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Innovation in Course Design

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Abstract: Initial teacher education programs offered at Australian universities tend to qualify graduates to teach in the age-related contexts of early childhood/primary or secondary, a model that reflects the organisational evolution of schools. Greater flexibility is required in the design of teacher preparation courses in order to produce graduates who meet teacher registration requirements for early childhood/primary and secondary and who have a better understanding of and focus on the academic and developmental needs of a diverse range of young people. A teacher who can combine a deep understanding of approaches to child and adolescent development, teaching & learning theories, together with a critical approach to pedagogical principals and practice across the stages schooling with content specialisation knowledge is an asset to any twenty-first century school. A graduate qualified to teach across the primary and secondary school divide has enhanced employment opportunities and a more flexible career pathway.

Introduction

The dominant model for qualifying a teacher in Australia is predicated on the principle that teacher education needs to be congruent with the ‘traditional’ organisational structure of schools: that is, primary teacher education programs for primary schools and secondary teacher education for secondary schools. The majority of initial teacher education programs, approximately 400 courses, offered by 48 higher education providers predominately qualify graduates to teach in the age-related contexts of early childhood/primary or secondary (Australian Institute of Teaching and School Leadership (AITSL), 2015): a long term situation that reflects the organisational evolution of schools in Australia (Knipe, 2015).

Higher education providers experience pressure from teacher registration authorities regarding the specific program requirements expected of initial teacher education courses. The national program standards for teacher education also tend to mirror the age-based criteria of a primary or a secondary initial teacher education course (Australian Institute for Teaching and School Leadership (AITSL), 2015; Reid, 2011), although the Australian Professional Standards for Teachers, including those for graduate teachers, are generic in nature. The introduction and expansion of different school models and structures, such as middle schools, ¹Foundation to Year 9 or 10 or 12, flexible learning schools, senior colleges catering for Year 11 and Year 12 (and sometimes Year 10), has distorted the historic divisions of primary and secondary school education (Knipe, 2015; Knipe, 2012).

The idea that a teacher qualified for one school sector, such as primary teaching, is not competent or able to teach in another school sector, such as secondary teaching, does not

¹ Foundation (F) represents the first years of school.

necessarily reflect current employment practices or the deployment of staff to various teaching duties. This perspective is also linked to an assumption that content in teacher education programs such as learning theory, pedagogical approaches and child development needs to be viewed in specific stages, reinforcing the idea that specific skills and understandings need to be acquired by teachers in order to be employed in appropriate age-specific sectors (Knipe, 2015).

In light of the on-going world-wide criticism regarding university-based initial teacher education (Cochran-Smith, 2004; Darling-Hammond, 2000; Grossman, 2008; Parkes, 2013) perhaps it is time for universities to re-think the approach to teacher education and develop more flexible course structures which remove the age-based divisions of early childhood/primary and secondary and introduce teacher education programs that qualify graduates to teach across both school sectors (Knipe, 2015; Knipe, 2012). This article argues for greater flexibility and innovation in the design of initial teacher education courses in order to produce teachers with generic teaching skills and who are able to teach from Foundation to Year 12. Twenty-first century schools require teachers who understand the learning and pedagogical needs of young people across the range of developmental stages; who have content and discipline knowledge; who can apply theoretical concepts of child development; and can respond to issues regarding the wellbeing and safety of young people. Being qualified for primary and secondary teaching would provide flexibility for employers in meeting staffing needs and opportunities for different career paths for graduates.

To understand the tensions affecting course content and design of initial teacher education courses it is useful to present a brief historical over-view of the evolution and development of teacher education in Australia.

Evolution and Development of Teaching Qualifications

In the early years of the 1900s, teacher preparation for primary teachers was a ‘pupil-teacher’ or apprentice model where the neophyte teacher learnt about school teaching from a more experienced teacher (Campbell & Proctor, 2014; Aspland, 2006). Teacher preparation for secondary teachers evolved in a number of different ways. Initial secondary teacher preparation provided multiple pathways, such as programs for primary teachers to acquire further preparation for secondary teaching, or offering employment to university graduates and providing some on-the-job assistance. Post-graduate qualifications, in the form of a one-year Diploma of Education program for secondary teachers, were not established until 1911, but these programs were confined to the disciplines offered at a university, for example, English, mathematics, science, history and geography (Campbell & Proctor, 2014; Barcan, 1995).

During the late 1800s leaning to become teachers under the apprentice model, focused primarily on curriculum mostly limited to the teaching of literacy and numeracy, with some time given to other disciplines such as History and Geography (Selleck, 1976, 64 – 65). Understanding developmental and pedagogical needs of children was of secondary importance (Selleck, 1972). Teaching strategies appropriate for young people was considered to be a more an informal approach, where the teacher just ‘needed to be aware’ that children were ‘individuals’ and that these differences should be taken into account when devising lessons, learning programs and engaging in activities (Selleck, 1976, 65).

As public school education expanded in the late early 20th century, the majority of schools were labelled as either a primary or a secondary school. Over time primary schools absorbed infant schools as the early childhood stages of schooling. Teachers were organised according to their primary or secondary qualification, even in schools that had primary and secondary on the one site, and teachers were confined to teaching in either the primary or

secondary sector, or in the early years of a primary school (Campbell & Proctor, 2014; Hyams, 1979). When separate and distinct secondary schools were established, initial teacher preparation programs were designed in order to qualify teachers to teach teenagers.

As the qualification of teachers moved into the university sector course content focused on curriculum content, teaching strategies, learning theory, creating and managing the learning environment, inclusive education and child development, but still within the separate contexts of primary and secondary school teaching (Knipe, 2015). Teacher education programs are now required to contain specific discipline knowledge including the theory underpinning various curriculum areas, assessment and reporting, develop approaches for working with parents, teaching and learning theories and strategies, as well as mandatory studies in areas such as literacy and numeracy, classroom management, classroom technology, teaching students from a non-English speaking background, Indigenous education, inclusive education and a specific number of teacher practicum days (AITSL, 2015).

Most candidates coming in to initial teacher education programs enter via undergraduate bachelor or post graduate courses. Undergraduate initial teacher education courses can be a range of models and contain both teacher education content and non-education 'discipline' studies provided by faculties within the university. One feature of a graduate entry degree is that candidates enter initial teacher education having specific content knowledge, acquired from an undergraduate discipline area/s (Parkes, 2013). Post-graduate teaching courses contain teacher education content only and are provided within the discipline of education. Due to changes in accreditation requirements, most Universities are extending post-graduate initial teaching courses to a two-year Master degree (Mayer, 2014; Productivity Commission, 2012). This means that teachers with an undergraduate Bachelor degree have a four year qualification as a beginning teacher whereas teachers with a Bachelor degree in a discipline plus a Master of Teaching degree have a five year qualification as a beginning teacher: an anomaly that may be of some concern, especially to employers (Productivity Commission, 2012).

Post-graduate teaching programs that meet the national program standards required for both primary and secondary teaching are being offered at a few tertiary institutions in Australia, including La Trobe, Deakin and Monash Universities. The number of Master of Teaching courses that qualify a candidate to teach in both primary and secondary schools is significantly fewer than the number of similar programs at a Bachelor level (AITSL, 2015). This may be due, in part, to competing course design tensions between initial education program requirements and the Australian Qualifications Framework (AQF) research specifications for Master degree programs. At this level candidates are required to undertake 'some independent research and project work or practice-related learning' (Australian Qualifications Framework, 2013, 61; Parkes, 2013). Offering different models of initial teacher education courses that are flexible and more responsive to the complex needs of children and the staffing of contemporary school systems is becoming more complex as teacher registration authorities are acting as a force for change with on-going changes to national guidelines and state requirements for teacher education programs.

Range of Models of Schooling and Workforce Demands

The Productivity Commission Research Report into the Schools Workforce (2012) indicated that there are approximately 10 000 schools in Australia of which 15 per cent are secondary schools and 14 per cent are a combination of primary/secondary. The introduction of middle years programs (Prosser, McCallum, Milroy, Comber & Nixon, 2008), purpose built schools that enrol students from Foundation grades to Year 9 or Year 10 or Year 12, and senior colleges for Year 11 and Year 12 (<http://www.education.vic.gov.au/about/research/Pages/infrastructure.aspx#11>), is blurring the early childhood/primary/secondary distinction in school organisation and classroom practice. There has been a number of schools in Victoria for example, providing alternative programs for students within a range of school structures. Some of these are new purpose built schools such as F - 9 or F - 10/12 and some are operating within the more traditional primary (F - Year 6) or secondary model (Year 7 – Year 12).

The concept of a school that caters for primary and secondary students within the one site is not a new idea. News South Wales, Northern Territory and Western Australian have had these types of schools for several decades. However, alternative school models, such as the Foundation to Year 9, that cater for students across the stages of schooling is a model that has been adopted and used in contemporary contexts. The Timbarra College P-9 model is an example of how schools are providing supportive environments, and accommodating individual differences and learning needs of young people (<http://www.education.vic.gov.au/about/research/Pages/infrastructure.aspx#11>). This form of schooling challenges the ‘traditional’ primary/secondary organisational separation, as well as ‘age-restricted’ teacher education programs, with implications for teacher education programs and teacher qualifications (Knipe, 2015).

The deployment of staff to teaching positions is complex, especially when the supply and demand is ‘out of balance’ (Productivity Commission, 2012). Teachers qualified as either primary or secondary have been employed in schools that offered middle years classes or in schools designed to cross the traditional primary and secondary school divide. But this model can be problematic if teachers are not qualified with the appropriate combination of discipline/content knowledge, subject knowledge and pedagogical skill that would be expected of an accredited teacher preparation course. In the 1990s Western Australia considered moving Year 7 students from primary school into secondary schools, along with a percentage of the primary qualified staff. A research project was undertaken to model ‘teacher receptivity and provide advice to educational administrators about how to manage and implement proposed system-wide changes, and the best process to adopt to relocate Year 7 classes to secondary schools’ (Waugh & Collins, 1997). Results from this project indicated a number of concerns from primary qualified teachers regarding content knowledge, cultural, social and behavioural understandings required for secondary school teaching (Waugh & Collins, 1997 80). These concerns highlight the issues associated with qualifying teachers restricted to teaching in one sector.

As demand has grown for teachers with qualifications to teach across Foundation to Year 12, the tertiary sector has responded offering programs that range from a focus upon education stages such as middle years within a teacher education program to the development of a Foundation to Year 12, Bachelor of Education program (Knipe, 2015; Pendergast & Bahr, 2005). Eventually, some tertiary providers developed both undergraduate and postgraduate degree courses that qualified a teacher to teach across the entire primary/secondary range (Pendergast & Bahr, 2005). There are currently thirty undergraduate courses that qualify a teacher to teach across the primary/secondary school divide, a rise over the past several years. At the post-graduate level there are seven programs which is significantly fewer than at the undergraduate level (AITSL, 2015). There is significantly less

Foundation – Year 12 programs than courses that qualify graduates as primary or secondary only, even though graduates from Foundation – Year 12 programs are qualified to teach in primary or secondary school, meet graduate teaching standards required by teacher registration authorities for primary and secondary teaching, and are employable in school settings in Australia.

Meeting the Educational Needs of Young People

The advantages regarding different school structures to improve the educational and overall school experience for young people and to avoid the disruption caused by the break in primary and secondary schooling, was the focus of several government reports published during the 1990s (Barratt, 1998; Cumming, 1998; Cumming & Cormack, 1996; Schools Council, 1992). During this period, teachers reported increasing difficulties in dealing with young people who displayed general disengagement from school, a lack of motivation for school-based learning and a concomitant underachievement in academic performance (Carrington, 2004; Chadbourne, 2001; Knipe & Johnston, 2007; Pendergast & Bahr, 2005). The academic and social needs of adolescents were a major stimulus in the Australian middle schooling movement and the focus of professional discussions, several government reports, research and academic publications regarding middle years education (Knipe, 2015; Knipe & Johnston, 2007).

Teachers and school administrators' explored different ways of meeting the educational and social needs of adolescents (Prosser et al., 2008; de Jong & Chadbourne, 1996; Beane, 1995). Schools have experimented with internal re-organisation in order to develop a range of programs such as middle years programs that in some countries had led to the establishment of stand-alone middle years schools (Beane, 1995). The age groups defined as middle years traverse the traditional primary secondary school divide as well as the separate qualifications of primary and secondary teachers. As alternative school organisation and teaching arrangements have expanded, flexibility in staffing has sharpened the focus on the limitations of teacher education programs that qualify graduates for teaching in one sector; primary teacher education for primary schools, secondary teacher education for secondary schools (Knipe, 2015).

The term adolescence first appeared in the fifteenth century and was derived from the Latin word 'adolescere' meaning 'to grow up and mature' (Muuss, 1990). At the beginning of the twentieth century the scientific study of 'adolescence' commenced with the publication of Stanley Hall's (1908/2005) theory of adolescence, which was as a way of describing the period between early childhood and adulthood; a period of 'turmoil' characterised by 'conflict with parents, mood distributions and risky behaviour' (Lerner & Steinber, 2009). The notion of 'adolescence' was influenced by developments in educational psychology that generated a focus on the developmental differences across age groups of children, as well as the social, cultural and academic needs of adolescent students. As the scientific study of children and young people developed during the twentieth century, research showed that not only were children maturing earlier than previous generations but also there was a widening in the age range of physical and cognitive development (Tanner, 1955). Research into adolescent brain development has added further scientific evidence and understanding of the developmental characteristics and behaviours of young people including psychiatric illnesses such as anxiety, mood swings and eating disorders (Blakemore, 2012; Paus, Keshavan & Giedd, 2008).

The adolescence years at school span upper primary and lower secondary years, reflecting the evolution of school education in Australia. Schools have re-considered learning experiences and teachers have re-examined classroom practice in terms of the developmental

needs of children outside the age divisions they taught (Barratt, 1998; Cumming, 1998; Cumming & Cormack, 1996). Text books used for teacher education courses in education psychology and learning theory, whether primary or secondary teacher education programs, cover the entire age range of child development and learning, and teachers are expected to master this knowledge. Curriculum content knowledge may be organised in age-related stages - but the field of child development is not restricted to the age based structures of primary or secondary school.

The impact of social change on moral, cultural, and social behavior of young people, place significant demands on school teachers and administrators responsible for adolescent education. Some of the facets of these changes include increased exposure of young people to sexual and physical violence, physiological and mental wellbeing and advancements in a range of technological devices. For example, the development of online and mobile media technologies as a means of communication are shaping the interactions young people have with their parents and family members, other adults, friends and peers (Best, Manktelow, Taylor, 2014; Kosa, 2005; Masek, 2005). Parents and teachers are expressing great concern regarding the sexualisation of children and adolescents and the way young people are being portrayed and positioned in society, especially by commercial and mass media influences (Kosa, 2005). Increasing rates of adolescent depression, anxiety, eating disorders and other health related problems illustrate the negative effects social influences can have on young people (Baird, 2013; McEwen, 2008; American Psychological Association Task Force, 2007; Rush & La Nauze, 2006a; Rush & La Nauze, 2006b).

As children grow and develop throughout the compulsory years of schooling, their emotional, cultural, social and academic changes become an ever increasing challenge for teachers. The traditional separation of school years into primary and secondary, with a break between the two that occurs in the middle of the adolescent years, creates a disruption that can be unsettling for many students coping with social and developmental change (Haynie, 2003). This interruption can lead to a lack of motivation and engagement in school-related learning (Eccles & Roeser, 2010).

A response to the psychological, biological and environmental factors impacting on the transition from childhood to adulthood required an understanding by those involved in the teaching of young people. There are a significant range of individual differences in the emotional and behavioural development of young people that manifest themselves in various ways, including interpersonal conflict and risk-taking behaviour, biological changes and emotional behaviours (Hollenstein & Logheed, 2013). Teachers qualified to teach across primary and secondary students are well placed to understand the changes experienced by young children and adolescents and are well positioned to provide a rich and supportive learning environment for all children no matter what age group or developmental differences that may be present in a group of young people (Knipe, 2015, 2012).

Constraints of Teachers Qualifications for School Staffing

The configuration and duration for teaching courses has changed significantly from the practitioner based model (particularly for early childhood and primary programs) to courses that include theories of teaching and learning, classroom management strategies, approaches to teaching children from diverse backgrounds, assessment and reporting, working with parents, curriculum and discipline knowledge (Barcan 1995; Campbell & Proctor 2014; Knipe 2015, 2012; Williams, Deer, Meyenn & Taylor, 1995). All state and territory governments have introduced professional programs standards and graduate teaching standards as a tool for assessing initial teacher education programs following the establishment of a national framework for accrediting teacher education programs by the

(AITSL, 2011). Around the same time, the introduction of the Australian Curriculum which commenced with a focus on Foundation to Year 10, but is now expanding into the senior years in curriculum areas such as Mathematics, Geography, History and Science, reflects the diversity of student learning, as well as the 'knowledge, understanding and skills' that constitute different school year levels. A teacher qualified to teach the full range of the curriculum with a specialisation in a particular subject area/s, from Foundation Year to Year 12, would have the capacity to provide continuity in curriculum delivery within a school, regardless of the school's structure, as well as offering flexibility in terms allocation to classes.

While tertiary institutions are required to meet specific age related guidelines imposed by the accreditation authorities in regard to program standards of initial teacher education courses based around age-related courses, the allocation of staff to a class or teaching load, by the principal, is not necessarily consistent with a teacher's qualification. This frequently occurs where there is an over-supply of teachers qualified to teach in certain sectors, such as primary teachers, and a shortage of qualified teaching staff, in areas such as mathematics, technology, languages, English, Geography and VET (Australian Secondary Principals Association Inc. 2007; Productivity Commission, 2012, Thomson, Hillman & Wernert, 2012; Weldon, McMillan, Rowley & McKenzie, 2014). Principals face perennial difficulties in deploying teaching staff to teaching positions from a pool of teachers with 'age-restricted' qualifications that are not necessarily congruent with the staffing requirements of that school. A graduate teacher qualified to teach in a range of school setting with an understanding of the teaching and learning needs of young people across all the stages of schooling enjoys enhanced employment options and greater opportunities for a flexible career trajectory.

In all the rhetoric concerning what should or should not be required in a teacher education program, the widespread difficulty of assigning teachers to particular classes has become an ongoing issue (Productivity Commission, 2012). Teacher shortages have always been a problem for school principals, as the supply and demand for qualified teachers fluctuates, with staffing difficulties being compounded in rural and remote schools. The employment of teaching staff to schools has become more tightly controlled. The establishment of teacher registration authorities has assisted in preventing unqualified teachers filling staffing shortages. However, the deployment of teaching staff to a class or subject area, which does not reflect their teaching qualification, still exists. This is because principals have no option often because of staff shortages. There have been ongoing concerns about the number of classes in mathematics taught by teachers not qualified to teach mathematics. Approximately 50% of junior secondary mathematics and approximately 32% of senior mathematics subjects are being taught by teachers who are not qualified to teach these levels of mathematics (Beswick & Morony, 2012; Harris & Jensz, 2006). In 2010 there were '400 unfilled positions for mathematics teachers' (Staff in Australian Schools Survey, 110). This situation is set to continue unless there is a significant change in teacher education programs. Approximately 16 000 domestic students complete a teacher education program in Australia each year and around half of these students are primary 'only' qualified (McKenzie, Rowley, Weldon, & Murphy, 2011; Productivity Commission, 2012; Weldon, McMillan, Rowley, McKenzie, 2014).

The rise of F - Year 9/10/12 schools or schools implementing models of schooling outside the traditional primary/secondary school model, has generated a need for teaching staff with generic teaching skills, so that teachers with age-based qualifications do not present a constraint for principals in regard to staffing. It is time to provide teacher preparation programs that appropriately meet the needs of students and schools, distinct from teacher preparation designed around age-based administrative school divisions. Response from education providers and the tertiary sector in particular is required, one that considers the existing teacher workforce needs, graduate teachers and future teachers in the context of the

evolving needs of a twenty-first century education schools and systems (Department of Education, 2015).

Conclusion

Teacher education programs rest on the idea that the pedagogical needs of a teacher of primary aged children differs markedly from the pedagogical needs of a teacher of secondary students, and vice a versa, and as such school teaching was assumed to be an age related set of skills. However, the practice of assigning teachers to teach age groups in schools that are outside a teacher's qualification challenges this notion. The success of many teachers teaching outside the age-related area, for which they are qualified, raises questions about the need for a re-assessment of initial teacher education programs.

The nature of contemporary schooling, the need for more flexibility in employment and the diversity of young people attending school, means that graduates from initial teacher education programs need to be a different type of graduate teacher. Increasingly, teachers with a broad understanding of child development are required in order to meet the increasing spread of developmental and academic needs of a wide age range of students.

Some tertiary education providers in Australia have responded to changes occurring in the school sector with the development of degree programs that equip graduates to teach across the full age range from the first year of school through to Year 12. Such courses are based on the proposition that teaching is a generic skill and courses should be designed accordingly. A generic teacher education course containing discipline and content knowledge and designed to cover the needs of a wide age range of students provides opportunities for teachers to meet the varied learning needs of students as well as assist in addressing the diverse staffing needs of schools. Further, options for teachers to develop different career paths in education are expanded and potential teachers are not 'locked in' to a particular age group or 'traditional' school structure model.

In times of teacher shortages, age-based/ grade-based divisions in education have been ignored whereby shortages of teachers in particular areas have resulted in secondary schools employing teachers from primary schools to fill staffing gaps and, though not as common, secondary teachers teaching in a primary school. A teacher who understands the learning and pedagogical needs of young people across the range of developmental stages in the school spectrum: a teacher who has content and discipline knowledge, a teacher who can apply theoretical concepts of child and adolescent development to contemporary schools and classrooms, and a teacher who is aware of the issues regarding the wellbeing and safety of young people of all ages; a teacher who can work with parents and guardians, is the type of teacher that is needed for present-day classrooms. Innovation in program design will not come from teacher registration authorities or employers, so the leadership that tertiary education providers can offer in collaboration with principals and teachers and professional teaching associations is of great importance. It is certainly time to challenge the divisions within teacher preparation programs that reflect the primary and secondary school model that evolved during the 1900s, and for those involved in initial teacher education to design and promote a different model of teacher education, one that is more responsive to employer needs and for educating young people in twenty-first century schools.

References

- American Psychological Association Task Force on the Sexualization of Girls (APA TFSG) (2007). *Report of the APA Task Force on the Sexualisation of Girls*. Washington, DC: American Psychological Association.
<http://www.apa.org/pi/women/programs/girls/report.aspx> Accessed 7 March 2014.
- Aspland, T. (2006). Changing patterns of teacher education in Australia [Electronic version]. *Education Research and Perspectives*, 33 (2), 140-162.
- Australian Institute for Teaching and School Leadership (2015). *Australian Institute for Teaching and School Leadership Annual Report 2014-2015*. <http://www.aitsl.edu.au> Accessed 4 November, 2015.
- Australian Institute for Teaching and School Leadership. (2011). *National Professional Standards for Teachers*. <http://www.aitsl.edu.au/initial-teacher-education-program-accreditation.html> Accessed 30 April 2015.
- Australian Institute for Teaching and School Leadership (2015). *Accredited programs list*. <http://www.aitsl.edu.au/initial-teacher-education/accredited-programs-list> Accessed 30 April, 2015.
- Australian Secondary Principals Association Inc. (2007). *Survey - Beginning Teachers* <http://www.aspa.asn.au/images/surveys/2007beginningteachersreport.pdf> Accessed 24 September 2009.
- Australian Qualifications Framework Council (2013). *Australian Qualifications Framework*. <http://www.aqf.edu.au> Accessed 30 April, 2015.
- Baird, B. (2013). National virtue and the 'media sexualisation of children' discourse in Australia. *Sexualities*, 16 (5-6), 651-664.
<http://dx.doi.org/10.1177/1363460713487290>
- Barcan, A (1995) The Struggle Over Teacher Training. *Agenda*. 2(1), 49-62.
- Barratt, R. (1998). *Shaping Middle Schooling in Australia: A Report of the National Middle Schooling Project*. Canberra, Australian Curriculum Studies Association.
- Beane, J. (1995). *The Middle Years Kit: an exploration of pedagogy, curriculum and work organisation for the middle years of schooling* [CD]. Summer Hills Films, National Schools Network National Office. Australia.
- Best, P. Manktelow, R. & Taylor, B. (2014). Online communication, social media and adolescent wellbeing: A systematic narrative review. *Children and Youth Services Review*, 41, 27-36. <http://dx.doi.org/10.1016/j.childyouth.2014.03.001>
- Beswick, K. & Morony, W. (2012, December). Better maths teaching=better student results. *The Australian Association of Mathematics Teaching Inc. Media Release*. [http://www.aamt.edu.au/Publications-and-statements/Media-releases/aamtimssreldec2012\(language\)/eng-AU](http://www.aamt.edu.au/Publications-and-statements/Media-releases/aamtimssreldec2012(language)/eng-AU) Accessed 26 May 2014.
- Blakemore, S. (2012). Imaging brain development: The adolescent brain. *NeuroImage* 61 397-406. www.elsevier.com/locate/ynimg Accessed 22 April 2015.
<http://dx.doi.org/10.1016/j.neuroimage.2011.11.080>
- Campbell, C. & Proctor, H. (2014). *A History of Australian Schooling*. Crows Nest, Allen & Unwin NSW.
- Carrington, V. (2004). Mid-term review; the middle years of schooling. *Curriculum Perspectives*. 24 (1) Australian Curriculum Studies Association.
- Chadbourne, R. (2001). *Middle Schooling for the Middle Years; What might the Jury be Considering?* Victoria, Australian Education Union.
- Cochran-Smith, M. (2004). Defining the outcomes of teacher education: What's social justice got to do with it? *Asia-Pacific Journal of Teacher Education*, 32(3), 193-212.
<http://dx.doi.org/10.1080/1359866042000295370>

- Cumming, J. (Ed) (1998). *Extending reforms in the middle years of schooling: Challenges and responses*. Australian Curriculum Studies Association, Canberra.
- Cumming, J. & Cormack, P. (1996). *From alienation to engagement; Opportunities for Reform in the Middle Years of Schooling*. Canberra Australian Curriculum Studies Association.
- de Jong, T & Chadbourne, R. (2005). "Are middle years teacher education courses justifiable?" *Australian Journal of Teacher Education*: Vol. 30: Iss. 2, Article 2. Accessed <http://ro.ecu.edu.au/ajte/vol30/iss2/2>
- Darling-Hammond, L. (2000). How teacher education matters. *Journal of Teacher Education*, 51(3), 166-173. <http://dx.doi.org/10.1177/0022487100051003002>
- Department of Education & Training. (2015). Action now: classroom ready teachers. Canberra, Author <http://www.studentsfirst.gov.au/teacher-education-ministerial-advisory-group> Accessed 20 March 2015.
- Eccles, J. S. & Roeser, R. W. (2010). An ecological view of schools and development. In J.L. Meece & J.S. Eccles (Eds.), *Handbook of research on schools, schooling, and human development* (pp6-22). New York, NY: Routledge.
- Grossman, P. (2008). Responding to our critics: From crisis to opportunity in research on teacher education, *Journal of Teacher Education*. 59(1), 10-23. <http://dx.doi.org/10.1177/0022487107310748>
- Hall, S. (2005). *Adolescence: its psychology and Its relationships to physiology, anthropology, sociology sex, crime and education*. London: Adamant Media Corporation. (Original Work published 1908)
- Harris, K. & Jensz, F. (2006). The Preparation of Mathematics teachers in Australia: Meeting the demand of suitably qualified mathematics teachers in secondary schools. Australian Council of Deans of Science. http://www.acds.edu.au/docs/Prep_Math_Teach_Aust.pdf Accessed 3 October 2011.
- Haynie, D. (2003). Contexts of risk? Explaining the link between girls' pubertal development and their delinquency involvement [Electronic version]. *Social Forces*. 82(1) 355-397. <http://dx.doi.org/10.1353/sof.2003.0093>
- Hollenstein, T. & Logheed, J. (2013). Beyond storm and stress: typicality, transitions, timing and temperament to account for adolescent change [Electronic version]. *American Psychologist*: 68(6) 444-454. <http://dx.doi.org/10.1037/a0033586>
- Hyams, B. K. (1979). *Teacher Preparation in Australia: A History of its Development from 1850 to 1950*, Hawthorn: Australian Council for Educational Research.
- Knipe, S. (2015). A generic teacher education program that meets contemporary schools' needs. In S. Groundwater-Smith & N. Mockler (Eds.) *Big Fish, Little Fish; Teaching and learning in the middle years* (pp.223-235). Melbourne Cambridge University Press.
- Knipe, S. (2012). 'Crossing the Primary and Secondary School Divide in Teacher Preparation'. *Australian Journal of Teacher Education*: 37(5), Article 7. Accessed <http://dx.doi.org/10.14221/ajte.2012v37n5.6>
- Knipe S. & Johnston K. (2007). Problematising middle schooling for middle schools and middle years education. In S. Knipe (Ed.), in *Middle Years of Schooling; Reframing Adolescence* (pp. 3-20). Frenchs Forest: Pearson Education Australia.
- Kosa, E. (2005). Mass media and identity development in adolescence. In M. Fulop & A. Ross (Eds.), in *Growing Up in Europe Today developing identities among adolescents*. Trentham Books Limited, England.
- Lerner, R. & Steinberg, L. (2009). *Handbook of Adolescent Psychology*. John Wiley & Sons, Inc. <http://dx.doi.org/10.1002/9780470479193>
- Mayer, D. (2014) Forty years of teacher education in Australia: 1974-2014. *Journal of Education & Teaching: International research & pedagogy*, 40(5), 461-473.

- Masek, J. (2005). The impact of mediated communication in adolescent's identity and citizenship. In M. Fulop & A. Ross (Eds.), *Growing Up in Europe Today developing identities among adolescents*. Trentham Books Limited, England.
- McEwen, A. (2008) *Sexualisation of children in the contemporary media*. Australian Parliament Senate, Canberra.
- McKenzie, P.; Rowley, G.; Weldon, P. R.; & Murphy, M. (2011). *Staff in Australia's schools 2010: main report on the survey*. Accessed http://research.acer.edu.au/tll_misc/14
- Muuss, R.E. (1990). *Adolescent behaviour and society: A book of readings* (4th Ed.) New York: McGraw Hill.
- Parkes, R.J. (2013). Challenges for curriculum leadership in contemporary teacher education, *Australian Journal of Teacher Education*, 38(7). Accessed <http://dx.doi.org/10.14221/atje.2013v38n7.8>
- Paus, T., Keshavan, M. & Giedd, J. (2008). Why do many psychiatric disorders emerge during adolescence? *Nature Reviews Neuroscience*, 9, 947-957.
- Pendergast, D. & Bahr, N. (2005). *Teaching middle years; rethinking curriculum, pedagogy and assessment*. Crows Nest NSW; Allen & Unwin.
- Productivity Commission (2012). *Schools Workforce*. Research Report, Canberra.
- Prosser, B., McCallum, F., Milroy, P., Comber, B. & Nixon, H. (2008). "I am smart and I am not joking": Aiming high in the middle years of schooling. *The Australian Educational Researcher*, 35(2), 15-35. <http://dx.doi.org/10.1007/BF03216881>
- Rush, E., & La Nauze, A. (2006a). *Corporate paedophilia: sexualisation of children in Australia*. Canberra: The Australia Institute. www.tai.org.au/index.php?q=node%2F19&pubid=423&act=display Accessed 7 March 2014.
- Rush, E., & La Nauze, A. (2006b). *Letting children be children: Stopping the sexualisation of children in Australia*. Canberra: The Australia Institute. www.tai.org.au/index.php?q=node%2F19&pubid=433&act=display Accessed 7 March 2014.
- Selleck, R. J. W. (1976) Frank Tate: A Victorian Australian, *History of Education*, 5:1, 59-74. <http://dx.doi.org/10.1080/0046760760050106>
- Selleck, R.J.W (1972). 'Gladman, Frederick John' in B. Nairn, G. Serle and R. Ward (Eds) *Australian Dictionary of Biography*, Vol 4, MUP, Melbourne.
- Schools Council (1992). *In the middle schooling for young adolescents*. Project Paper no. 7 Compulsory Years of School Project, NBEET, AGPS, Canberra.
- Thomson, S., Hillman, K. & Wernet, N. (2012). *Monitoring Australian year 8 student achievement internationally: TIMSS 2011*, Camberwell Victoria, Australian Council for Educational Research.
- Tanner, J.M. (1955). Relation between age at puberty and adult physique in man. *The Journal of Physiology*, 127(1), 17.
- Williams, D., Deer, C., Meyenn, B. & Taylor, A. (1995). Reform, Restructuring & Innovation in Teacher Education Down Under. Paper presented at the *Annual Meeting of the American Association of Colleges for Teacher Education* (47th Washington, DC, February 12-15 1995).
- Waugh, R & Collins, P. (1997). Catholic school teachers' receptivity to a proposal to move Year 7 primary classes to secondary schools. *Education Research and Perspectives*, 24 (1), 63-83.
- Weldon, P., McMillan, J., Rowley, G. & McKenzie, P. (2014). *Profiles of teachers in selected curriculum areas: Further analysis of the staff in Australia's schools 2013 survey*. Camberwell Victoria, Australian Council for Educational Research