

**The Movement for National Academic Standards: A
Comparison of the Common Core State Standards Initiative in
the USA and the National Curriculum in Australia**

Michael Watt

**Paper for presentation at the conference of the Australian Curriculum
Studies Association, Hotel Realm, Canberra, Australian Capital Territory,
Australia, 2 to 4 October 2009**

Copyright (c) 2009 by Michael Watt

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the author. Requests for permission should be addressed in writing to the author.

Author: Michael Watt

Address: 316 Churchill Avenue, Sandy Bay, Tasmania 7005, Australia

Phone: 61 3 6225 1335

E-mail: michaelgwatt@internode.on.net

Cataloguing in Publication Data

Watt, Michael

The Movement for National Academic Standards: A Comparison of the Common Core State Standards Initiative in the USA and the National Curriculum in Australia

1. Educational standards – United States and Australia.

Preface

National academic standards for what students should be taught in schools were established in the USA in response to President George H. W. Bush's Charlottesville Education Summit held in September 1989. National curriculum statements and profiles were inaugurated by the Australian Education Council in July 1988 in response to the desire of states and territories to work collaboratively on curriculum development. Policy makers in both the USA and Australia now view adaptation of national documents arising from these efforts by state jurisdictions has increased variability in what students learn across both countries. In response to these perceptions, policy makers have initiated innovative activities to overcome such variability by developing common core standards in the USA and a national curriculum in Australia. These innovations are likely to have substantial implications for teaching and learning in schools in both countries during the next decade.

This paper represents an attempt to gain a better understanding of the change process involved in each innovation, and to draw some conclusions at an early stage about the likely success of each initiative. The demands of such a task required assistance and advice from people working in the field. The author wishes to acknowledge the contributions made by the following people with regard to particular aspects in the paper referring to the USA. Chester Finn, president of the Thomas B. Fordham Institute, Carrie Heath, senior associate with the Council of Chief State School Officers, Ilene Berman, program director with the National Governors Association Center for Best Practices and Allison Armour-Garb, director of education studies with the Nelson A. Rockefeller Institute of Government are thanked for reviewing and commenting on draft versions of this paper. Paul Barton, senior associate with the Educational Testing Service is thanked for reviewing the summary of his report, *National Education Standards: Getting beneath the Surface*. Raegen Miller, associate director with the Center for American Progress is thanked for directing the author's attention to the report, *The Opportunity Equation: Transforming Mathematics and Science Education for Citizenship and the Global Economy*, published by the Commission on Mathematics and Science Education. The author wishes to acknowledge the contributions made by the following people with regard to particular aspects in the paper referring to Australia. Anthony Kitchen, curriculum manager with the Australian Curriculum, Assessment and Reporting Authority is thanked for reviewing and commenting on the draft version of this paper. The author also wishes to acknowledge dialogue with Paul Kiem, president of the History Teachers Association of Australia, whose comments offered insight into the decision making process involved in developing the national curriculum.

Biographical note

Michael Watt taught in several secondary schools in Tasmania, and worked as an education officer in the Tasmania Department of Education. He holds masters' degrees in educational studies and education from the University of Tasmania, and a doctorate in education from the University of Canberra. He currently works as an education consultant.

The Movement for National Academic Standards: A Comparison of the Common Core State Standards Initiative in the USA and the National Curriculum in Australia

Abstract

The purpose of this study is to evaluate the nature of activities in the change process undertaken by two initiatives to produce national standards in academic disciplines, national assessments and accountability measures. The Common Core State Standards Initiative, a project coordinated by the National Governors Association and the Council of Chief State School Officers, aims to produce common core standards for states in the USA, and the Australian Curriculum, Assessment and Reporting Authority aims to produce a national curriculum. Content analysis method was applied to summarise information obtained from searches on the web sites of organisations involved in these initiatives and education newspapers. A model for classifying the activities of research, development, diffusion and adoption in the change process was applied to evaluate the two innovations. The results showed that activities involving research and development, at which point evaluation of both innovations was made, were well-defined. Each initiative was preceded by publication of policy documents advocating innovation and research activities to uncover possibilities for change, although these activities were more extensive and substantial in the USA than Australia. The emphases in each innovation for developing academic standards are different. Benchmarking standards against state, national and international standards, using a research-based process for decision making, reviewing successive drafts by stakeholders, and conducting an independent validation characterise the Common Core State Standards Initiative. Specifying plans and guidelines, inventing and refining standards, using a consensus-building process for decision making, and reviewing successive drafts by stakeholders characterise the national curriculum initiative in Australia. Initial steps to sustain adoption of the innovations are the formation of the National Policy Forum to build support for the Common Core State Standards Initiative and foundation of the Australian Curriculum, Assessment and Reporting Authority. However, attention to other activities to assist practitioners adopt the innovations are lacking in both initiatives. The paper concludes by presenting some judgments about the potential success of each initiative.

The Movement for National Academic Standards: A Comparison of the Common Core State Standards Initiative in the USA and the National Curriculum in Australia

Introduction

A common antecedent influenced standards-based education in the USA and a nationally agreed curriculum in Australia. The principles of outcomes-based education provided a foundation for both the standards movement in the USA and national curriculum collaboration in Australia, although subsequent events led to the role of outcomes-based education becoming significantly different in the two countries.

The key principle of outcomes-based education of identifying outcomes, and then constructing a curriculum to achieve them, formed the process in initial standards-setting exercises in some states in the USA in the early 1990s. Attacks by conservative Christian groups over the emphasis in outcomes-based education on the teaching of values, the presentation of radical social, political and economic values, the promotion of a whole language approach in reading, and multicultural education were a major factor in stifling these reforms. However, a multiplicity of trends in American education had concurred by this time leading conservatives and liberals to forge a consensus about focusing on what students should learn. From this consensus, the definition of national standards based on academic disciplines issued from the six National Education Goals expounded following the Charlottesville Education Summit convened by President George H. W. Bush in September 1989 (Vinovskis, 1999). Policy makers set nationally recognised groups in key disciplines the task of developing national standards consisting of content, performance and opportunity-to-learn standards (National Education Goals Panel, 1993). This shift in standards-setting, described by Ravitch (1995) as constituting the setting of clear and measurable content standards, focusing on cognitive learning, and basing content standards on traditional academic disciplines, set the standards movement apart from outcomes-based education. Spady (1998) concluded that the ascendancy of standards-based education relegated outcomes-based education to a marginal position. The Goals 2000: Educate America Act, passed by the Clinton Administration in March 1994, required state education agencies to use the national standards as blueprints to develop and align state standards to state assessments. From July 1994, state education agencies applied to the United States Department of Education for Goals 2000 grants under Title III to develop and implement comprehensive education improvement plans, which included establishing challenging state standards. Each state education agency was required to appoint a broadly representative panel to develop state improvement plans in consultation with the state governor and the chief state school officer. The Improving America's School Act, passed by the Clinton Administration in October 1994, required each state to develop state content and performance standards for mathematics and reading by the 1997-1998 school year, and state assessments aligned to these standards by the 2000-2001 school year.

The adoption of corporate management approaches by education systems in Australia led to the incorporation of outcomes-based education as a significant assumption underlying national curriculum collaboration in the 1980s. Policy makers viewed outcomes-based education to be compatible with the drive for economic reform, because it promised the delivery of measurable outcomes. Its widespread acceptance in the education community was fostered by a consortium of national and state organisations sponsoring a visit to Australia by a leading advocate of outcomes-based education, William Spady, who conducted a series of workshops in Canberra, Sydney, Melbourne and Brisbane in September 1992 (Spady, 1993). Originating from a perceived need to rationalise curriculum planning among the Australian states and territories, the initiative to develop national statements and profiles through a process of national collaboration between 1988 and 1993, was based on assumptions and goals driving the broader agenda for educational reform during the 1980s. The predominance of the Commonwealth government's agenda until 1993 led to the ascendancy of a corporate approach to managing the curriculum, which was characterised by subordinate groups carrying out key decisions made by super-ordinate groups. The failure of these groups to consult the education community led to controversy over incorporation of an outcomes-based approach in the mathematics profile, an emphasis that perturbed mathematics educators. This controversy led a group of mathematicians to lobby state politicians, which ultimately caused conservative ministers to block adoption of the national statements and profiles in July 1993. The action of the Australian Education Council in referring the national statements and profiles to the states and territories for endorsement ensured that a prescriptive national curriculum, which overrode states' rights, was not adopted. Instead, the national statements and profiles formed a common foundation for the states and territories to develop curricula that met their particular needs. Initially most of the smaller states and territories implemented the national statements and profiles, but by 2003 all of the states and territories had developed curricula derived from the national statements and profiles.

The effects of global economic competition, poor student performances on international studies of educational achievement, achievement gaps between socioeconomic and ethnic groups and the increasing diversity of state standards and curricula are important factors shaping the current debates concerning national academic standards in the USA and Australia. The purpose of this study is to evaluate the nature of activities in the change process undertaken by initiatives in the USA and Australia to produce national standards in academic disciplines, national assessments and accountability measures. Initially, reports published by policy makers are reviewed to examine in greater depth the nature of policy making in the USA and Australia to promote the concepts of common core standards in the former and a national curriculum in the latter. Then, the dynamic process of interaction among stakeholders, who determine policy choices in developing national academic standards in the two settings, is examined by reviewing documents and consulting participants. In the conclusion, it is argued that the purpose of both innovations is to build standards-based education systems. However, the success of each initiative to develop rigorous standards is likely to depend largely on antecedent conditions prevailing in the particular setting

and the appropriateness of the decision making process. Subsequently, successful adoption of the innovations into schools is likely to depend on the capability of policy makers to meet various challenges.

Methodology

The aim of the study is to compare the attributes of activities in the change process undertaken by decision making bodies responsible for the Common Core State Standards Initiative in the USA and the national curriculum in Australia. Since it is envisaged that policy decisions could emanate from the study with regard to managing the change process, it is recognised that a comprehensive evaluation of the change process should involve a team of experts reviewing various aspects of these activities by examining documents, interviewing stakeholders and analysing information collected from these sources. However, two main problems pertained to accomplishing this aim. First, the approach applied in this study depended mainly on the review of documents, since it was considered impracticable for an independent researcher to interview a wide range of stakeholders. Second, the change process in both efforts was operating in the developmental phase at the time of conducting this study. This situation meant that judgments, made about attributes of diffusion and adoption, are based largely on statements of intent.

The procedures for collecting information for the study involved following a sequence of steps. The first step involved identifying policy documents and educational literature referring to the initiatives. Searches of the web site of *Education Week*, the newspaper on education published by Editorial Projects in Education, based in Bethesda, Maryland, provided the main source for identifying information referring to core content standards in the USA. Once relevant policy documents and educational literature were identified, searches were conducted on the web sites of the Center for American Progress, the Thomas B. Fordham Institute, Achieve, the National Governors Association (NGA), the Council of Chief State School Officers (CCSSO) and the Common Core State Standards Initiative to locate specific reports and educational literature. Searches of *Curriculum Leadership Journal*, an electronic magazine published weekly by the Curriculum Corporation, based in Melbourne, Victoria, provided the main source for identifying information referring to the national curriculum in Australia. Once relevant policy documents and educational literature were identified, searches were conducted on the web sites of the Curriculum Corporation, the Australian Council for Educational Research, the Council for the Australian Federation, the Australian Labor Party, and the National Curriculum Board, subsequently renamed the Australian Curriculum, Assessment and Reporting Authority, to locate specific reports and educational literature.

Various officials, participants and researchers involved with each initiative were contacted during the course of the study. A number of these contacts were made following review of the report written by Barton (2009), which disclosed several unidentified research activities preceding the Common Core State Standards Initiative. Some of these contacts, who expressed an interest in the study, reviewed drafts of the paper. These correspondents, acknowledged in the preface, were able to confirm the accuracy of the

commentary, and considerable reliance was placed on their comments in revising the paper.

The method for analysing information contained in policy documents and educational literature involved following a sequence of steps. In the first step, content analysis method was used to summarise the contents of relevant policy documents relating to the two initiatives. Reporting the results involved preparing summaries, organising the summaries chronologically, and incorporating them into the sections of the paper referring to policy directions for the appropriate initiative. In the second step, content analysis method was used to summarise the contents of educational literature relating to these initiatives. The summaries were incorporated at appropriate junctures in the commentary referring to policy directions for the appropriate initiative or in the commentary referring to the specific initiative. The third step involved defining sets of questions and criteria to compare activities in the change process undertaken by decision making bodies responsible for the Common Core State Standards Initiative in the USA and the national curriculum in Australia. For both efforts, the process involves making large, innovative change for inventing, testing and diffusing new solutions consisting of many steps over a relatively long span of time based on conceptualisation, heuristic investigation, and structured inquiry. Since such change is supported by little extant knowledge in the particular setting, decision making needs to be conceptualised in great detail using a planned change model. In this model, initial investigation is based on exploratory research studies to advance knowledge and uncover possibilities for producing the theoretical bases for change. Rigorous engineering and market research activities are applied to transform later activities of development, diffusion and adoption, so the change is completed successfully. Development consists of the four phases of invention, design, construction and assembly. Diffusion consists of the two phases of dissemination and demonstration. Adoption consists of the four phases of training, trial, installation and institutionalisation. Figure 1 presents the taxonomy, derived from Stufflebeam, Foley, Gephart, Guba, Hammond, Merriman, and Provus (1971), for classifying the activities of research, development, diffusion and adoption within the change process. The sets of questions and criteria for making judgments and comparisons between the two initiatives are organised within each activity.

Figure 1

Taxonomy of the Change Process for Judging and Comparing the Common Core State Standards Initiative in the USA and the National Curriculum in Australia

Activity	Sub-activity	Questions for one initiative	Questions for two initiatives	Criteria for making judgments and comparisons
Research		1. What attributes characterise research findings from primary and secondary sources cited in reports of studies? 2. What concepts for uncovering possibilities or recommendations for practical application are cited in reports of studies?	1. Are the attributes of research findings from primary and secondary sources common or different? 2. Are the concepts for uncovering possibilities or recommendations for practical application common or different?	1. Are the findings unequivocal? 2. Are the findings capable of generalisation?
Development	Invention Design Construction Assembly	3. What is the nature of the operating problem? 4. What attributes characterise the solution formulated to overcome the operating problem? 5. What attributes characterise the plan for constructing the innovation? 6. What attributes characterise construction of the components of the innovation? 7. What attributes characterise assembly of the components into an operating system?	3. Are the operating problems similar or different? 4. Are the attributes of solutions similar or different? 5. Are the attributes of the plans similar or different? 6. Are the attributes for constructing the components similar or different? 7. Are the attributes for assembling the components into an operating system similar or different?	3. Is the solution appropriate for solving the problem? 4. Will the solution make a sufficiently large contribution to meeting the need? 5. Are the production and use of the innovation economical? 6. Is the innovation easy to control and easy for people to use? 7. Does each component follow the plan? 8. Does it work according to the plan? 9. Does the system follow the plan? 10. Does the system work under normal conditions? 11. Can the system be maintained by practitioners? 12. Will its life span merit its cost, and can changes be incorporated at reasonable cost?

Figure 1 (continued)

Taxonomy of the Change Process for Judging and Comparing the Common Core State Standards Initiative in the USA and the National Curriculum in Australia

Activity	Sub-activity	Questions for one judging initiative	Questions for two comparing initiatives	Criteria for making judgments and comparisons
Diffusion	Dissemination	8. What attributes characterise information for informing practitioners about the innovation?	8. Are the attributes of information for informing practitioners similar or different?	13. Is the information complete, concise and relevant to practitioners' needs? 14. Does the information describe the innovation clearly and accurately? 15. Does the information reach all parts and levels of the target situation? 16. How does the information affect potential practitioners?
	Demonstration	9. What attributes characterise demonstrations for practitioners to assess operating qualities of the innovation?	9. Are the attributes of demonstrations for practitioners to assess operating qualities of the innovation similar or different?	17. Is the demonstration a trustworthy example of how the innovation operates? 18. Are the time and location of demonstrations convenient for practitioners? 19. Do demonstrations provide range and depth of information and experience about the innovation?

Figure 1 (continued)

Taxonomy of the Change Process for Judging and Comparing the Common Core State Standards Initiative in the USA and the National Curriculum in Australia

Activity	Sub-activity	Questions for one initiative	Questions for two initiatives	Criteria for making judgments and comparisons
Adoption	Training	10. What attributes characterise training provided to practitioners to manage and use the innovation?	10. Are the attributes of training provided to practitioners to manage and use the innovation similar or different?	20. Are there sufficient practitioners to manage the innovation? 21. Will there be a continuing supply of practitioners to train? 22. Is training sufficient to allow optimum use of the innovation in schools?
	Trial	11. What attributes characterise trials to assess the innovation in schools?	11. Are the attributes of trials of the innovation in schools similar or different?	23. Can the innovation be integrated into school programs? 24. Can schools afford the innovation? 25. Does the innovation operate as intended?
	Installation	12. What attributes characterise installation of the innovation in schools?	12. Are the attributes of installation of the innovation similar or different?	26. Does the working innovation achieve its objectives? 27. Does the innovation have a satisfactory cost effective ratio?
	Institutionalisation	13. What attributes characterise assimilation of the innovation in the education system?	13. Are the attributes of assimilation of the innovation similar or different?	28. Is the innovation a functioning component of the education system? 29. Do practitioners rely on and defend its retention? 30. Can the education system afford its maintenance and updating?

United States of America

Policy Directions

Enactment in December 2001 of the No Child Left Behind Act by President George W. Bush led to new regulations being issued in November 2002. These regulations required each state to measure students' progress in reading and mathematics in each of years 3 to 8, and at least once during years 10 to 12 by the 2005-2006 school year. By the 2007-2008 school year, states were required to administer assessments in science at least once each in years 3 to 5, 6 to 9, and 10 to 12. At the beginning of 2003, each state was required to establish a definition of adequate yearly progress, based on a set of criteria, to use each year to determine the achievement of each school district and school. In defining adequate yearly progress, each state sets the minimum levels of improvement that school districts and schools must achieve within time frames specified in the No Child Left Behind Act. Each state begins by setting a starting point that is based on the performance of its lowest achieving demographic group or the lowest achieving schools. The state then sets the level of student achievement that a school must attain in order to make adequate yearly progress. Subsequent thresholds must increase at least once every three years until at the end of 12 years, all students in the state are achieving at the proficient level in state assessments for reading language arts and mathematics.

The regulations of the No Child Left Behind Act, permitting states to set levels of student achievement, increased the variation in what states demanded of students. Contending that the No Child Left Behind Act created incentives for states to manipulate the law by lowering standards, both conservative and progressive policy makers advocated development of national standards and assessments. Olson (2005) reported that policy making shifted in 2004 towards accepting the notion of national standards and assessments following conversations among policy makers and the conduct of several studies.

In 2004, the Center for American Progress and the Institute for America's Future formed the Reviewing Our Schools, Securing Our Future Task Force on Public Education to investigate innovative strategies and approaches to improve public education. The Task Force commissioned five papers from leading education researchers, advocates and policy makers and held forums in Portland, Columbus, Albuquerque, St. Louis, Phoenix and New York to examine successful initiatives for strengthening the education system. In its report, the Reviewing Our Schools, Securing Our Future Task Force on Public Education (2005) found that schools need to be restructured to provide world-class education to meet the challenge posed by other nations. Data on conditions of socioeconomic and ethnic groups, regional demographic changes, and national and international studies of educational achievement are cited to support this conclusion. Results are cited in reading from the National Assessment of Educational Progress (NAEP), reading and mathematics from the Programme for International Student Assessment (PISA), and mathematics from the Trends in International Mathematics and Science Study (TIMSS). The Task Force presented four recommendations to meet this challenge. Learning time needs to be increased by extending the

time spent in school, providing pre-school and full-day kindergarten, and preparing all students for higher education. A consensus needs to be reached on developing national academic standards and accountability measures to best prepare students to learn. Teachers and principals need to be better trained. Children from disadvantaged backgrounds need to be supported by community schools, home visits and increased parental involvement to ensure their academic success. The Task Force concluded that substantial investment of funds needed to be made to implement these recommendations.

In a subsequent paper, Brown and Rocha (2005) contended that the standards movement has led to a proliferation of standards, lacking a national standard for comparing academic achievement and requirements of the No Child Left Behind Act, and allowing states to define levels of proficiency, which has led to a lowering of students' academic performances. Evidence of these effects can be found in results in reading and mathematics recorded in NAEP. Although a small improvement has been recorded in scores on NAEP across the states, the differences are amplified by varying levels at which states set standards, when their results are compared. This situation has arisen because of the lack of requirements for state accountability in the No Child Left Behind Act. Differences in amounts of financial resources available to states, districts and schools have also led to inequitable results in educating students across the USA. Brown and Rocha concluded that national academic standards need to be set, if the USA is to compete successfully internationally.

Supporting the concept of national standards and assessments, the Thomas B. Fordham Foundation convened a panel of 12 education policy makers to respond to a set of 12 questions about who should develop national standards and assessments, how to improve their quality, and how to develop national standards and assessments. Analysis of the members of the panel's responses to these questions led the Thomas B. Fordham Foundation to identify four models for national standards and assessments. In 'The Whole Enchilada', the federal government would create and enforce national standards and assessments and move to a national accountability system. In 'If You Build It, They Will Come', the federal government or a private group would develop national standards, assessments and an accountability system, and provide incentives for states to adopt them. In 'Let's All Hold Hands', states would be encouraged to collaborate in developing common standards and assessments. In 'Sunshine and Shame', the federal government would make state standards and assessments more transparent and easier to compare to one another and to NAEP. In reporting the evaluation of each model, Finn, Julian and Petrilli (2006) examined the reasons why policy makers embarked on standards-based reform. First, they sought to create a more coherent and consistent educational experience for children. Second, they sought to set state-wide standards to remove inequities for different social groups. Third, they sought to replace regulations that aim to improve schools through coercion by focusing on results. Whilst these arguments are still valid today, state standards and assessments are inadequate to address global competition, a fragmented market-place, an unwillingness of states to set and regulate rigorous standards, and an overweening federal government. In taking account of the political process of

setting standards, the scope of assessments and the consequences for accountability, Finn, Julian and Petrilli evaluated each model against four criteria. Is the model likely to reduce pressure to lower standards? Is the model likely to result in rigorous rather than politically acceptable standards? Is the model likely to lead to an expanded federal role in education? Is the model likely to prove politically feasible? The panel judged that 'The Whole Enchilada' model will reduce pressure to lower standards, possibly result in rigorous standards, inevitably expand the federal role in education, but is not feasible politically today. The panel judged that the 'If You Build It, They Will Come' model will probably reduce pressure to lower standards, result in rigorous standards, possibly expand the federal role in education, and may prove to be feasible politically today. The panel judged that the 'Let's All Hold Hands' model will probably reduce pressure to lower standards, probably result in rigorous standards, not expand the federal role in education, and may prove to be feasible politically today. The panel judged that the 'Sunshine and Shame' model may reduce pressure to lower standards, not result in rigorous standards, not expand the federal role in education, but prove to be feasible politically today. In conclusion, Finn, Julian and Petrilli believed the 'If You Build It, They Will Come' model is the most promising approach in which the National Assessment Governing Board would set standards and build on NAEP to develop an annual assessment program.

In 2001, Achieve, the Education Trust, the Thomas B. Fordham Foundation and the National Alliance of Business launched the American Diploma Project to help states prepare students for college. From 2002 to 2004, this consortium worked with representatives from the higher education and business communities in Indiana, Kentucky, Massachusetts, Nevada and Texas to identify knowledge and skills in English and mathematics that high school graduates need for success in college and careers. A set of content standards reflecting employer and higher education expectations, the American Diploma Project benchmarks, emerged from this research. In English, 22 benchmarks are organised into eight strands: language; communication; writing; research; logic; informational text; media; and literature. In mathematics, 34 benchmarks are organised into five strands: number sense and numerical operations; algebra; geometry; data interpretation, statistics and probability; and mathematical reasoning. In 2005, Achieve formed the American Diploma Project Network to help states close the significant gap between what students need to know for academic success and what states require them to demonstrate in order to earn a high school diploma. This mission was accomplished by alignment institutes, in which Achieve provides state teams with analyses of state standards, the American Diploma Project benchmarks, and assistance in aligning their standards. Achieve (2008) reported a study of the standards' revision process conducted in 16 states, which participated in alignment institutes, and five states, which worked independently to revise their standards. First, recognised content experts judged how well college- and career-readiness standards for 12 states in English and 16 states in mathematics aligned with the American Diploma Project benchmarks. The alignment of English standards was found to be quite strong with those states participating in alignment institutes being more aligned than those states working independently. The alignment of mathematics standards was found to be quite strong with little difference between states participating in alignment

institutes or working independently. The results of this study allowed Achieve to define a common core of American Diploma Project benchmarks based on whether 75 percent of the states included in their standards with good alignment rating. All but one of the 22 American Diploma Project benchmarks in English and all but three of the 34 American Diploma Project benchmarks in mathematics met this criterion. While state standards from these states share a common core, they are not identical. Some states include content in their standards that is outside the scope of the American Diploma Project benchmarks. States also differ in the ways they organise their standards, their level of specificity and the amount of detail provided. Four key implications were identified from the study. A state led movement for common core standards is feasible through unified state leadership, and external tools and assistance. Standards, which meet the needs of a global economy, must be dynamic through regular review and revision. Establishing college- and career-ready standards is only the first step to states revising kindergarten to year 8 standards. A common core of standards will enable collaborative development of other critical tools and strategies.

NGA, CCSSO and Achieve appointed an International Benchmarking Advisory Group, consisting of 20 education experts, representing education organisations, the business community, researchers, and federal, state and local governments to inform this consortium on recommendations for states to benchmark their education systems to those of high performing countries. Based on the International Benchmarking Advisory Group's work, the National Governors Association, Council of Chief State School Officers and Achieve (2008) examined the need for action in international benchmarking and recommended five action steps state leaders should take, derived from the practice of international benchmarking. The rationale for state governments to compare performance and learn from countries of high performance in educational achievement is based on four factors. Technological, economic and political trends have increased demand for higher skills whilst heightening competition for quality jobs. As a consequence, educational achievement of American students needs to improve for future workers to compete with skilled workers from foreign countries. Results are cited in mathematics, reading, science and problem solving from PISA, mathematics from TIMSS, and the Progress in International Reading Literacy Skills (PIRLS) to show that it is important to close the achievement gap between all students, because the USA ranks in the top third of countries in gaps between students from different socioeconomic groups. The position of American schools has declined, because other countries, which formerly lagged far behind the USA, have responded to results of international studies of educational achievement by benchmarking schools, investigating best practices, and revising curricula. International benchmarking offers state policy makers with ideas for improvement that cannot be found from examining practices within the borders of the USA. Five action steps were identified to help states apply international benchmarking to augment the range of strategies they can apply to the regular policy planning process. However, state policy makers should be prepared to collect information on practices abroad to supplement the five action steps. Leaders in higher education should also be invited to join international benchmarking efforts so elementary, secondary and higher education policies are better coordinated. Action 1 proposes that states

upgrade their standards by adopting a common core of internationally benchmarked standards in mathematics and language arts for grades K to 12 to ensure that students are equipped with the necessary knowledge and skills to be globally competitive. Action 2 proposes that states leverage collective influence to ensure that textbooks, digital media, curricula, and assessments are aligned to internationally benchmarked standards and draw on lessons from high-performing countries and states. Action 3 proposes that states revise policies for recruiting, preparing, developing, and supporting teachers and school leaders to reflect the human capital practices of high-performing countries and states. Action 4 proposes that states hold schools and systems accountable through monitoring interventions, and support to ensure consistently high performance, drawing upon international best practices. Action 5 proposes that states measure educational performance globally by examining student achievement and attainment in an international context to ensure that, over time, students are receiving the education they need to compete in the twenty-first century economy. While states must take the lead in implementing these action steps, the federal government can play an enabling role by granting funds, offering research and development in this area to states, providing incentives to make the action steps easier to achieve, and aligning federal laws with the lessons learned from international benchmarking.

With the intent of informing policy makers about the concept of national standards, Barton (2009) reviewed the history of standards-based reform, the debate over national standards, the nature of quality in content, performance and achievement associated with common standards, and possibilities and challenges involved in establishing common standards. The history of standards-based reform is depicted in terms of key issues, debates and controversies, which arose during the course of this reform effort. The current debate about national standards is outlined by identifying key advocates, reports and events. Barton cited evidence comparing student performances on state assessments and NAEP and ethnic differences in student performances on NAEP to argue that variance in the rigour and quality of state standards is due to differences in state policy makers' views about the intent of state standards. Such variation has led national policy makers, who advocate national standards, to advance several competing options. However, policy makers have now focused on determining ways to collaborate outside the federal government. This course was initiated by the report issued by Finn, Julian and Petrilli (2006) identifying four models for national standards and assessments. This publication was followed by the Symposium on Approaches for Strengthening K-12 Accountability Systems in October 2007 and the two workshops conducted by the Committee on State Standards in Education in January and March of 2008. Among other important initiatives cited is the New England Common Assessment Program through which New Hampshire, Rhode Island and Vermont implement common standards and assessments. Barton contended that the history of the education system contrasts commonality brought about by the dominance of widely used textbooks and tests, and variation in student achievement arising from differences between socioeconomic and ethnic groups. The issue at hand is one of addressing the creation of high academic standards instead of standardising curriculum content. Evidence from studies on the quality of state standards is cited to show that a high degree of variability

prevails across the USA, although this variability is mediated by pervasive dependence of teachers on a small number of frequently used textbooks. Evidence from studies comparing performance levels on state standards and NAEP is cited to show a high degree of variability in state tests, although the factors causing this variance are not clearly understood. Evidence from comparisons of age and ethnic groups by scores on NAEP shows wide variations in student achievement between these groups, which renders the task of setting national assessments a daunting proposition. The importance of variation in student achievement due to differences in children's backgrounds and abilities, teachers' competence and other factors need to be taken into account in the debate over national standards. The use of various assessment techniques in conjunction with national standards is discussed in terms of greater insight that could be learnt about the effects of school, family, community and society on students' educational achievement. Consensus on issues relating to the historical legacy of standards setting in the 1990s, No Child Left Behind regulations, state and local responsibilities for education, and debates over curriculum content needs to be reached in establishing national standards and assessments. Barton argued that the success of the effort to establish voluntary national standards depends on the credibility of individuals involved in the developmental process, the openness to scrutiny of organisations involved in this activity, and the impeccability of the source of funding. Barton suggested that a Standards Entity, responsible for establishing national standards, should review the existing standards system and study the past two decades of activity in setting a direction that avoids pitfalls. Alternatively, a Standards Entity could disseminate a national standards test aligned to syllabuses for particular subject-based courses. Barton argued that NAEP could form the basis for a national standards test, but it would be preferable that such a test, which should have a degree of comparability to NAEP, be delivered by an organisation external to the National Assessment Governing Board. Barton concluded that ambiguity abounds in the proposal to set national standards over issues of support, curriculum rigour, pedagogical approaches, and about the degree of standardisation of content.

Common Core State Standards Initiative

The rationale for establishing national standards set out in these reports led to conversations and debates among policy makers over this issue. Ravitch (2005), a prominent education historian, argued in a widely read opinion piece that the prevailing situation of each state using its own standards and assessments had failed to improve student achievement. Founded in January 2006 as an independent organisation committed to affecting education policy, Education Sector (2006) reported hosting five experts to debate the need for national standards in March 2006. Greifner (2007) reported that CCSSO discussed the issue of national standards at its annual meeting in April 2007. The outcome of these discussions, which focused on which groups should be involved in the process, concluded that business groups, non-profit organisations, and state and local officials should be involved in the process. However, state officials were wary about involving the federal government in the process in case national assessments were mandated. However, McNeil (2007) reported that the National Conference of

State Legislatures, meeting at its annual conference in Denver in August 2007, opposed the concept of national standards in a vote of its members. On the other hand, Manzo (2008) reported that the National Association of Secondary School Principals released a position statement in May 2008 calling on Congress to appoint an independent panel to determine common standards for reading and mathematics.

A national report, foreshadowing reauthorisation of the No Child Left Behind Act, called for new voluntary national standards and assessments. In February 2006, the bipartisan Commission on No Child Left Behind was formed to review the provisions of the Act. Housed at the Aspen Institute in Washington, DC, the work of the Commission was conducted by 15 commissioners led by former Wisconsin governor, Tommy Thompson and former Georgia governor, Roy Barnes. The Commission held six hearings on critical issues relating to provisions of the No Child Left Behind Act, six roundtable discussions on key issues, as well as small group meetings and school visits. In addition, the Commission received comments from the public on its web site, consulted experts, and studied evidence from a wide range of sources to increase understanding of issues relating to provisions of the No Child Left Behind Act. At the hearing on assessing differences in quality and rigour of state standards and how they impact on provisions of the No Child Left Behind Act, held at Cambridge, Massachusetts in August 2006, the Commission heard evidence that state standards varied widely, some states set low standards to avoid sanctions, and the content students were expected to learn often did not match what they needed to know in higher education or the workplace. In February, the Commission on No Child Left Behind (2007) released its report recommending preserving the law's core provisions while making changes to accelerate progress to achieving the goals, particularly in relation to teacher and principal effectiveness, rigorous accountability, higher academic standards, stronger high schools, and increased options for students. With respect to academic standards, the Commission recommended developing voluntary national standards and assessments. States could adopt the voluntary model standards and assessments, design their own assessments based on the national model standards, or continue using their own standards and assessments, as long as their results are compared to the national model standards.

In October 2007, the Nelson A. Rockefeller Institute of Government based in the State University of New York at Albany, convened a symposium in Chicago, attended by 40 state and federal education officials, policy makers, testing experts and educational researchers to consider intergovernmental approaches for strengthening academic standards and assessments. Prior to the symposium, a framework paper outlining structural problems in educational accountability, some possible functions of an intergovernmental entity, and institutional alternatives was circulated to the participants. Armour-Garb (2007) reported that the participants identified several possible approaches to advance work on national standards and assessments. A state-led collaborative, modelled on the American Diploma Project, was considered to be a promising approach. A second approach considered was modelled on that used in England by the Qualifications and Curriculum Authority, which contracts examination boards to design and administer tests based on the national curriculum. With sufficient oversight to guarantee

comparability of examinations, examination bodies could make more options available for students while maintaining rigour. Approaches based on federal models could lead to creation of an independent national oversight agency to audit state testing programs and test publishers, or the federal government could fund a competitive grants process for states that agree to develop common standards and assessments. Alternatively, a consortium of private foundations could underwrite a national competition to develop standards and assessments.

In August 2007, the James B. Hunt, Jr., Institute for Educational Leadership and Policy commissioned the National Research Council of the National Academies to investigate the way current state standards are functioning. The National Research Council appointed an ad hoc Committee on State Standards in Education, which commissioned papers on the policy context of state standards (Massell, 2008), the variability of state standards (Porter, Polikoff and Smithson, 2008; Porter, Polikoff and Smithson, 2009) and the costs of standards-based reform activities (Harris and Taylor, 2008), and held two workshops in January and March of 2008. Beatty (2008a; 2008b) reported that the first workshop examined the role that standards play in state education policy and practice, the strengths and weaknesses of state standards-based reform efforts, and how these strengths and weaknesses are related to state standards. The Committee developed an options and evaluation framework for addressing policy choices about the developmental process, scope and implementation of common standards, and evaluating the factors of quality, equity, feasibility and opportunity cost. In the second workshop, the participants used the framework to examine the quality and impact of state standards and the cost, political feasibility and legal implications of transferring to common standards. Several key points emerged from presentations and discussions in the two workshops. First, participants agreed that standards are an accepted part of the educational landscape and that they play multiple roles in public education. Second, participants believed there was significant variability among states in the nature of their standards, but they lacked agreement about the reasons for these variations. Third, participants agreed that the existing system of standards-based education had failed to meet its intent, because mechanisms for teachers to adapt instruction and political will to address disparities in educational opportunities offered to students in different settings were lacking. Fourth, many participants argued that assessment has become the principal driver in most states' standard-based reform efforts. Although the participants concluded that common standards could address these issues, simply creating them would not accomplish this goal. Furthermore, significant practical obstacles hindered development and implementation of common standards. Although common standards would yield some saving in expenditure, such a saving would not justify adopting this approach. On the other hand, the political landscape at present provided an opportunity to proceed with this approach.

Based on the findings of this study, the James B. Hunt, Jr., Institute for Educational Leadership and Policy (2008) recommended five elements for a state-led effort to develop common core standards. First, the nature of quality in content standards needs to be defined. Influential content standards, which are specific in their message, consistent among themselves, have

authority through official adoption and power through compliance and stability over time, will effect changes in the curriculum, assessment, instruction, teacher preparation, professional development, student supports and accountability systems. Second, an effective developmental process needs to be established. Such a process should involve a wide range of stakeholders, but needs to avoid a consensus-driven process. An external group of experts needs to review the process and standards to ensure that they are rigorous. Third, the influence of assessment needs to be considered. States could pool their resources to purchase assessments that use new technologies to provide crucial information about student learning. Fourth, the influence of performance standards needs to be considered. A joint state effort to set performance standards is likely to avoid the pressure that state leaders face in setting lower performance standards to limit political backlash arising from large numbers of students failing to reach proficiency on state assessments. Fifth, political feasibility and leadership in setting common core standards needs to be considered. Leaders need to set priorities, build the will for change, manage opposition, and extend capacity for states to implement common core standards.

In January 2009, NGA and CCSSO convened leaders from 39 education, business, civil rights and other organisations at a meeting in Washington, DC, to form a National Policy Forum for the Common Core State Standards Initiative. Participants were informed that the initiative would be based on ownership of the process by the states and the measurement of success would be based on whether states adopted the common core standards. The focus of the initiative would be development of higher, clearer and fewer standards, benchmarked against those of leading countries performing in international studies of educational achievement, capable of preparing students for college and the workplace, and inclusive of the skills students need for success in contemporary society. The process for developing the common core standards would be determined in consultation with partners and funders. The role of the National Policy Forum, consisting of signatory national organisations, is to share ideas, gather input and inform the Common Core State Standards Initiative. In addition, Achieve, the Alliance for Excellent Education, the James B. Hunt, Jr., Institute for Educational Leadership and Policy, the National Association of State Boards of Education, and the Business Roundtable were named as key partners in the venture.

The outcome of this meeting led to further developments. Hoff (2009) reported that NGA adopted a policy statement in February 2009 endorsing a process to develop common core standards. McNeil (2009) reported that NGA and CCSSO convened a meeting in Chicago in April 2009 attended by governors' education advisers and chief state school officers from 41 states. The purpose of the meeting was to explain current thinking about common core standards, present a developmental process and timeline, discuss the product and adoption procedure, and outline the means for accessing funds available through the American Recovery and Reinvestment Act of 2009. Participating state leaders, who committed to support the Common Core State Standards Initiative, would be expected to develop a prototype of high school graduation standards in mathematics and language arts by the middle of 2009, and year-by-year standards in mathematics and language arts by the end of 2009.

In April 2009, the House of Representatives' Committee on Education and Labor conducted a hearing to examine how states can prepare students to compete in a global economy by using internationally benchmarked common standards. In opening the hearing, Congressman George Miller, chair of the committee, called on Congress to support the state-led initiative and sought to learn from witnesses how the federal government could best support it. James B. Hunt, Jr., chair of the Institute for Educational Leadership and Policy, recommended that Congress should ensure that the state-led initiative is based on empirical evidence of what students need to know, sponsor development of curriculum aligned to the common standards, support the design of assessments aligned to the standards, fund the redesign of teacher preparation programs, support creation of a database of instructional strategies, fund design of professional development for teachers, and require school and higher education systems to work together. T. Kenneth James, president of CCSSO, outlined work being undertaken in the Common Core State Standards Initiative. Greg James, chair of California Business for Excellence in Education, reported on what lessons could be learnt from California's experience in establishing standards-based education. David Levin, co-founder of the Knowledge is Power Program, outlined how this alliance of 66 schools across 19 states could benefit from common core standards. Randi Weingarten, president of the American Federation of Teachers, suggested that cross-sectoral partnerships, funded by the federal government, in which policy makers coordinate work across subject areas and involve teachers in the process, would be the best model for developing common core standards. Klein (2009) reported that there was broad, bipartisan support for the Common Core State Standards Initiative among committee members, although some Republicans were wary about involving the federal government in case the undertaking led to a national curriculum.

Following publication of its report on various models for developing national standards and assessments, the Thomas B. Fordham Institute commissioned a team of experts on international benchmarking based at Michigan State University to investigate whether lessons could be learnt from other countries, which had adopted national standards and assessments. In May 2009, the Thomas B. Fordham Institute hosted a conference in Washington, DC, for policy makers, education officials and business leaders to discuss what lessons could be learnt from standards and assessments in other countries. Participants heard a keynote address by an official of the United States Department of Education, and contributed to two panel discussions, in which the issues outlined in a policy brief were discussed. Following the conference, staff of the Thomas B. Fordham Institute worked with the project team to produce a report on the project. In the report, Schmidt, Houang and Shakrani (2009) reported from a comparative study of 10 countries that innovations in developing and implementing national standards and assessments in Brazil, Canada, China, France, Germany, India, the Netherlands, Russia, Singapore and South Korea had raised student performances in TIMSS. Schmidt, Houang and Shakrani argued that six lessons could be learnt from these innovations. Since a central authority establishes an instructional foundation in all these countries, except Canada, while preserving some discretion for state and local levels over curricular decisions, establishing national standards should not lead to a loss of local

control. Based on Germany's experience in which the Standing Conference of Ministers of Education and Cultural Affairs of the Lander in the Federal Republic of Germany established common standards linked to a quality assurance system, an independent, quasi-governmental institution should be founded to oversee development of national standards and assessments, and produce reports for the nation. Also applying Germany's experience in which the Federal Ministry of Education and Research developed a blueprint for developing common standards, the federal government should provide resources to support the standards-setting process. Based on evidence from the 10 countries, coherent, focused and rigorous standards, beginning with English, mathematics and science should be set. From evidence showing that most of the countries do not assess students every year, national assessments should be administered every two years in years 4, 8 and 12. As accountability across the 10 countries spans student, classroom, school, regional and national levels, assessment results in year 12 should be used as an accountability measure and indicator for college and workplace readiness.

Another national report released in June 2009 called for new standards in mathematics and science. In 2007, the Carnegie Corporation of New York and the Institute for Advanced Study created the 22-member Commission on Mathematics and Science Education, comprised of distinguished mathematicians, scientists, educators, scholars, business leaders and public officials. The Commission met on three occasions and commissioned papers from 16 individuals and organisations in assessing the current state of mathematics and science education and developing recommendations to prepare students in mathematics and science. In its report, the Commission on Mathematics and Science Education (2009) developed a plan of action organised into the four priority areas of excellence and equity, standards and assessments, teaching and professional learning, and schools and systems. In supporting the need for more academically rigorous common standards for mathematics and science, the Commission believed that standards should be fewer, clearer and higher, and aligned to new assessment and accountability systems. The Commission found that teaching and learning in mathematics should emphasise the proficiencies of conceptual understanding, procedural fluency, strategic competence, adaptive reasoning and productive disposition, and more attention should be given to statistics, data analysis and other discrete mathematics applications in secondary schools. The Commission believed that standards in science should be reshaped to enable students to develop competencies that characterise scientific thinking and a more thorough understanding of the foundational concepts and theories that provide a baseline of scientific literacy. The Commission supported the proposal by the Board of Science Education to revise the National Science Education Standards published in 1996.

In June 2009, the James B. Hunt, Jr., Institute for Educational Leadership and Policy and the NGA Center for Best Practices convened the annual Governors Education Symposium at Cary, North Carolina. The proceedings of the symposium examined standards and assessment, longitudinal data systems, teacher effectiveness, and support for failing schools, the four education priorities outlined in the American Recovery and Reinvestment Act. The governors received a briefing booklet discussing each issue, and heard from the Secretary of Education, Arne Duncan that the United States

Department of Education would commit at least \$350 million of the Race to the Top Fund to support creation of rigorous assessments linked to common core standards.

In June 2009, NGA and CCSSO released the names of the states and territories, which had signed a memorandum of agreement to participate in the Common Core State Standards Initiative. The governors and chief state school officers of all the states, except for Alaska, Missouri, South Carolina and Texas, had signed the memorandum of agreement, and the District of Columbia, Puerto Rico and the Virgin Islands also agreed to take part. Alaska did not sign the agreement, because the adoption of common core standards would increase work for its limited human resources. However, state officials would monitor progress of the Common Core State Standards Initiative. Missouri postponed completing the process of signing the agreement due to an ongoing search for a new commissioner, although Governor Jay Nixon had signed it. Following appointment of Chris Nicastrò as the new commissioner, the State Board of Education voted in early August 2009 to authorise the commissioner to sign the agreement. South Carolina would participate unofficially in the Common Core State Standards Initiative, since State Superintendent Jim Rex had signed the agreement although Governor Mark Sanford refused to sign it. Texas did not sign the agreement, because Commissioner Robert Scott with the support of Governor Rick Perry believed that the costs of replacing the Texas Essential Knowledge and Skills with common core standards and adopting new textbooks would be excessive.

The memorandum of agreement set out the purpose, background and benefits for states, and the process and structure for conducting the Common Core State Standards Initiative. Its purpose is to develop common core standards in English language arts and mathematics for kindergarten to year 12 through a state-led process. The development of common assessments aligned to the common core standards would constitute the second phase of the initiative. The efforts that individual states had made in developing high quality standards through the American Diploma Project formed the main activity shaping the Common Core State Standards Initiative. Common core standards would benefit states in five ways. They could articulate to teachers, parents and the public expectations that students should achieve. Curricula, textbooks and digital media could be aligned to common core standards. Professional development of educators could be based on identified needs and best practice. An assessment system could be developed and implemented to measure student performance against the common core standards. Policy changes, needed to help students meet common core standards, could be evaluated.

The NGA Center for Best Practices and CCSSO coordinated the process that led to adoption of common core standards by the states. In June 2009, the coordinating organisations convened 29 content experts, drawn largely from Achieve, ACT and the College Entrance Examination Board, to form common core standards development work groups for English language arts and mathematics. In addition to representatives from these organisations, the work groups were expanded to include academics, educational consultants and members of school improvement groups as the work advanced. An

independent facilitator and an independent writer, as well as resource advisers, were appointed to support each work group. The work groups were responsible for developing a set of expectations for the end of high school by July 2009, and standards for kindergarten to year 12 by December 2009. Five attributes would characterise the expectations and standards. They are fewer, clearer and higher, aligned with college and work expectations, inclusive of rigorous content and knowledge, internationally benchmarked, and based on research and evidence. The coordinating organisations also created feedback groups for English language arts and mathematics, consisting of 35 academics and other experts, responsible for offering input about draft documents based on research evidence. In July 2009, the coordinating organisations launched a web site for the Common Core State Standards Initiative, designed to provide information about the decision making process. Participating states and national education organisations offered input into drafting the expectations and standards, and feedback by reviewing draft documents. The coordinating organisations created a National Validation Committee, consisting of national and international experts on standards nominated by the participating states. The National Validation Committee reviews the common core standards as they are developed, and validates the process used by the work groups.

After the work groups completed the first drafts of the College and Career Readiness Standards for Mathematics, and Reading, Writing and Communication in July 2009, the coordinating organisations circulated the drafts with a set of questions for responses to the feedback groups, state education agencies and national organisations. Three draft documents were released for consultation. An introductory document set out a preamble and a set of criteria applied to establish common core standards. The draft College and Career Readiness Standards for Mathematics consist of an introduction and overview of the organisation of the standards, a set of mathematical practices students should meet, core concepts and skills for the mathematical principles of number, expressions, equations, functions, quantity, modelling, shape, coordinates, probability, statistics, a set of exploratory problems, a statement on the decision making process, and a list of documents reviewed. The College and Career Readiness Standards for Reading, Writing and Communication consist of sets of core standards and required range and contexts for reading informational and literary texts, writing, and speaking and listening, lists of standards relevant to the applications of research and interpretation and production of media, and four reading texts illustrating the required level of complexity for college and career readiness

One organisation, Core Knowledge Foundation founded by education reformer E. D. Hirsch Jr. in Charlottesville, Virginia, to which the drafts had been made available by a reviewer, released them into the public domain by posting them on its web site. In addition, Core Knowledge Foundation offered a disparaging commentary on the College and Career Readiness Standards for Reading, Writing and Communication. Release of the draft standards led to a public debate over their quality. In screening the initial reactions of eminent subject matter experts, Cavanagh and Gewertz (2009) reported that the draft standards elicited differing opinions. In commenting on the decision making process used to develop the first drafts, Cavanagh (2009) reported

that some subject associations, teacher unions and parent groups criticised the lack of openness in the process, although acknowledging that officials of the coordinating organisations were responsive to suggestions to broaden consultation.

Following revision by the work groups, the coordinating organisations released the draft college and career readiness standards in September 2009 for public review and validation. The standards for kindergarten to year 12 are expected to be released for public review in December 2009 and validated in January 2010. The coordinating organisations propose developing common core standards for science, once development of the common core standards for mathematics and English language arts has been completed.

The coordinating organisations approached the federal government to provide financial support for the Common Core State Standards Initiative through the Race to the Top Fund, offer states greater flexibility in using federal funds, give long-term financial support for implementation, and revise existing federal education laws. Early in 2010, participating states will submit timelines and process statements for adopting the common core standards to the National Validation Committee. Participating states would be responsible for adopting the common core standards either directly or by aligning their state standards in accordance with state timelines for adopting standards, but not exceeding three years. States adopting the common core standards could choose to include additional state standards and those states aligning their standards would need to ensure that at least 85 percent of their standards represent the common core standards. An ongoing process, based on research and evidence, would be used for improving the first version of the common core standards.

Australia

Policy Directions

The agreement policy makers reached in 2007 to develop a national curriculum can be traced back to initiatives undertaken to establish greater national consistency between education systems in Australia. Following the appointment of Dr Brendan Nelson as Australian Government Minister for Education, Science and Training in November 2001, the national education agenda shifted in this direction with the enactment of the Schools Assistance (Learning Together – Achievement through Choice and Opportunity) Act by the Australian Parliament in December 2004. Coming into effect through regulations signed in August 2005, the Schools Assistance Act introduced new requirements reflecting the Australian Government's national priorities for education intended to improve educational programs, increase student performance, and enhance family involvement in education. Requirements to achieve greater national consistency in the Schools Assistance Act included introducing a national assessment program in literacy and numeracy, and a national sample assessment program in science literacy, civics and citizenship, and information and communication technologies administered over a three-year cycle.

At the same time, the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) considered the need for greater national consistency in curriculum outcomes. In July 2002, MCEETYA commissioned the Curriculum Corporation to survey the states and territories on their provision of curriculum. Produced by the Curriculum Corporation (2003), the report of this study found that the structure, bands and organisation of most curriculum documents were related to the national statements and profiles. They varied considerably in the extent to which the content students should learn was specified, and they incorporated cross-curricular and essential organising principles, although there were differences in the way these principles were conceptualised and the status they were given. There was greater commonality between the different states and territories in the organisation of content specified in Studies of Society and Environment than in Technology. All the states and territories specified performance indicators in their curriculum documents, but there were differences in the way they were applied. With the exception of the New South Wales syllabuses, the allocation of time was rarely mandated. Student achievement was not widely assessed by the states and territories. A comparative analysis of the organisation of these curriculum documents indicated that a common format applied in many learning areas, and it was possible to identify broadly equivalent outcomes in some learning areas, although there were clear disparities in what students should attain. Furthermore, they included outcomes defined in terms of content students should achieve as well as teaching and learning activities that should take place in the classroom. Many education agencies had developed curriculum documents that were not based on discrete learning areas, but on cross-curricular, essential learning and equity issues, pedagogy, and student assessment. In addition, each education agency had produced documents to support implementation of curricula by providing guidance to teachers for developing programs and assessing students.

After considering this report in July 2003, MCEETYA agreed to develop statements of learning for English, mathematics, science, and civics and citizenship, and in May 2005, added information and communications technologies, which had been included in legislative requirements by the Australian Government. In 2004, MCEETYA directed the Australian Education Systems Officials Committee (AESOC) to develop the Statements of Learning for English as a pilot project. Endorsed by MCEETYA in February 2005, the Statements of Learning for English were revised by AESOC in August 2005, approved by the Ministers out-of-session and published by the Curriculum Corporation (2005). The Statements of Learning for Mathematics, Science, Civics and Citizenship, and Information and Communication Technologies were developed during 2005 by a project team overseen by a steering committee of officials from state and territory education agencies. They were approved by MCEETYA in August 2006, and published (Curriculum Corporation, 2006a; Curriculum Corporation, 2006b; Curriculum Corporation, 2006c; Curriculum Corporation, 2006d). State and territory education agencies and independent systems were required to implement the statements of learning in their next cycle of curriculum review, at latest by January 2008.

In 2005, the Australian Government commissioned the Australian Council for Educational Research to investigate options for a single Australian Certificate of Education. In its report, the Australian Council for Educational Research (2006) recommended that a national standards body should identify essential content and develop achievement standards in core subjects, and award an Australian Certificate of Education. This recommendation led the Australian Government to commission the Australian Council for Educational Research in June 2006 to examine the common content, essential content and standards of achievement in English, mathematics, physics, chemistry and Australian history in curriculum documents used across Australia at the senior secondary level. Curriculum documents were analysed to identify their rationales, domains of learning, curriculum content, assessment requirements, moderation procedures, and expected achievement standards. A group of experts rated the importance of topics, and identified other topics they considered important, but missing in the curriculum documents. In the report of the study, the Australian Council for Educational Research (2007) found that the degree of consistency varied from subject to subject, almost all essential content was represented in each curriculum document, and there was a high degree of consistency in assessing students' achievements. Consistency in content ranged from 85 to 95 percent in physics and chemistry, 90 percent in high-level mathematics, but only moderate degrees of consistency were found in English and Australian history. The experts judged that almost all topics in physics, chemistry, mathematics, and English were essential, but no topics in Australian history were essential. Although a high degree of consistency in assessing students' achievements was found in chemistry and physics, greater variance was found in mathematics, Australian history and English. From this study, it was recommended that core content for each subject should be identified, and a set of national academic standards should be developed for the core content in each subject.

At an address to the National Press Club in January 2006, Prime Minister John Howard called for renewal of the teaching of Australian history in schools as a structured narrative to replace a fragmented stew of themes and issues. Julie Bishop, the Minister for Education, Science and Training, convened the Australian History Summit in August 2006 to seek advice on ways the Australian Government could strengthen the place and maintain the integrity of Australian history in the curriculum, and establish a narrative in the teaching of Australian history in schools. At the summit, 23 public figures, academics, historians and history teachers considered two discussion papers before releasing a communique stating that the study of Australian history should be planned sequentially through primary and secondary schooling, and form a subject in years 9 and 10. Following the summit, Minister Bishop commissioned Professor Tony Taylor from Monash University to develop a model curriculum framework in Australian history for years 3 to 10 based on the key issues identified by panels at the summit. Professor Taylor, who used the questions, and key dates and events identified at the summit as a basis for the study, consulted widely in the education community in producing the model curriculum framework. The Australian History Curriculum Reference Group, consisting of four historians appointed in June 2007, used the model curriculum framework to develop a guide for teaching Australian history as a subject in years 9 and 10. In the guide, the Australian History Curriculum Reference Group (n.d.) set out the skills students should acquire, a program

of study founded in a series of topics and milestones based on a chronological approach, and a range of historical perspectives to provide a context for the topics.

The proceedings of the Australian History Summit opened a wider debate about who should set curriculum, what role the federal government should play in funding curriculum development, and what involvement the public should have in determining what is taught in classrooms. At the opening address to the conference of the History Teachers' Association of Australia held at Notre Dame University in Fremantle in October 2006, Minister Bishop proposed that the approach used to develop a model curriculum for Australian history could be applied to develop a common model curriculum. She argued that a national board of studies, consisting of representatives from the states and territories, would use the best examples of state-level curricula to develop a model curriculum in other core subjects. At its meeting in Darwin in April 2007, MCEETYA agreed to work with the Catholic and independent sectors to set core content and achievement standards in English, mathematics and science at the end of schooling and at junctures during schooling. These standards would form the basis for the National Assessment Program.

In January 2007, the Australian Labor Party (2007a) released a New Directions paper calling for an 'Education Revolution'. It proved to be one of the party's key policies, ensuring that education was an important issue in the 2007 federal election campaign. In February 2007, the Australian Labor Party (2007b) released its policy for setting a national curriculum, arguing that rigorous academic standards are necessary for students to perform in more demanding employment, and consistency is necessary to meet the needs of interstate migration. Data from the report by the Australian Council for Educational Research (2007) supported a rationale arguing for greater consistency in the school curriculum. Results in mathematics, reading and science from PISA, and mathematics and science from TIMSS show Australian students performed well, but students' performances varied across the states and territories and declined over time. A firm case exists for a national curriculum in mathematics and science, where a high level of consistency already prevails across the states and territories, but the case is stronger for regional, state and local variations in English and history. The extensive range of groups, involved in curriculum planning at the federal and state levels, has led to a high level of expertise, but also a lack of coherence. The statements of learning and the National Goals for Schooling in the Twenty-First Century are viewed as forming the foundations for a national curriculum. It is argued that the present debate about curriculum reform is focused on subject matter, not skills and capabilities. Students need a combination of knowledge and skills within the core disciplines to contribute to the workforce. In cross-disciplinary studies, students should build on the knowledge and skills characteristic of particular disciplines. The core disciplines of mathematics, the sciences, English and history should form the basis for delivering the curriculum, but varying approaches need to be applied at different levels of schooling. The states and territories should be given scope to identify additional elements of knowledge, which may also be valuable, but do not form part of the core curriculum. An eminent educator will lead a national curriculum board consisting of representatives from the states, territories and the independent sector. The Curriculum Corporation

and the Australian Council for Educational Research will assist the National Curriculum Board in its work. In spite of the need to complete its work by 2010, the National Curriculum Board will be required to submit drafts of its work to teachers and parents for review. Implementation of the national curriculum will depend on its adoption by the states, territories and the independent sector. Work on the national curriculum will be guided by the criteria of building on current curricula of high quality, reaching a national consensus, representing quality, providing conciseness, consulting practitioners and parents, balancing mandatory knowledge and skills with local variations, providing flexibility for pedagogical approaches, and balancing academic and vocational aspects.

In October 2006, the Council for the Australian Federation, formed earlier in 2006 by the premiers and chief ministers of the states and territories to improve the delivery of services, established a committee of education officials to review cooperative federalism since the Adelaide Declaration on Schooling was adopted in April 1999. In April 2007, the Council for the Australian Federation released the report of the review for consultation. Following review by education organisations, the revised report was released at a conference held in Melbourne in September 2007. The Council for the Australian Federation (2007) reported on major accomplishments of national collaboration, cited results in mathematics, reading, science and problem solving from PISA indicating students performed well and data on low participation rates of students in senior secondary education, examined key challenges and priorities for developing a new statement on the future of schooling, outlined commitments to be incorporated into a new statement, and proposed an action plan. A new statement on the future of schooling should be based on seven commitments. High quality education is crucial to deliver equality of opportunity, meet changing workforce demands, deliver knowledge and skills for an information age, address environmental challenges, promote social cohesion, and prepare for global citizenship. Governments and education agencies need to build partnerships with parents, communities and businesses. Students need to progress from focusing on literacy and numeracy in the early years to the core disciplines through secondary school, and then onto skills to synthesise, create and apply new information across disciplines and a range of electives. The curriculum needs to be based on rigorous standards in the learning areas of English, mathematics and science, languages, humanities and social sciences, the arts, health and physical education, and cross-disciplinary learning areas. Governments and education agencies need to provide professional standards, pre-service training and ongoing professional development, performance reviews and career opportunities for teachers. Governments and education agencies need to develop policies to provide equality of opportunities for different groups in society, improve transition through the levels of schooling, and provide the conditions necessary in schools to offer high quality education. Governments at the federal and state levels need to collaborate to encourage and share best practices in education. The 14-point action plan focused on eight areas of activity. The states and territories will collaborate to set content and achievement standards in the core disciplines, provide flexibility for states, territories and local systems to implement the standards, and broaden options in emerging areas of knowledge. The states and territories will develop a plan to assist

schools assess students' performances and diagnose students' strengths and weaknesses in relation to national standards, ensure high quality national tests and sample-based surveys are administered, and apply targeted intervention strategies for schools, in which students are not meeting benchmarks. The states and territories will develop a plan to assist schools report clearly students' performances on national standards, establish three benchmark levels for national tests, and develop a schedule for public reporting of school performance. The states and territories will review school leadership programs across Australia and overseas to develop guidelines to promote best practices, and develop policies for rewarding high performing principals and teachers. The states and territories will cooperate in aligning teacher registration requirements with national professional standards, and develop a national approach for accrediting pre-service teacher education courses. The states and territories will identify impediments caused to schools by regulations, and shift funding agreements towards a performance focus. The states and territories will convene a biennial national forum to showcase innovative and excellent practices at the local level, and feature reforms recognised internationally. It recommended that this report should be presented to MCEETYA with a view to a successive statement to the Adelaide Declaration being adopted and the first national forum being held concurrently in 2008.

National Curriculum

The movement to establish greater consistency in the school curriculum led policy makers to initiate work to provide a rationale for a national curriculum. In 2002, the Australian Government Department of Education, Science and Training commissioned a consultant to explore whether the notion of national curriculum collaboration is still relevant, and if so, how it might be advanced in a more educationally productive way. In the report on the project, Reid (2005), a professor of education at the University of South Australia, proposed a capabilities-based curriculum for Australia based on and consistent with six procedural principles. First, a rationale, purpose and philosophical reference points should be articulated. Second, a view of the curriculum should be theorised and articulated. Third, a strong research and conceptual base should be incorporated. Fourth, the education community should be engaged in the conceptual phase. Fifth, the process should seek to build a constituency of support. Sixth, the political realities of the federal system of government should be recognised. Reid argued that the official curriculum should be organised from a reference point against which various models will be assessed on the extent to which they enable teaching for capabilities using the procedural principles. This approach constructs the official curriculum as a guiding resource, providing support for inquiry-based practice rather than presenting content. There would be two key phases of an on-going discussion and debate in the education community. Initially, the Australian Government would promote a discussion on the nature of capabilities. Then, a professional discussion about how to work through the content described in state and territory curricula would occur in schools before it was widened across the states and territories. Reid proposed that a set of capabilities could be common across Australia, and would become a focus of teaching and learning in each state and territory. At the same time, the states and

territories would retain existing content-based curricula organised in a manner agreed within each jurisdiction. Teachers would teach through the content in order to develop the capabilities.

Reid's report in defining a capabilities-based curriculum influenced subsequent activities initiated by the Australian Curriculum Studies Association to examine approaches to national curriculum work. In February and August of 2006, the Australian Curriculum Studies Association convened a forum and a symposium to debate a range of issues relating to national approaches for curriculum reform. In response to the symposium, the Australian Curriculum Studies Association (2006) produced a guide setting out a purpose for national curriculum work and five criteria to measure its application. National curriculum work must establish clear moral purpose and a rationale, promote a view of the curriculum consistent with the rationale, follow a principled process, ensure adequate resources and funding, and demonstrate impact and outcomes. In February 2007, the Australian Curriculum Studies Association convened the Curriculum Standing Committee of National Education Professional Associations, consisting of representatives from 14 professional associations, to continue this work. At a second meeting held in May 2007, the Committee considered two discussion papers to inform development of a statement on a school curriculum for the twenty-first century. A draft statement on a school curriculum for the twenty-first century was presented to delegates in a panel session at the Australian Curriculum Studies Association's biennial conference held in Melbourne in July 2007. The draft was revised as a consequence of feedback, and published as a working paper by the Curriculum Standing Committee of National Education Professionals Associations (2007). The working paper states that the school curriculum must take account of Australia's position in the world, provide flexible curriculum frameworks based on a rationale, present disciplinary and interdisciplinary content attuned to stages of students' learning agreed through a consultative process, and be supported by effective capacity building in schools. The work of the Committee continued with three meetings in 2008 with officials to discuss the work of the National Curriculum Board. Membership of the Committee was expanded in 2008 to include the voices of six subject associations, whose representation is related to the first round of the National Curriculum Board's work. In October, the Curriculum Standing Committee of National Education Professionals Associations (2008) released a paper, which examines the way the senior secondary curriculum is structured. Based on an assumption that the existing curriculum is inconsistent with the National Goals for Schooling in the Twenty-First Century, it proposes that discipline-based learning should be restructured so students gain a broad understanding of core concepts in the disciplines. It advocates alternative ways for organising the senior secondary curriculum to those generally adopted in the states and territories and proposed in the national curriculum.

Subject associations held sessions at national and state conferences, as well as sponsoring events relating to the national curriculum. In June 2008, the Arts, English and Literacy Education Research Network at the University of Sydney hosted a symposium on the proposed national curriculum in English. The symposium was the first occasion at which officials of the newly formed National Curriculum Board met with teachers, researchers, scholars, students

and others involved in English education and curriculum reform. Manuel, O'Sullivan and Carter (2008) reported that keynote speakers at the symposium addressed a range of issues relating to the principles and perspectives for a national curriculum in English. The History Teachers Association of New South Wales held two forums at Macquarie University in Sydney in September 2008 and May 2009. At the first forum, officials of the National Curriculum Board met with representatives of the subject association, academics, teachers and others to explore and discuss approaches to a national curriculum in history. At the second forum, discussions focused on the place of the learner in a national curriculum in history.

Early in 2008, Prime Minister Kevin Rudd and the Minister for Education, Julia Gillard, appointed a chair and deputy chair for the National Curriculum Board, whilst state and territory ministers for education, the National Catholic Education Commission and the Independent Schools Council of Australia appointed representatives. Charged with developing a national curriculum for kindergarten to year 12, the National Curriculum Board held its inaugural meeting in Canberra in April 2008. In June 2008, the National Curriculum Board convened a forum in Melbourne attended by more than 200 delegates from subject associations, education agencies, universities, business and industry groups. Its purpose was to consult the education community about directions to be taken in developing the national curriculum. Prior to the forum, delegates received a discussion paper (National Curriculum Board, 2008a), setting out the role of the national curriculum, principles for developing national curriculum, organisation of content, specification of achievement standards, scope of cross-curricular learning, the developmental process, and communication, consultation and engagement. At the forum, delegates heard a keynote speaker discuss education reform in Hong Kong, participated in two workshops and contributed to a panel discussion. Chris Wardlaw, Deputy Secretary of the Hong Kong Education Bureau, outlined Hong Kong's school curriculum framework and the proposed senior academic structure, key elements of education reform in Hong Kong. The first workshop addressed approaches to developing national curriculum and national curriculum content. The second workshop addressed achievement standards and cross-curricular learning. The panel discussion focused on development, consultation and engagement processes needed to develop the national curriculum.

In response to discussions at the forum, the National Curriculum Board (2008b) published a discussion paper outlining the scope and structure proposed for the national curriculum. The discussion paper was released for public review between October and December of 2008. During this period, the National Curriculum Board conducted forums, attended by 900 participants, in each state and territory to seek feedback from stakeholders. The responses received through participants' engagement in forums, as well as 62 submissions received by the National Curriculum Board's office and through the web site's feedback mechanism, were analysed between January and March of 2009. In May, the National Curriculum Board (2009a) published a report on the results from the public review of the discussion paper. The feedback supported changes shaping the contemporary context of education and futures orientation outlined in the discussion paper. However, it raised concerns about the lack of a vision statement and the capacity of the national

curriculum to meet local needs and student diversity. The respondents agreed with the view presented in the discussion paper that the national curriculum should reflect the Melbourne Declaration on Educational Goals for Young Australians, adopted by MCEETYA in December 2008, and increase literacy about Asia. However, they believed equity and diversity should be emphasised in shaping the national curriculum. The feedback supported the principles and specifications outlined in the discussion paper. However, it raised concerns about the issues of clarity, equity and inclusiveness in setting standards, alignment to the Early Years Learning Framework, the importance of the past in shaping the environment, society and culture, and the allocation of time across learning areas. The feedback supported setting content and achievement standards, developing literacy and numeracy continua, articulating general capabilities, and using annotated work samples in the national curriculum. However, it raised concerns about combining stages and year-by-year approaches, the absence of an overarching structure, the lack of clarity about the senior secondary level, the absence of links between cross-curricular capabilities and achievement standards, and the failure to take account of teachers' workload in setting achievement standards. Analysis of the feedback led to actions being taken to revise 34 aspects contained in the discussion paper.

In May, the National Curriculum Board (2009b) published the revised paper outlining the scope and structure proposed for the national curriculum. It argued that changes resulting from globalisation, technological and environmental changes have influenced education. The need for change in education is reflected in the initiative taken by federal, state and territory governments to develop a national curriculum through a collaborative process. This work would be guided by the Melbourne Declaration on Educational Goals for Young Australians. Development of the national curriculum would be based on 10 principles. It should be clear, set high standards, build on the Early Years Learning Framework, extend from foundational to specialised knowledge and skills, provide an understanding of the past, be feasible in terms of time and resources, be concise, allow scope for areas outside the national curriculum, permit adaptation to local contexts and student diversity, and apply a research base of evidence on learning and pedagogy. The organisation of the content in each learning area would be based on foundational and deep knowledge, understanding, skills and values, and general capabilities underpinning thinking, working with others, and enhancing cross-curricular expertise. The content would be organised in year-by-year ranges for all students. The development of literacy and numeracy skills, which will be built mainly in English and mathematics, would extend from the presentation of basic to sophisticated skills. Content in the national curriculum would reflect the expanding bodies of knowledge in each discipline, present core knowledge, skills and understandings, prefer depth to breadth, develop expertise in each discipline, allow for cross-disciplinary learning, provide a rationale for selecting content, and organise content in a logical order. The national curriculum would cover the general capabilities of literacy, numeracy, information and communication technologies, thinking skills, creativity, self-management, team work, intercultural understanding, ethical behaviour and social competence. The perspectives of indigenous people, sustainable living, and engagement with Asia would be incorporated into each learning area. Achievement standards would be set year-by-year,

based on knowledge, skills and understandings students typically demonstrate as represented in work samples and informed by research on student learning. A to E grades would be used to report student performance to parents. Development of the national curriculum, undertaken in phases of framing, writing, implementation and review, would involve broad-based consultation. Teachers would be responsible to choose appropriate pedagogical approaches for presenting the national curriculum. Implementation of the national curriculum would be phased in from 2011, taking account of differences between existing arrangements, changes in the organisation of the curriculum, extent to which state and territory credentials require additional material, and entry points into cycles for curriculum review.

The National Curriculum Board appointed small advisory groups, consisting of academics, curriculum specialists and teachers, to develop initial advice papers for English, History, Mathematics and Science, which were released for public review in September 2008. The English initial advice paper, which discussed key issues and debates in the learning area, proposed that the curriculum should be organised into three elements: knowledge about English; informed appreciation of literature; and the growing repertoire of English usage. The History initial advice paper, which discussed key issues for defining a rationale for history education, proposed a framework for teaching history across three year ranges based on expanding environments for the primary level, world history and Australian history organised into four units for the junior secondary level, and courses offered by the states and territories for the senior secondary level. The Mathematics initial advice paper, which discussed challenges and debates in the learning area, proposed organising the curriculum into the domains of number, measurement, space, chance and data, and algebra across several strands. The Science initial advice paper, which discussed key issues affecting science education, proposed a framework for teaching science across four year ranges based on awareness of self and the local natural world at the early childhood level, recognising questions that can be investigated scientifically and investigating them at the primary level, explaining phenomena involving science and its applications at the junior secondary level, and courses offered by the states and territories for the senior secondary level.

In October 2008, the National Curriculum Board held one-day national forums, attended by academics, subject specialists and teachers ranging in number from 150 to 220 in each learning area. The participants reviewed the initial advice papers by considering sets of questions for discussion. Then, representatives from the relevant subject association met with the advisory group and staff from the National Curriculum Board to analyse the feedback received from the national forums. Responses received from advisory groups, eight forums held in each state and territory between July and November of 2008, and submissions received by the National Curriculum Board were also used to develop draft framing papers setting out broad directions for each learning area. The draft framing papers were released for public review between November 2008 and February 2009. As part of the review, the University of Sydney held a symposium on the national curriculum in December 2008. Attended by representatives of national associations, education agencies, universities, schools, teacher unions and parent

organisations, 260 participants heard a keynote address by Kennedy (2009), an expatriate Australian professor of education at the Hong Kong Institute of Education, attended plenary sessions addressed by the chairs of the four advisory groups, who outlined key issues in each learning area, and discussed future directions for each learning area. During this period, 1,131 responses were received through completed questionnaires and submissions. In March 2009, a gap analysis of key stakeholders led to non-respondents being contacted. Each questionnaire response and submission was analysed to identify feedback affirming directions specified in the draft framing papers or identifying issues requiring further examination. Feedback of both types, identified by large numbers of respondents, was discussed in the reports on the review of the draft framing papers.

The outcome of the public review, reported by the National Curriculum Board (2009c), led to 333 responses being received in relation to the draft English framing paper. The respondents supported the aims, futures orientation, incorporation of basics in authentic language and literacy, teaching grammar, the breadth and diversity of texts, the study of literature, the specification of general capabilities, and the use of a range of pedagogical approaches outlined in the draft. The respondents indicated that the introduction should highlight student learning, the aims should recognise a range of other areas associated with English, terms should be defined, appropriate approaches should be specified for teaching grammar, a wide range of texts should be studied, literature should be defined broadly, the curriculum should be constructed in alternative formats, alternative content should be specified at particular stages, guidance should be given about pedagogy, assessment techniques should be broader, separate documents should be developed for English-as-a-second-language students, and alternative terms should be used in some instances. The analysis of the feedback led to actions being taken to revise 39 aspects contained in the draft.

The English framing paper, published by the National Curriculum Board (2009d), sets out a rationale for teaching English, explicates aims, defines key terms, presents a structure for the English curriculum, discusses issues affecting the English curriculum, examines assumptions about pedagogy and assessment, and judges the value of a national curriculum for teaching English. The English curriculum organises the three strands of language, literature, and literacy by four year ranges: kindergarten to year 2; years 3 to 6; years 7 to 10; and years 11 and 12. The language strand involves understanding how the English language works, learning to read, developing oral language proficiency, learning writing conventions, extending vocabulary, mastering grammar, and discussing issues about language. The literature strand involves studying literary texts, appreciating personal, cultural and national identities, and understanding the value of literary works. The literacy strand involves developing English usage in various settings, understanding about communication in spoken, print and digital forms, creating multimodal texts, and using several modes for communication. In kindergarten to year 2, students expand their knowledge of language, experience various literary texts, and build a basic repertoire of skills in literacy. In years 3 to 6, students develop and articulate an increasingly sophisticated understanding about grammar and language features, engage with more structured literary texts, and explore written and spoken language for different purposes. In years 7 to

10, students extend and transfer understanding of how language works, analyse differences in various types of literary texts, and understand the value and appropriateness of texts. In years 11 to 12, students apply knowledge about language to various disciplines and purposes, discuss and debate the elements that make literary texts valuable, and produce a range of creative, expository and persuasive texts. Issues relating to equity and opportunity, connections to other learning areas, clarity of the curriculum, the role of digital technologies, the characteristics of learners across year ranges, general capabilities, and cross-curricular perspectives in the English curriculum are discussed. The structure of the English curriculum assumes that a range of pedagogical approaches are used and elements across the three strands in assessments are balanced. The paper concludes by outlining how study across the three strands will advance the teaching of English.

The outcome of the public review, reported by the National Curriculum Board (2009e), led to 302 responses being received in relation to the draft History framing paper. The respondents supported the aims, the elements of historical understanding, the structure of the history curriculum, the futures orientation, and the cross-curricular implications outlined in the draft. The respondents believed activities in history should better engage students, the limited interest of students in world history should be recognised, the nature of the subject matter should be less Eurocentric, the content should be more appropriate and less repetitious, the courses for senior secondary students should not contain complex concepts, superfluous bridging components and limited detail, inquiry should be emphasised, cross-curricular connections should be more appropriate, and the discipline of history should be better articulated. The analysis of the feedback led to actions being taken to revise 12 aspects contained in the draft.

The History framing paper, published by the National Curriculum Board (2009f), sets out a rationale for teaching history, explicates aims, defines key terms, presents a structure for the history curriculum, discusses issues affecting the history curriculum, examines assumptions about pedagogy and assessment, and judges the value of a national curriculum for teaching history. The history curriculum organises historical knowledge, understanding and skills by four year ranges: kindergarten to year 2; years 3 to 6; years 7 to 10; and years 11 to 12. Historical knowledge and understanding involves applying procedures, tools and methods to investigate historical significance, evidence, continuity and change, cause and consequence, historical perspective, historical empathy and moral judgment, contestation and contestability, and problem solving. The skills of identifying, comprehending and interpreting sources and using chronology are applied to acquire historical knowledge and understanding. In kindergarten to year 2, students investigate their own and their family's history. In years 3 to 6, students investigate Australian history before and after European colonisation. In years 7 to 10, students are presented with overviews and in-depth studies to investigate world history in four units: the earliest human communities to the end of the ancient period (60,000 BC to 500 AD); the ancient period to the beginning of the modern period (500 to 1750); the modern world and Australia (1750 to 1901); and Australia in the modern world (1901 to the present). In years 11 to 12, students investigate ancient and modern history

through discrete courses. Issues relating to incorporating a futures orientation, equity and opportunity, connections to other learning areas, the role of digital technologies, clarity of the curriculum, breadth and depth of study, the nature of the learner, general capabilities, and cross-curricular perspectives in the history curriculum are discussed. The structure of the history curriculum assumes that pedagogical approaches are used to develop knowledge, understanding and skills, and align content, pedagogy and assessment to measure performance and diagnose strengths and weaknesses. The paper concludes by outlining how study through a national curriculum will advance the teaching of history.

The outcome of the public review, reported by the National Curriculum Board (2009g), led to 226 responses being received in relation to the draft Mathematics framing paper. The respondents supported the aims, the three content and four proficiency strands, the clarity and depth of the content, and the focus on each year range outlined in the draft. The respondents indicated that aspects of content and proficiency strands and their relationship should be clarified, content should be specified further, learners' needs should be addressed through in-depth study, content should be specified year-by-year, a fourth course should be offered to senior secondary students following a vocational path, the place of numeracy in mathematics and its relationship to other learning areas should be clarified, information and communication technologies should be used to support learning not replace knowledge, and mathematical terms should be expressed consistently. The analysis of the feedback led to actions being taken to revise nine aspects contained in the draft.

The Mathematics framing paper, published by the National Curriculum Board (2009h), sets out a rationale for teaching mathematics, explicates aims, defines key terms, presents a structure for the mathematics curriculum, discusses issues affecting the mathematics curriculum, examines assumptions about pedagogy and assessment, and judges the value of a national curriculum for teaching mathematics. The mathematics curriculum organises the three content and the four proficiency strands by four year ranges: kindergarten to year 2; years 3 to 6; years 7 to 10; and years 11 to 12. The content strands emphasise building connections between topics in number and algebra, measurement and geometry, and statistics and probability. The four proficiency strands emphasise the processes of developing and connecting understanding, fluency, problem solving, and reasoning. In kindergarten to year 2, students develop mathematical ideas relevant to their lives. In years 3 to 6, students develop understanding of whole numbers to build reasoning in fractions and decimals and place value by using models, pictures and symbols. In years 7 to 10, students develop more complex mathematical ideas to solve non-routine problems through in-depth study of detailed topics. In years 11 and 12, students study mathematics through one of four options: a course focusing on the study of mathematics in everyday life and work; a course with a moderate demand in mathematics providing a pathway to higher education; a course with a substantial demand in mathematics providing a foundation for the study of mathematics at university; and a course with a strong demand in mathematics providing a foundation for the study of mathematics and engineering at university. Issues relating to engaging more students,

ensuring inclusion of all groups and creating opportunity to provide equity and opportunity, connections to other learning areas, clarity of the curriculum, breadth and depth of study, the role of digital technologies, the nature of the learner, general capabilities, and cross-curricular perspectives in the mathematics curriculum are discussed. The structure of the mathematics curriculum assumes that pedagogical approaches foster in-depth study and use a variety of mathematical task types. The paper concludes by outlining how a national curriculum will advance the teaching of mathematics by engaging students.

The outcome of the public review, reported by the National Curriculum Board (2009i), led to 270 responses being received in relation to the draft Science framing paper. The respondents supported the aims, the three elements, the proposed structure for the curriculum, and the statements about pedagogy and assessment outlined in the draft. The respondents indicated that representation and discussion of science should be broadened, alternatives should be used for specific terms, big ideas should be better represented, the three elements should be embedded in each stage, content should be aligned to relevant big ideas, literacy and numeracy skills should be represented in the science curriculum, technological applications should be included at all stages, and indigenous Australian perspectives should be recognised. The analysis of the feedback led to actions being taken to revise eight aspects contained in the draft.

The Science framing paper, published by the National Curriculum Board (2009j), sets out a rationale for teaching science, explicates aims, defines key terms, presents a structure for the science curriculum, discusses issues affecting the science curriculum, examines assumptions about pedagogy and assessment, and judges the value of a national curriculum for teaching science. The science curriculum organises the three strands of science understanding, science inquiry skills, and science as a human endeavour by four year ranges: kindergarten to year 2; years 3 to 6; years 7 to 10; and years 11 to 12. The science understanding strand involves selection of science knowledge in ways that explain and predict phenomena, and applies that knowledge to new situations and events. The science inquiry skills strand involves posing questions, planning, conducting and critiquing investigations, collecting, analysing and interpreting evidence, and communicating findings. The science as a human endeavour strand involves understanding how science influences society through posing and responding to social and ethical issues and how science research is influenced by societal challenges or social priorities. In kindergarten to year 2, students explore, observe and order objects, understand change, and question and speculate on ideas in the local natural world. In years 3 to 6, students observe patterns, understand systems, speculate on cause and effect, and use evidence to test explanations about science phenomena. In years 7 to 10, students investigate forms of energy and its transfer and storage, examine sustainability in systems, inquire into equilibrium and interdependence of components in systems, investigate forms and functions of objects or organisms, and use models and theories in biology, chemistry, earth science and physics. In years 11 to 12, students study discrete courses in biology, chemistry, earth science and physics. Issues relating to equity and opportunity, connections to other learning areas, clarity of the curriculum, the

role of digital technologies, the characteristics of learners across year ranges, general capabilities, and cross-curricular perspectives in the science curriculum are discussed. The structure of the science curriculum assumes that pedagogical approaches emphasise student engagement and inquiry, and align content, pedagogy and assessment to measure performance and diagnose strengths and weaknesses. The paper concludes by outlining how a national curriculum will advance the teaching of science by engaging students.

In October 2008, the Council of Australian Governments agreed to establish the Australian Curriculum, Assessment and Reporting Authority (ACARA) to manage curriculum, assessment and reporting of student performance by merging the National Curriculum Board and the National Schools Assessment and Data Centre. Following this decision, the Australian Government introduced legislation into the Australian Parliament, which was enacted as the Australian Curriculum, Assessment and Reporting Authority Act in December 2008. The Act set up ACARA by providing governance through a thirteen-member Board, consisting of a chair, deputy chair, and representatives of the Australian Government, state and territory education agencies, the National Catholic Education Commission and the Independent Schools Council of Australia. Following its meeting in October 2008, MCEETYA appointed a subcommittee to develop a charter for ACARA, and provide advice on its budget, transition arrangements for existing organisations, and a nomination and appointment process. Based in Sydney, ACARA subsumed the National Curriculum Board's work in May 2009, although its curriculum unit remained in Melbourne until the end of 2009, so timelines could be met for developing the national curriculum. In September 2009, the Board appointed Peter Hill, formerly of the Hong Kong Examinations and Assessment Authority as ACARA's first chief executive officer.

In June, the Australian Curriculum, Assessment and Reporting Authority (2009a) published a paper describing the procedure for developing, implementing and reviewing the national curriculum, and outlining the structures of groups undertaking this procedure. Originally adopted by the Board in February 2009, this procedure was revised on two occasions in May and August of 2009. The procedure consists of four phases. Curriculum shaping involves identification of key issues and preparation of a position paper, preparation of an initial shape paper, and preparation and adoption of a shape paper in each learning area. Curriculum writing involves development of a draft curriculum in each learning area according to directions outlined in the shape paper. First, the scope and sequence of what students are taught is developed by the writing teams, and reviewed by advisory panels, representatives of professional associations and curriculum experts. Second, the detail of what students are taught together with achievement standards are developed by the writing teams, and reviewed by the education community. Following revision based on feedback, each draft is reviewed by the Curriculum Committee prior to submission to the Board for adoption. Implementation involves ACARA staff diffusing and demonstrating the curriculum documents to representatives of state and territory education agencies, and Catholic and independent sectors. Then, these organisations determine the schedule for implementation, and provide teachers with

support documents and professional development. Curriculum evaluation and review involves ACARA staff determining the need for revision of the national curriculum by consulting the education community, reviewing practices in other places, and considering alternative options for addressing relevant issues. Several groups are involved in undertaking this process. Writing teams, consisting of two to four members for each year range, are appointed by the Board on the basis of expertise in a learning area, curriculum development or teaching experience. Advisory panels, consisting of learning area or cross curriculum experts, are drawn from universities, industry groups, education agencies and professional associations. In addition, a national teacher consultative panel, consisting of teachers selected from across Australia, reviews the drafts, and international experts are consulted to provide feedback. In the round for years 11 and 12, a panel of curriculum experts, nominated by state and territory curriculum, assessment and certification agencies, is appointed for each course. A sample of schools trial the drafts.

In June, the Australian Curriculum, Assessment and Reporting Authority (2009b) published guidelines for developing documents for the national curriculum. The national curriculum consists of content, achievement standards, and a reporting framework. Content identifies knowledge, skills and understanding students are expected to learn. Achievement standards provide an expectation of learning students demonstrate in relation to the content at the end of each year. The reporting framework presents information to describe the quality of achievement associated with each A to E grade. The design of curriculum documents needs to take account of six considerations. The nature of learning needs to be taken into account in organising content. While written on a year-by-year basis, curriculum documents need to assist teachers to identify and respond to a range of achievement among students. In developing the whole curriculum, the Melbourne Declaration on Educational Goals for Young Australians is a key reference point. National curriculum documents need to show how learning in each area contributes to the national goals. The specification of content in each learning area needs to relate to allocated teaching time. Differences between education systems' entry ages, the division between primary and secondary levels, and the commencement of the senior secondary level need to be taken into account in setting the national curriculum. However, differences among students in their levels of development will not be accommodated, although writing teams need to encompass these variations in the content. Writing teams will determine which general capabilities are to be covered in the content, and follow advice for including general capabilities in curriculum documents. Writing teams will take account of the Board's position on perspectives of indigenous people, sustainable living and engagement with Asia, and follow advice for including these perspectives in curriculum documents. The format of documents in each learning area consists of six components. A rationale, setting out assumptions about the purpose of the learning area, is presented as a statement not exceeding 200 words. The aims, identifying major learning that students need to demonstrate, are presented as statements not exceeding five in number. An overview of the organisation of the curriculum in the learning area outlines the relationship between the content and achievement standards. Content is presented as descriptors, which acknowledge that it can be covered in the

available teaching time, ensure that learning is ordered appropriately, include content elaborations, and show alignment to achievement standards. Achievement standards, represented at every year from kindergarten to year 10, present statements of learning typically expected of students, a set of grade descriptors and a set of work samples. In years 11 to 12, achievement standards present a set of grade descriptors and a set of work samples. Writing teams, responsible for content, also draft achievement standards concurrently by identifying aspects of content, review state and territory data sets on student achievement, and apply analysis of data sets on the sequence of learning, and use graded work samples. General capabilities, covered in the learning area, are summarised in 400 words. The place of perspectives in the learning area is explained in 300 to 400 words. Links to other learning areas, identified to assist teachers and students make connections between learning areas, are highlighted at the conclusion of the curriculum document.

Following consultation with state and territory curriculum, assessment and certification agencies, the Australian Curriculum, Assessment and Reporting Authority (2009c) published a policy statement in August on the national curriculum for years 11 and 12 that takes account of the existing structure of the senior secondary curriculum and its relationship to student certification. The design of the national curriculum for years 11 and 12 will seek to broaden options for students to enable successful transition to higher education or the workplace, and prepare students for work across the trades, technical and professional fields and new and emerging areas. The subjects and courses of the national curriculum for years 11 and 12, which will replace syllabuses developed by the states and territories, will be developed in collaboration with state and territory curriculum, assessment and certification agencies. The states and territories will continue to develop and implement other courses that complement the nationally developed courses. In the second round, four differentiated courses for English and mathematics, four specialised courses for science, and two specialised courses for history will be developed. In English, the first course will focus on developing language and literacy skills for the workplace, the second course will be developed for students, who do not speak English as a first language, the third course will extend students use of language and literacy to a variety of disciplines, and the fourth course will be designed for students intending to study literature at an intensive level. In mathematics, the first course will focus on the study of mathematics for everyday work and living, the second course will provide a pathway to postsecondary study involving some mathematical content, the third course will provide substantial mathematical knowledge to enable the study of higher level mathematics, and the fourth course will provide a high level of mathematical knowledge to enable the study of mathematics and engineering at university. In science, specialised courses for biology, chemistry, physics, and earth and environmental science will be developed. In history, specialised courses in modern and ancient history will be developed. It is proposed that each course will comprise of four sequential semester units, each to be taught for 50 to 60 hours over half a school year. The course content will provide sufficient detail to offer a clear focus for teaching, learning and assessment, and determine the extent to which teachers can choose local contexts to develop knowledge and understanding. Achievement standards, which will be set for five levels labelled as A to E, will be

developed in collaboration with state and territory curriculum, assessment and certification agencies. A set of grade descriptors across the five levels, and a set of work samples will be developed to assist teachers determine the level of students' achievement. Each state and territory will develop a plan for implementing the new courses from 2011. Policy decisions for the national curriculum in years 11 and 12 will be reached through a collaborative process involving ACARA and state and territory curriculum, assessment and certification agencies.

In March 2009, the National Curriculum Board advertised widely in the education community for educators to apply for membership of writing teams, charged with developing curriculum documents in each learning area, and cross curriculum and learning area advisory panels, charged with providing advice on draft documents. In April 2009, the National Curriculum Board selected members from more than 120 applicants for writing teams and more than 400 applicants for advisory panels. In August 2009, ACARA announced the membership of six advisory panels, consisting of academics, principals, teachers and educational consultants, ranging in number from 19 to 25 members each. After completion in December 2009, the drafts will be released for three-month public reviews in January 2010. After final revision, the curriculum documents for kindergarten to year 10 are expected to be published in July 2010. Following appointment, writing teams are expected to develop curriculum documents in each learning area for years 11 and 12. After completion in January 2010, the curriculum documents for years 11 and 12 will be released for three-month public reviews in June 2010. Following final revision, the curriculum documents for years 11 and 12 are expected to be published in September 2010.

Discussion

The reviews of policy documents show that findings cited from authoritative sources and the findings of research studies, commissioned as part of the respective innovations, have played an important part in providing rationales for and defining the concepts of the common core standards in the USA and the national curriculum in Australia.

The attributes of findings from authoritative sources, cited in policy documents in the USA and Australia to provide rationales for these innovations, are similar. The reports published in the USA by the Reviewing Our Schools, Securing Our Future Task Force on Public Education (2005), Brown and Rocha (2005), the National Governors Association, Council of Chief State School Officers and Achieve (2008), Barton (2009), and Schmidt, Houang and Shakrani (2009) cite research findings from secondary sources to establish a rationale supporting the need for national standards. These sources encompass data on the conditions of socioeconomic and ethnic groups, regional demographic changes, and from international studies on educational achievement. In Australia, the reports published by the Australian Labor Party (2007b) and the Council for the Australian Federation (2007) cite research findings from secondary sources to establish a rationale supporting the need for a national curriculum. These sources encompass data on participation rates of students in senior secondary education and

employment as well as from international studies on educational achievement.

The concepts for uncovering possibilities or recommendations for practical application, reported in policy documents from the USA, cover a broader range than those reported in policy documents from Australia. In the USA, the reports published by Finn, Julian and Petrilli (2006), Achieve (2008), the National Governors Association, Council of Chief State School Officers and Achieve (2008), Beatty (2008a; 2008b), Barton (2009) and Schmidt, Houang and Shakrani (2009) outline concepts for uncovering possibilities or recommendations for practical application in developing national standards. Discussion of concepts and recommendations in these reports emphasises not only the specification of content and the organisation of national standards, but also stresses the need for appropriate governance for new or existing organisations to participate in the innovation and a sound approach for decision making to develop national standards. Finn, Julian and Petrilli identify models whereby the federal government could develop mandatory national standards or voluntary national standards supported by adoption incentives, states could collaborate in developing common standards, or the federal government could make state standards more transparent. Achieve identifies the basis for states to collaborate in developing common core standards through the American Diploma Project. The National Governors Association, Council of Chief State School Officers and Achieve present five action steps, a sequence of recommendations for states to develop and adopt a system of standards-based education. Barton discusses the attributes needed for a Standards Entity to be successful in an effort to set national standards. Schmidt, Houang and Shakrani use evidence derived from innovations in other countries to determine an appropriate structure and a sound decision making process for developing national standards and assessments. In Australia, the reports published by Reid (2005), the Australian Labor Party (2007b) and the Council for the Australian Federation (2007) outline concepts for uncovering possibilities or recommendations for practical application in developing a national curriculum. Discussion in these reports focuses largely on specifying the content and the organisation for a national curriculum, while ascertaining an appropriate structure and a sound decision making process for developing a national curriculum are minor considerations. Reid argues that a capabilities-based curriculum should incorporate new elements, which require reorganisation of the structures needed to develop and implement them. The Australian Labor Party recommends that a particular structure, the National Curriculum Board, should develop a national curriculum, and identifies some elements for an appropriate decision making process. The Council for the Australian Federation presents an action plan, which includes recommendations for the states and territories to collaborate in developing national standards and assessments.

The attributes of findings from research studies, commissioned prior to the respective innovations in the USA and Australia to provide rationales and define concepts for these innovations, are similar. However, the findings from research studies reported in the USA are more significant in defining key concepts for the respective innovation. In the USA, the work of the American Diploma Project in identifying benchmarks, conducting alignment institutes

and investigating revision processes in the states, and defining a common core of benchmarks provided a rationale and defined key concepts for the Common Core State Standards Initiative. The findings of the research study, in which the James B. Hunt, Jr., Institute for Educational Leadership and Policy commissioned the National Research Council to investigate the policy context, variability and costs of state standards, supported the rationale for common core standards and increased understanding of the key concepts. In Australia, the study on the provision of curriculum by the states and territories, undertaken by the Curriculum Corporation, established a rationale for greater national consistency in curriculum outcomes. The study undertaken by the Australian Council for Educational Research on common content and achievement standards in curriculum documents for the senior secondary level supported the rationale for a national curriculum.

The review of policy documents and examination of preliminary activities associated with the innovations indicate that policy makers in the USA and Australia face similar operating problems. In both instances, the problem is that academic standards and curriculum guidelines have the potential to facilitate teaching and learning, but available standards and curriculum documents used in state jurisdictions vary in quality. In the USA, the regulations of the No Child Left Behind Act, permitting states to set levels of student achievement on state assessments, has exacerbated the problem. In Australia, progressive implementation of the National Assessment Program between 2004 and 2012 has necessitated greater national consistency in curriculum outcomes.

The solutions formulated in the USA and Australia to overcome the problem of variability in standards, curriculum and assessments in state jurisdictions share some similarities, but show differences in various aspects due to the nature of the theoretical base of research findings and distinctive national practices and traditions in education. Discussions among policy makers in both countries negotiated solutions in varying degrees to the complex issues of defining the nature and organisation of the content, delineating a sound approach for decision making in this work, and specifying accountability measures. In concluding that the formulation of their respective solutions was feasible politically, policy makers also considered the associated issue of identifying the governance for organisations best staffed and equipped to assume responsibility for developmental work.

Work on the American Diploma Project led policy makers in the USA to focus initially on defining common core standards for college- and career-readiness before setting year-by-year common core standards for kindergarten to year 12 in English language arts and mathematics. The universality of standards-based education led them to base accountability on aligning curriculum, instructional resources and assessments, modifying programs for teacher preparation and professional development, providing incentives for successful schools and intervention to support failing schools, and benchmarking common standards to international standards of high quality. Research evidence reported by Finn, Petrilli and Julian (2006), identifying key factors affecting the decision making process for developing state standards of high quality, influenced policy makers to establish principles for decision making based on promoting visionary leadership rather than consensus building,

political bipartisanship, expertise in academic disciplines, and the review of exemplary standards. This process includes work groups developing drafts, feedback groups reviewing and commenting on drafts, and an independent national validation committee validating both the quality of the common core standards and the decision making process involved in developing them. In reaching the decision that proceeding with the innovation was feasible politically, policy makers determined that the states, acting collectively through organisations representing state governors and education officials, should be responsible for developing common core standards, while the federal government should play only a supporting role.

Although policy makers in Australia recommended in their reports that the statements of learning and state and territory curriculum documents could form the basis for defining the content of a national curriculum, ACARA used small advisory groups to define the basis for inventing content and achievement standards in each learning area. The prominence given to national assessments, school accountability and teacher performance in its report led the Council for the Australian Federation to adopt these areas of activity into its action plan. The decision making process, consisting of the four phases of curriculum shaping, curriculum writing, implementation and curriculum review and evaluation is not based on research evidence. Instead, it is derived from similar procedures employed previously to develop the national statements and profiles, and by the states and territories to develop syllabuses. Marsh (1994) asserted that the authority innovation decision making model of curriculum change, whereby decisions were made by super-ordinate groups and carried out by subordinate groups, characterised the process for developing the national statements and profiles between 1988 and 1993. This model characterises the decision making procedure used by ACARA officials to develop the national curriculum, since major decisions are made by the Board and published in detailed guidelines for subordinate groups to follow. The subordinate groups, comprising of writing teams, advisory panels, a national teacher consultative panel and international experts, develop, review and comment on drafts. However, there is no procedure for validating the quality of content and achievement standards, and the decision making process involved in developing them. In reaching the decision that proceeding with the innovation was feasible politically, policy makers determined that the Commonwealth, states and territories, acting collaboratively by establishing a new organisation, should be responsible for developing a national curriculum.

The plans, formulated in the USA and Australia for developing and reviewing drafts, vary considerably in the degree of specification. The organisations coordinating the Common Core State Standards Initiative present only a vague plan for developing common core standards. It can be inferred from its web site that the standards development work groups develop draft common core standards, state education agencies, national education organisations and the feedback groups review the drafts, the standards development work groups revise the drafts in response to comments, and the National Validation Committee reviews the common core standards to ensure they are research- and evidence-based. Timelines for completing the drafts and validation for both rounds are specified. In the first round for college- and career-ready standards, the drafts and their validation were completed in September 2009.

In the second round for kindergarten to year 12 standards, the drafts will be completed in December 2009 and their validation completed in January 2010.

In its paper, the Australian Curriculum, Assessment and Reporting Authority (2009a) presents a detailed plan, consisting of two phases, for developing curriculum documents over separate rounds for kindergarten to year 10, and years 11 and 12. First, the writing team and advisory panel are selected, the writing team and advisory panel are trained, a broad outline for the draft is developed, and the broad outline is reviewed and revised before adoption by the Curriculum Committee and the Board. Second, the broad outline is used to develop the draft, the draft is revised and trialled in schools, a report on the review and trial, referred to the Curriculum Committee, is used to revise the draft, the draft is adopted by the Board, and the curriculum document is published. A timeframe, which specifies times for each step, spans 57 weeks to complete the two phases. Time lines for completing the stages of framing, development, consultation and publication are specified for both rounds. The first round for developing curriculum documents for kindergarten to year 10 commences in April 2009 and concludes in June or July of 2010. The second round for developing curriculum documents for years 11 and 12 commences in April 2009 and concludes between July and September of 2010.

The differences in emphases that policy makers, involved in the two innovations, placed on either identifying the key factors in the decision making process for developing rigorous standards or specifying a detailed plan sequencing a series of steps for developing and reviewing curriculum, are reflected in the distinctive procedures used to develop the components. The standards development work groups, involved in the Common Core State Standards Initiative, reviewed exemplary standards documents as the principal means for drafting the common core standards reviewed by feedback groups, state education agencies and national organisations. The practices of curriculum framing and writing, in which knowledge and skills were refined progressively through a consensus-building process, depended on specifying a detailed plan for inventing and refining content and achievement standards in Australia.

The standards development work groups relied on reviewing a wide range of documents from sources in the USA, foreign countries and international organisations in drafting the common core standards. The Standards Work Group for English Language Arts based 14 core reading informational and literary standards, 15 standards for writing, and four standards for speaking and listening on evidence of what is required for college and career readiness, as well as benchmarks from other countries. References cited by the work group are classified into the four categories of college readiness, career readiness, illustrative international benchmarks, and illustrative alignment with state and other standards. Frequently cited references under college readiness include ACT (2006a), College Board (2008), Milewski, Johnsen, Glazer and Kubota (2005), the Florida American Diploma Project survey results, and the Virginia Postsecondary Outreach Campaign and Data Collection, essential English skills analysis. Frequently cited references for career readiness include ACT (2006b), ACT WorkKeys, writing level 3 requirements, and the National Alliance for Business (2004). Frequently cited references under illustrative international benchmarks include curriculum

documents from New South Wales and Victoria in Australia, Alberta, British Columbia and Ontario in Canada, Finland, Hong Kong, Ireland, Singapore, the Programme for International Student Assessment (2003), and the Programme for International Student Assessment (2007). Frequently cited references under illustrative alignment with state and other standards include Achieve (2008), and standards documents from California, and Massachusetts. The Standards Work Group for Mathematics based six mathematical practices, and a standard for each of the 10 mathematical principles on evidence of what is required for college and career readiness, as well as benchmarks from other countries. The references cited by the work group for mathematical practices include Bransford, Brown and Cocking (1999), Kilpatrick, Swafford and Bradford (2001), Steen (2001), Kilpatrick, Martin and Schifter (2003), the National Mathematics Advisory Panel (2008), and the National Council of Teachers of Mathematics (2009). References cited by the work group for the mathematical principles are classified into the four categories of national reports, college readiness, illustrative international benchmarks, and illustrative alignment with state standards. Frequently cited national reports include the American Mathematical Association of Two-Year Colleges (1995), the National Council of Teachers of Mathematics (2000), the National Council of Teachers of Mathematics (2006) and the National Assessment Governing Board (2008). Frequently cited references for college readiness include the American Diploma Project (2004), the College Board (2006), ACT (2008), Conley (2008), and the College Board (2009). Frequently cited references for illustrative international benchmarks include curriculum documents from Alberta in Canada, Belgium, China, England, Hong Kong, India, Ireland, Japan, Korea, Singapore, Taiwan, and research findings by Mullis, Martin, Ruddock, O'Sullivan, Arora, and Erberber (2005), the International Baccalaureate Organisation (2006), the Programme for International Student Assessment (2006), and Edexcel (2009). Frequently cited references for illustrative alignment with state standards include standards documents from California, Florida, Georgia, Massachusetts, and Minnesota.

In contrast, documents were only reviewed at the initial stage of producing advice papers in each learning area for the national curriculum in Australia. Small advisory groups initiated the process of curriculum development by identifying the content and its organisation. They identified broad objectives, key concepts, the nature of knowledge, understanding and skills, and contemporary and future orientations in each learning area. They also considered the scope and sequence of learning and the elements for organising the curriculum in the learning area. Reviewing curriculum documents and reports on research studies, however, formed part of the process of determining the content and its organisation in each learning area. The initial advice papers formed the basis for review at national forums and by stakeholders. The advisory groups used feedback from the review to refine the initial advice papers by producing draft framing papers. The draft framing papers formed the basis for review by the wider education community. A report on the review was used by the Curriculum Committee to prepare the framing papers. The framing papers form the basis for writing teams to develop the scope and sequence, content descriptions and elaborations, and achievement standards by following specified guidelines.

The draft curriculum documents will be reviewed by the education community. A report on the review will be used to produce the final curriculum documents.

The organisations coordinating the Common Core State Standards Initiative in the USA and the organisation responsible for developing the national curriculum in Australia offer little information to clarify the nature of activities to disseminate and demonstrate the innovations to practitioners. The memorandum of agreement states that the National Policy Forum, consisting of signatory national organisations, will be responsible for building public will and support for the innovation, and sharing and coordinating various forms of implementation of the common core standards. The federal government is expected to provide financial support for activities to disseminate and demonstrate the common core standards. In its reports (National Curriculum Board, 2009b; Australian Curriculum, Assessment and Reporting Authority, 2009a), ACARA states that the Board will conduct sessions to brief representatives of state and territory education agencies, Catholic and independent sectors, professional associations and publishers on key directions and intentions of the national curriculum.

Likewise, these same organisations are no more informative about the nature of activities to train practitioners, and trial, install and institutionalise the innovations. The memorandum of agreement specifies that states participate in the Common Core State Standards Initiative on a voluntary basis, and may adopt the common core standards directly or by aligning their state standards according to state schedules for standards adoption not exceeding three years. Early in 2010, states will submit timelines and procedures for adopting the common core standards to the National Validation Committee for verification. Institutionalisation of the common core standards will be followed by an ongoing, state-led development process that supports continuous improvement of the first version of the common core standards. In its reports (National Curriculum Board, 2009b; Australian Curriculum, Assessment and Reporting Authority, 2009a), ACARA states that state and territory education agencies and Catholic and independent sectors will determine implementation based on schedules for curriculum renewal. Furthermore, these agencies are responsible for building the capacity of schools to implement the national curriculum and providing teachers with professional development to teach the national curriculum. ACARA officials will also monitor implementation of the national curriculum to determine whether its intention is being met in schools. Institutionalisation of the national curriculum will be accompanied by ACARA officials conducting activities of curriculum review and revision.

Conclusion

It is possible to reach some tentative conclusions about the potential success of each initiative based on reviews and analyses of policy documents and research activities, and the nature of the decision making process applied in each initiative. The following interpretation is based on evidence identified at a time when the initial components, sets of national academic standards, are being constructed. Subsequent modifications to the change process could render these conclusions invalid.

The findings from authoritative sources and research studies are unambiguous, and applicable for drawing conclusions about research activities pertaining to the two innovations. The reviews of policy documents show that the rationales for both innovations are based on similar assumptions. In general terms, policy makers in each country argue that national academic standards are needed to raise declining, or inequitable, student performance due to increasing variability in academic standards and assessments across state jurisdictions. Data, ranging from student performances on international assessments of student achievement to demographic characteristics of subgroups in the student population, are cited to support this argument. However, concepts for uncovering possibilities or recommendations for practical applications cited in policy documents from the USA examine the issues of decision making, accountability and governance, in addition to content and its organisation, in greater depth than policy documents from Australia. Similarly, the findings of research studies, commissioned as part of the respective innovation in the USA, provide findings of greater significance for defining concepts in these areas. In summary, research activities conducted in the USA have been more productive in uncovering possibilities for change than those undertaken in Australia.

In spite of the differences in terminology, 'common core standards' in the USA and 'national curriculum' in Australia, ascribed to these two innovations, the essential component of each is a set of national academic standards. The components of both innovations share much in common, and little relationship to such curriculum frameworks as England's national curriculum. The other key components of both innovations, national assessments aligned to the national academic standards, are likely to manifest some similarities. However, the nature of invention of the national academic standards for each innovation is fundamentally different in one important aspect. The translation of the national standards published between 1989 and 1997 in the USA into state standards led to several organisations issuing periodic reports benchmarking the quality of state standards. These reports have provided policy makers with the necessary information to identify which states have rigorous standards. The basis of invention in the Common Core State Standards Initiative is one of drawing on excellent state, national and international standards to produce the common core standards. An emphasis is placed on defining the quality of content standards in developing the common core standards through evidence and research. The predominance of outcomes-based approaches in the curriculum documents of the states and territories meant that the practice of benchmarking their quality never became established in Australia. Consequently, policy makers can only judge these documents on the basis of an intuitive understanding of their quality. Therefore, they seem to have avoided drawing extensively on state and territory curriculum documents as a basis for inventing content and achievement standards for a national curriculum. Instead, writing teams and advisory panels are to accomplish this work by following guidelines, specifying how such issues as the nature of learning, the whole curriculum, structural matters, inclusivity, general capabilities and cross-curricular dimensions are to be treated in developing content descriptions and elaborations. Guidelines are also specified for developing a rationale, aims,

content descriptions and elaborations, achievement standards, general capabilities and cross-curricular dimensions. The emphasis in these guidelines is placed on objectivity, scientific control and quantitative data, rather than understanding, interpreting and explaining phenomena in qualitative terms. Therefore, these guidelines provide little useful advice for writing teams and advisory panels to define the quality of content descriptions and elaborations they are to set. This evidence suggests that the Common Core State Standards Initiative is in a strong position to develop high quality, internationally benchmarked content standards, which meet the criteria for invention, design and construction. On the other hand, the national curriculum in Australia is in a weaker position with respect to developing high quality, internationally benchmarked content descriptions and elaborations, which meet all the criteria for invention, design and construction.

The practice of benchmarking state standards in the USA led the Thomas B. Fordham Institute, one of the organisations involved in these activities, to identify that several factors, affecting the decision making process, influence the quality of state standards. Finn, Petrilli and Julian (2006) reported that these factors led to the states of California, Indiana and Massachusetts to achieve perfect scores for developing rigorous standards. In each state, the governor and key legislators worked across party lines to set the stage. In California and Indiana, cross-sector groups took strong leadership roles, whilst the business community and the state board of education in turn accomplished the same role in Massachusetts. Teacher unions in the three states supported strong academic standards. Once strong political leadership had set the stage, advocacy for standards-based reform from education leaders established a sound decision making process. Education leaders in the three states brought opposing parties on committees around to accepting the importance of detailed and explicit content standards, instead of developing standards by establishing consensus between opposing groups. Their leadership in developing rigorous standards focused on involving academics from the disciplines on committees, referring to exemplary standards of other states, and consulting benchmarking experts. This paradigm underpins the context of decision making inherent in the Common Core State Standards Initiative. The National Policy Forum provides a means for communicating between participating organisations, refining shared understanding about common core standards, and building sufficient public understanding and will to sustain the innovation during its implementation. Interactions between the work groups and feedback groups focus on reviewing exemplary standards. Opportunities are given to state education agencies and national education organisations to review drafts and provide feedback. The National Validation Committee reviews the common core standards during their development, certifies that they satisfy research- and evidence-based criteria, and validates the decision making process for developing them. The adoption of corporate management approaches led policy makers in Australia to apply a centrally imposed decision making model to develop the national statements and profiles between 1988 and 1993. Marsh (1994) identified that ministers for education, and officials of the Curriculum Corporation, Commonwealth, state and territory education agencies and curriculum, assessment and certification agencies formed super-ordinate groups, which interacted through complicated relationships based on hierarchy, formal or informal contacts. Professional associations,

principals and teachers formed subordinate groups, which were excluded from decision making, because they lacked the same degree of access to knowledge. This evidence suggests that the relationship between super-ordinate and subordinate groups is likely to lead to domination of decision making by a consensus-building process. Although adhering to this paradigm, ACARA officials have modified such a centrally imposed decision making model by involving academics with expertise in disciplines on advisory panels and providing stakeholders with multiple opportunities for feedback. However, domination of the process by detailed planning to meet inflexible timelines, the imposition of guidelines for curriculum development, and the practice of proportionate representation in consultations with stakeholders are likely to lead to a consensus-building process dominating decision making. Interactions between writing teams and advisory panels are limited to taking counsel from experts on specific issues relating to particular disciplines, child development, equity, and ethnic diversity. A significant factor in limiting disengagement from a centrally imposed decision making model is the failure to involve an independent group with authority to review the national curriculum and validate the decision making process. This evidence suggests that the research- and evidence-based approach to decision making applied in the Common Core State Standards Initiative is likely to lead to development of high quality, internationally benchmarked content standards, which meet the criteria for invention, design and construction. On the other hand, a centrally imposed decision making model for developing the national curriculum in Australia, which involves establishing consensus between opposing groups through compromise, is likely to lead to content descriptions and elaborations characterised by inferior writing, convoluted organisation and confusion over a rationale for education.

Important questions relating to organisational governance, national assessments, accountability, curriculum resources, capacity building, professional development and public leadership are likely to arise during the course of activities to develop, diffuse and adopt these innovations. Establishment of independent organisations, authorised to oversee development of national academic standards, assessments and accountability measures, is an essential element to sustain these innovations. National assessments can be better developed and aligned to national academic standards in such a setting. Comprehensive accountability systems, which provide incentives, rewards and support to failing schools, can also be better designed in such a setting. States need to design models to improve procedures for selecting curriculum resources, so materials will be better aligned to national academic standards. Federal governments need to provide states and territories with financial resources to build the capacity of schools to become high performing organisations focused on improving student learning and provide teachers with professional development in knowledge and skills to teach these innovations. Leadership by coalitions of political, business and education leaders needs to build sufficient public understanding and will to sustain support for these innovations. The Common Core State Standards Initiative arose in response to momentum created by policy makers and state leaders for common core standards without consideration to organisational details necessary to sustain it. Coordinated by the NGA Center for Best Practices and CCSSO, it lacks a durable organisational structure capable of conducting an on-going process for

revising the common core standards, administering national assessments and managing accountability measures. Federal funds to support development of national assessments have been promised. The issue of designing an accountability system has not been tackled. States will need to incorporate alignment to common core standards as a key element in state- and local-level policies for selecting and adopting curriculum materials. States will need to modify professional development of teachers and build the capacity of schools to adopt the common core standards. On the other hand, the National Policy Forum, convened by the coordinating organisations, provides the basis for building public understanding and will to sustain support for this innovation. The foundation of ACARA in May 2009, authorised to develop and revise the national curriculum, administer the national assessment program in literacy and numeracy from 2010, develop national performance measures, collect data from schools for the purpose of accountability, and publish the national report on schooling in Australia from 2009, provides strong organisational governance to sustain the innovation. The issue of designing models to improve procedures for selecting curriculum materials has not been tackled. States will need to modify professional development of teachers and build the capacity of schools to adopt the national curriculum. The issue of providing public leadership to build sufficient understanding and will to sustain the innovation has not been addressed. This evidence suggests that the lack of an organisational structure to maintain the Common Core State Standards Initiative is a serious flaw in sustaining it, although the National Policy Forum has been formed to build public understanding about the innovation. Other components, such as national assessments and accountability, have not been addressed adequately. The foundation of ACARA places the national curriculum in a far stronger position to be sustained through its diffusion and adoption in schools. National assessments and accountability are being addressed, placing the national curriculum in a strong position to make progress towards adoption. The issues of aligning curriculum resources, improving professional development of teachers, building the capacity of schools and establishing public leadership have yet to be addressed.

References

- Achieve. (2008). *Out of Many, One: Towards Rigorous Common Core Standards from the Ground Up*. Washington, DC: Achieve.
- ACT. (2006a). *ACT National Curriculum Survey, 2005-2006*. Iowa City, IA: ACT.
- ACT. (2006b). *Ready for College and Ready for Work: Same or Different?* Iowa City, IA: ACT.
- ACT. (2008). *College Readiness Standards*. Iowa City, IA: ACT.
- American Diploma Project. (2004). *Ready or Not: Creating a High School Diploma that Counts*. Washington, DC: Achieve.
- American Mathematical Association of Two-Year Colleges. (1995). *Crossroads in Mathematics: Standards for Introductory College Mathematics before Calculus*. Memphis, TN: American Mathematical Association of Two-Year Colleges.
- Armour-Garb, A. (2007). *Intergovernmental Approaches to Strengthening K-12 Accountability Systems*. Symposium convened by the Nelson A. Rockefeller Institute of Government in Chicago, IL, 29 October 2007.
- Australian Council for Educational Research. (2006). *Australian Certificate of Education: Exploring a Way Forward*. Canberra, ACT: Commonwealth of Australia.
- Australian Council for Educational Research. (2007). *Year 12 Curriculum Content and Achievement Standards*. Canberra, ACT: Commonwealth of Australia.
- Australian Curriculum, Assessment and Reporting Authority. (2009a). *Curriculum Development Process*. Sydney, NSW: Australian Curriculum, Assessment and Reporting Authority.
- Australian Curriculum, Assessment and Reporting Authority. (2009b). *Curriculum Design*. Sydney, NSW: Australian Curriculum, Assessment and Reporting Authority.
- Australian Curriculum, Assessment and Reporting Authority. (2009c). *National Curriculum in the Senior Secondary Years: Position Paper*. Sydney, NSW: Australian Curriculum, Assessment and Reporting Authority.
- Australian Curriculum Studies Association. (2006). A guide to productive national curriculum work for the twenty first century. *Curriculum Perspectives*, 26 (4), 5-6.
- Australian History Curriculum Reference Group. (n.d.). *Guide to the Teaching of Australian History in Years 9 and 10*. Canberra, ACT: Commonwealth of Australia.
- Australian Labor Party. (2007a). *The Australian Economy needs an Education Revolution*. Barton, ACT: Australian Labor Party.
- Australian Labor Party. (2007b). *New Directions for our Schools: Establishing a National Curriculum to improve our Children's Outcomes*. Barton, ACT: Australian Labor Party.
- Barton, P. E. (2009). *National Education Standards: Getting beneath the Surface*. Princeton, NJ: Educational Testing Service.
- Beatty, A. (2008a). *Assessing the Role of K-12 Academic Standards in States: Workshop Summary*. Washington, DC: National Academy Press.
- Beatty, A. (2008b). *Common Standards for K-12 Education? Considering the Evidence: Summary of a Workshop Series*. Washington, DC: National Academy Press.

- Bransford, J. D., Brown, A. L. and Cocking, R. R. (1999). *How People Learn: Brain, Mind, Experience and School*. Washington, DC: National Academy Press.
- Brown, C. and Rocha, E. (2005). *The Case for National Standards, Accountability, and Fiscal Equity*. Washington, DC: Center for American Progress.
- Cavanagh, S. (2009). Transparency of common-standards process at issue. *Education Week*, 28 (37), 1, 14-15.
- Cavanagh, S. and Gewertz, C. (2009). Draft content standards elicit mixed reviews. *Education Week*, 28 (37), 1, 14.
- College Board. (2006). *College Board Standards for College Success*. New York, NY: College Board.
- College Board. (2008). *Advanced Placement English Language and Composition and English Literature and Composition Course Description*. New York, NY: College Board.
- College Board. (2009). *Advanced Placement Calculus*. New York, NY: College Board.
- Commission on Mathematics and Science Education. (2009). *The Opportunity Equation: Transforming Mathematics and Science Education for Citizenship and the Global Economy*. New York, NY: Carnegie Corporation of New York and the Institute for Advanced Study.
- Commission on No Child Left Behind. (2007). *Beyond NCLB: Fulfilling the Promises of our Nation's Children*. Washington, DC: Aspen Institute.
- Conley, D. T. (2003). *Understanding University Success: A Report from Standards for Success, a Project of the Association of American Universities and the Pew Charitable Trusts*. Eugene, OR: Center for Educational Policy Research.
- Council for the Australian Federation. (2007). *The Future of Schooling in Australia: A Report by the States and Territories*. (Federalist Paper 2). Melbourne, VIC: Victorian Department of Premier and Cabinet.
- Curriculum Corporation. (2003). *Curriculum Provision in the Australian States and Territories*. (Research report for the Ministerial Council on Education, Employment, Training and Youth Affairs). Melbourne, VIC: Curriculum Corporation.
- Curriculum Corporation. (2005). *Statements of Learning for English*. Melbourne, VIC: Curriculum Corporation.
- Curriculum Corporation. (2006a). *Statements of Learning for Mathematics*. Melbourne, VIC: Curriculum Corporation.
- Curriculum Corporation. (2006b). *Statements of Learning for Science*. Melbourne, VIC: Curriculum Corporation.
- Curriculum Corporation. (2006c). *Statements of Learning for Civics and Citizenship*. Melbourne, VIC: Curriculum Corporation.
- Curriculum Corporation. (2006d). *Statements of Learning for Information and Communication Technologies*. Melbourne, VIC: Curriculum Corporation.
- Curriculum Standing Committee of National Education Professionals Associations. (2007). Productive national curriculum work: developing a twenty-first century school curriculum for all Australian students. *Curriculum Perspectives*, 27 (4), 5-14.
- Curriculum Standing Committee of National Education Professionals Associations. (2008). Aligning curriculum with the goals of schooling. *Curriculum Perspectives*, 28 (4), 16-24.
- Edexcel. (2009). *GCSE Mathematics*. Mansfield, Nottinghamshire: Edexcel.

- Education Sector. (2006). Five experts square off. *ES Review*, 25-27.
- Finn, C. E., Julian, L. and Petrilli, M. J. (2006). *To Dream the Impossible Dream: Four Approaches to National Standards and Tests for America's Schools*. Washington, DC: Thomas B. Fordham Foundation.
- Finn, C. E., Petrilli, M. J. and Julian, L. (2006). *The State of State Standards 2006*. Dayton, OH: Thomas B. Fordham Foundation.
- Greifner, L. (2007). State schools chiefs weigh issue of national standards. *Education Week*, 26 (35), 17, 19.
- Harris, D. N. and Taylor, L. L. (2008). *The Resource Costs of Standards, Assessments, and Accountability*. (Paper prepared for the National Research Council Workshop on Assessing the Role of K-12 Academic Standards in States).
- Hoff, D. J. (2009). National standards gain steam. *Education Week*, 28 (23), 1, 20-21.
- International Baccalaureate Organisation. (2006). *Mathematics Standard Level*. Cardiff, Wales: International Baccalaureate Organisation.
- James B. Hunt, Jr., Institute for Educational Leadership and Policy. (2008). World-class standards: setting the new cornerstone for American education. *The Hunt Institute's Blueprint for Education Leadership*, 2: 1-8.
- Kennedy, K. (2009). The idea of a national curriculum in Australia: what do Susan Ryan, John Dawkins and Julia Gillard have in common? *Curriculum Perspectives*, 29 (1), 1-9.
- Kilpatrick, J., Martin, W. G. and Schifter, D. (eds.) (2003). *A Research Companion to Principles and Standards for School Mathematics*. Reston, VA: National Council of Teachers of Mathematics.
- Kilpatrick, J., Swafford, J. and Bradford, F. (eds.). (2001). *Adding it up: Helping Children Learn Mathematics*. Washington, DC: National Academy Press.
- Klein, A. (2009). House panel considers federal role in standards. *Education Week*, 28 (31), 18.
- McNeil, M. (2007). Legislators oppose national standards. *Education Week*, 26 (45), 22.
- McNeil, M. (2009). NGA, CCSSO launch common standards drive. *Education Week*, 28 (29), 1, 21.
- Manuel, J., O'Sullivan, K. and Carter, D. (2008). Editors' introduction. *Illuminations: Journal of the Arts, English and Literacy Education Research Network*, 1 (1), 1-8.
- Manzo, K. K. (2008). Principals' group calls for national academic standards and tests. *Education Week*, 27 (41), 6.
- Marsh, C. J. (1994). *Producing a National Curriculum: Plans and Paranoia*. St Leonards, NSW: Allen and Unwin.
- Massell, D. (2008). *The Current Status and Role of Standards Based Reform in the States*. (Paper prepared for the National Research Council Workshop on Assessing the Role of K-12 Academic Standards in States).
- Milewski, G. B., Johnsen, D., Glazer, N. and Kubota, M. (2005). *A Survey to Evaluate the Alignment of the New SAT Writing and Critical Reading Sections to Curricula and Instructional Practices*. New York, NY: College Board.
- Mullis, I. V. S., Martin, M. O., Ruddock, G. J., O'Sullivan, C. Y., Arora, A. and Erberber, E. (2005). *TIMSS 2007 Frameworks*. Boston, MA: TIMSS and PIRLS International Study Center.

- National Alliance of Business. (2002). *The American Diploma Project Workplace Study*. Washington, DC: National Alliance of Business.
- National Assessment Governing Board. (2008). *Mathematics Framework for the 2009 National Assessment of Educational Progress*. Washington, DC: National Assessment Governing Board.
- National Council of Teachers of Mathematics. (2000). *Principles and Standards for School Mathematics*. Reston, VA: National Council of Teachers of Mathematics.
- National Council of Teachers of Mathematics. (2006). *Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics*. Reston, VA: National Council of Teachers of Mathematics.
- National Council of Teachers of Mathematics. (2009). *Focus in High School Mathematics: Reasoning and Sense Making*. Reston, VA: National Council of Teachers of Mathematics.
- National Curriculum Board. (2008a). *National Curriculum Development Paper*. Melbourne, VIC: National Curriculum Board.
- National Curriculum Board. (2008b). *The Shape of the National Curriculum: a Proposal for Discussion*. Melbourne, VIC: National Curriculum Board.
- National Curriculum Board. (2009a). *Shape Paper Consultation Report*. Barton, ACT: Commonwealth of Australia.
- National Curriculum Board. (2009b). *The Shape of the Australian Curriculum*. Barton, ACT: Commonwealth of Australia.
- National Curriculum Board. (2009c). *Framing Paper Consultation Report: English*. Barton, ACT: Commonwealth of Australia.
- National Curriculum Board. (2009d). *Shape of the Australian Curriculum: English*. Barton, ACT: Commonwealth of Australia.
- National Curriculum Board. (2009e). *Framing Paper Consultation Report: History*. Barton, ACT: Commonwealth of Australia.
- National Curriculum Board. (2009f). *Shape of the Australian Curriculum: History*. Barton, ACT: Commonwealth of Australia.
- National Curriculum Board. (2009g). *Framing Paper Consultation Report: Mathematics*. Barton, ACT: Commonwealth of Australia.
- National Curriculum Board. (2009h). *Shape of the Australian Curriculum: Mathematics*. Barton, ACT: Commonwealth of Australia.
- National Curriculum Board. (2009i). *Framing Paper Consultation Report: The Sciences*. Barton, ACT: Commonwealth of Australia.
- National Curriculum Board. (2009j). *Shape of the Australian Curriculum: Science*. Barton, ACT: Commonwealth of Australia.
- National Education Goals Panel. (1993). *Promises to Keep: Creating High Standards for American Students*. Washington, D.C.: National Education Goals Panel.
- National Governors Association, Council of Chief State School Officers and Achieve. (2008). *Benchmarking for Success: Ensuring U.S. Students Receive a World-Class Education*. Washington, DC: National Governors Association, Council of Chief State School Officers and Achieve.
- National Mathematics Advisory Panel. (2008). *Foundations for Success: The Final Report of the National Mathematics Advisory Panel*. Washington, DC: U.S. Department of Education.
- Olson, L. (2005). Nationwide standards eyed anew. *Education Week*, 25 (14), 1, 24.
- Porter, A., Polikoff, M. and Smithson, J. (2008). *Is there a De Facto National Curriculum? Evidence from State Standards*. (Paper prepared for the

- National Research Council Workshop on Assessing the Role of K-12 Academic Standards in States).
- Porter, A. C, Polikoff, M. S. and Smithson, J. (2009). Is there a de facto national intended curriculum? Evidence from state content standards. *Educational Evaluation and Policy Analysis*, 31 (2), 238-268.
- Programme for International Student Assessment. (2003). *PISA 2003 Assessment Framework*. Paris, France: OECD Publishing.
- Programme for International Student Assessment. (2006). *Assessing Scientific, Reading and Mathematical Literacy: A Framework for PISA 2006*. Paris, France: OECD Publishing.
- Programme for International Student Assessment. (2007). *PISA 2006: Science Competencies for Tomorrow's World*. Paris, France: OECD Publishing.
- Ravitch, D. (1995). *National Standards in American Education: A Citizen's Guide*. Washington, DC: Brookings Institution.
- Ravitch, D. (2005). Every state left behind. *The New York Times*. 7 November.
- Reid, A. (2005). *Rethinking National Curriculum Collaboration: Towards an Australian Curriculum*. Canberra, ACT: Australian Government Department of Education, Science and Training.
- Reviewing Our Schools, Securing Our Future Task Force on Public Education (2005). *Getting Smarter, Becoming Fairer: A Progressive Education Agenda for a Stronger Nation*. Washington, DC: Center for American Progress and Institute for America's Future.
- Schmidt, W. H., Houang, R. and Shakrani, S. (2009). *International Lessons about National Standards*. Washington, DC: Thomas B. Fordham Institute.
- Spady, W. (1993). *Outcome-Based Education*. (ACSA Workshop Report Series No. 5). Belconnen, ACT: Australian Curriculum Studies Association.
- Spady, W. (1998). *Paradigm Lost: Reclaiming America's Educational Future*. Arlington, VA: American Association of School Administrators.
- Steen, L. A. (ed.). (2001). *Mathematics and Democracy: The Case for Quantitative Literacy*. Princeton, NJ: Woodrow Wilson National Fellowship Foundation.
- Stufflebeam, D. L., Foley, W. J., Gephart, W. J., Guba, E. G., Hammond, R. L., Merriman, H. O. and Provus, M. M. (1971). *Educational Evaluation and Decision Making*. Itasca, IL: F.E. Peacock Publishers.
- Vinovskis, M. A. (1999). *The Road to Charlottesville: The 1989 Education Summit*. Washington, DC: National Education Goals Panel.