum.

Leigh, A., & Ryan, C. (2006). *How and why has teacher quality changed in Australia? Centre for Economic Policy Research Paper No 534*. Retrieved on November 1, 2007 from http://papers.ssrn.com/sol3/papers.cfm?Abstract_id=961142

Ministerial Council on Education, Employment, Training and Youth Affairs. (2004). *Demand and supply of primary and secondary school teachers in Australia.* Retrieved November 12, 2007 from http://www.curriculum.edu.au/verve/_resources/-DAS_teachers-PartsA-d.pdf

Morgan, K. (1997, July). Approaches to mass higher education: A comparison of change in Britain and Australia. In, *Academic Reforms in the World: Situation and Perspective in the Massification Stage of Higher Education: Reports of the 1997 Six-Nation Higher Education Higher Education Project Seminar* (RIHE International Seminar Reports No. 10, pp. 243-274). Hiroshima: Hiroshima University, Institute for Higher Education. (ERIC Document Reproduction Service No. ED414819)

Muis, K. (2004)**.** Personal epistemology and mathematics: A critical review and synthesis of research. *Review of Educational Research, 74*(3), 317-378.

Nelson, K., Kift, S., Humphreys, J., & Harper, W. (2006, July). *A blueprint for enhanced transition: taking an holistic approach to managing student transition into a large university.* Retrieved 1 November, 2007 from Queensland University of Technology website http://eprints.qut.edu.au/archive/00004557/.

New Course in Demand. (2005, 18 January). *Caboolture Shire Herald, np*.

Organisation for Economic Co-operation and Development. (2001). Knowledge and skills for life: First results from the OECD program for international student assessment (PISA) 2000. Retrieved November 1, 2007 from PISA website http://www.pisa.oecd.org/dataoecd/44/53/33691596.pdf

Perry, W. G. (1970). *Forms of intellectual and ethical development in the college years*. New York: Holt, Rinehart and Winston.

Pintrich, P. (2002). Future challenges and directions for theory. In B. Hofer & P. Pintrich (Eds.), *Personal epistemology: The psychological beliefs about knowledge and knowing* (pp. 389-414). New Jersey: Lawrence Erlbaum.

Queensland Government. (2003a). *Education and training reforms for the future: White Paper. Working together – building new community partnerships*. Brisbane: Queensland Government.

Queensland Government. (2003b). '*Higher education at the crossroads: A review of Australian higher education*. Discussion paper. Brisbane: Queensland Government.

Queensland University of Technology. (2005). *Submission to the national inquiry into teacher education*. Retrieved November 1, 2007, from Queensland University of Technology website, http://www.aph.gov.au/House/committee/evt/teachereduc/subs/sub072_1.pdf

Queensland University of Technology. (2007). Retrieved November 1, 2007, from Queensland University of Technology website: http://www.goingtouni.gov.au/Main/CoursesAndProviders/ProvidersAndCourses/HigherEducationProviders/QLD/QueenslandUniversityOfTechnology.htm

Research Institute for Higher Education. (1997, July). *Academic reforms in the world: Situation and perspective in the massification stage of higher education. Reports of the 1997 Six-Nation Higher Education Project Seminar.* Hiroshima: Hiroshima University, Research Institute for Higher Education. (ERIC Document Reproduction Service No. ED414819)

Richardson, V., Anders, P., Tidwell, D., & Lloyd, C. (1991). The relationship between teachers' beliefs and practices in reading comprehension instruction. *American Educational Research Journal, 28*(3), 559-586.

Schirato, T. (2006). Australian regional universities and the idea of the university. *International Journal of Pedagogies and Learning*, 2(2), 50-59.

Schommer, M. A. (1993). Comparisons of beliefs about the nature of knowledge and learning among postsecondary students. *Research in Higher Education, 34*(3), 355-370.

Schommer, M. A. (1994). Synthesising epistemological belief research: Tentative understandings and provocative confusions. *Educational Psychology Review, 6*(4), 293-319.

Schommer, M. A., Calvert, C., Gariglietti, G., & Bajaj, A. (1997). The development of epistemological beliefs among secondary students: A longitudinal study. *Journal of Educational Psychology, 89*(1), 37-40.

Shulman, L.S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-22.

Sunshine State Tops Population Growth. ABC News Online. Retrieved 31 October, 2008 from Australian Broadcasting Commission website:
http://www.abc.net.au/news/newsitems/200503/s1330709.htm

Stacey, P., Brownlee, J., Thorpe, K., Reeves, D & Class EAB016. (2005). Measuring and manipulating epistemological beliefs in early childhood pre-service teachers. *International Journal of Pedagogies and Learning, 1,* 6-17.

United Nations Educational, Scientific and Cultural Organisation. (1998). *World education report: Teachers and teaching in a changing world*. Paris: UNESCO Publishing.

Walker, S., Brownlee, J., Lennox, S., Exley, B., Howells, K. & Cocker, F. (in press, accepted 11.09.08) 'Understanding transitions for first year university students: Personal epistemology and learning.' *Teaching Education.*