Aligning national curriculum and the national goals of schooling

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> The traditional curriculum has given us much. We've created a way of life that makes specialized studies indispensable. But assuming that the "core" fields are pretty much the whole story has also cost us much, and the costs are escalating. School, finally, isn't about disciplines and subjects, but about what they were originally meant to do—help the young make more sense of life, more sense of experience, more sense of an unknowable future[1].

> The curriculum should provide students with an understanding of the past that has shaped the society, culture and environment in which they are growing and developing, and with knowledge, understandings and skills that will help them in their futures.[2]

[1] Brady (2006)
[2] National Curriculum Board (2009)

Introduction

This paper[3] identifies and challenges some of the key assumptions about the learning that is achieved in the compulsory years and about way that senior secondary curriculum is developed, packaged and delivered in schools. It suggests that current practices may impede the achievement of the learning envisioned in the national goals of schooling statement and proposes new ways to develop, package and deliver the curriculum that will produce a greater alignment between schooling practices and the national goals of schooling.

It takes as given that a curriculum for the twenty-first century should enable all students to gain an understanding of the factors that shape societies' economic, social and belief systems and to develop the personal qualities and skills required for them to be informed and responsible participants in a society that is becoming increasingly global in nature and diverse in composition and outlook.

Apparent assumptions about current curriculum arrangements

When one analyses senior secondary curriculum arrangements several unstated assumptions about the way that senior secondary curriculum is developed, packaged and delivered in schools are revealed. For instance, it appears to be generally assumed that:

1. the best way to cater for different abilities and interests is for curriculum authorities to develop an extensive subject choice and leave it up to schools to determine what subjects they will offer
2. all the essential learning that students should experience in common is completed by the age of 15 and prior to the senior years of schooling
3. school settings provide students with senior subject choices that enable a balanced and coherent senior course of study to be pursued
4. the senior years are best used to promote learning in a diverse range of curriculum specialisations
5. the current range of subjects and certification rules support the achievement of the nation's goals of schooling.

This paper examines these assumptions and concludes that they are problematic and more importantly that they have become an impediment to important curriculum reform.

Observations about the way subjects are packaged and delivered

Australian states and territories have between 50 to 200 or more senior secondary subjects from which students can theoretically choose to construct their preferred senior course of study. However most of the available subjects never appear on a school's timetable as schools can only offer a relatively small subset of the available subjects and courses. The particular subset chosen at an individual school level and how it is timetabled is influenced by teacher availability, facilities, the size of the student cohort and student choice. Student choice in turn can be influenced by past performance, aspirations, timetabling arrangements, certification requirements, tertiary course prerequisites and knowledge of tertiary entrance score scaling arrangements.

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[3] This paper is derived from papers I prepared for the Curriculum Standing Committee of National Educational Professional Associations (CSCNEPA) and from presentations I delivered at ACSA conferences between 2007 and 2009.

Timetabling arrangements typically funnel students into a science, humanities, arts or applied learning stream. This makes pretty good sense as it enables students to leave behind those areas of study they do not like or have had little success in, and so caters for students' interests and abilities, and it enables students who have determined an employment or further study pathway to commence studies of relevance to their chosen pathway. However, it also ensures that areas where students have weaknesses or big gaps in their knowledge and understanding are no longer a focus for learning, regardless of the relative importance of the missing areas of knowledge.

The various documents on goals for schooling advise that young people need to know that political, economic and religious theories and beliefs are key shapers of our world and understand how differences in these domains play out in a society in terms of values, social behaviour and civic institutions. They need to be confident producers and consumers of the arts, they need to understand scientific and mathematical concepts and be assisted in other ways to make sense of their world. They need to be culturally aware and global in outlook and so forth. (Appendix 1 discusses the kinds of skills and knowledge required by 21st Century learners.)

The current arrangements for school learning seem to assume that such understandings will be achieved by all students by the end of the compulsory years of schooling. However, the middle years' curriculum generally is not structured to explicitly ensure that such understandings are developed, and it is also questionable whether most adolescent students are ready to take on board, other than in a relatively superficial way, learning which is vital for them to become active and informed citizens (e.g. learning about economic, political and belief systems, international affairs, other cultures and global concerns).

If these essential understandings have not been developed by the end of the middle years, there is little likelihood that they will be formally developed in the senior secondary years as the curriculum undertaken by students differs greatly and studies that would be required to impart these understandings (e.g. literature, politics, economics and international studies) are only undertaken by a minority of students.

To take Victoria as an example, of the 50,000 students presenting for the Victorian Certificate of Education (VCE), only 5% (2,500 students) studied Economics, only 4% (1,900 students) studied International Studies, and only1% (600 students) studied National Politics.

How confident are we that arrangements that typically narrow the focus of students' learning experiences along different learning tracks are the best for developing students' appreciation of the inter-relatedness of knowledge, their ability to transfer knowledge and skills learned in one area to address problems posed in another, and their capacity to make sense of their world and to become active and informed citizens?

Furthermore, how confident are we that most students have acquired a broad general knowledge (big picture learning) that enables them to understand their own society (e.g. its history, institutions, economy, political processes and values), engage with society's issues, be enriched by society's cultural life and be open to the wider world?

If we are not confident about these outcomes then we need to rethink the way senior secondary curriculum is developed, packaged and delivered to ensure that programs in the senior years are not structured in ways that undercut opportunities for

the further development of knowledge, skills and attitudes necessary to achieve the goals of schooling as outlined in various government documents.

We need to devise a curriculum that assists young people to acquire the essential insights referred to above. To do this we need to be clear about what we want all students to know and be able to do by the time they leave school and ensure that students' schooling experiences do as much as possible to ensure that such 'knowledge, skills and attitudes' are developed.

Invariably documents listing the attributes of school leavers, such as the Adelaide Declaration and the current National Declaration, shy away from looking at the implications of such statements for the way that schooling is organised, subjects are devised and courses are constructed and delivered. Surely we can't expect that the 'essential learning' implied by the various lists of goals for all young Australians will be achieved by the time the child is 15 years old. If we don't, then we need to reconsider the way we develop, package and deliver senior curriculum, or we need to scale back the goals of schooling statements.

Observations about the kinds of learning expected from the senior curriculum

It has been observed that to solve problems in the 'real world' we are overwhelmingly required to call on multi disciplinary knowledge and skills. However, it appears that the typical arrangements in the current senior qualifications (e.g. discipline based subjects studied in isolation from compatible disciplines, individualised student programs built on 'constrained' student choice, and narrow assessment tasks) do not greatly assist students to develop and be rewarded for 'deep learning' (e.g. the ability to understand complex problems and to transfer learning to unfamiliar circumstances).

We need to develop 'inter-disciplinary' or 'cross-disciplinary' studies featuring complex 'authentic' problems that require in-depth consideration and the synthesis of information from a number of different disciplinary perspectives. Some jurisdictions are attempting to address this concern by incorporating tasks that require in-depth consideration from a number of different disciplinary perspectives.

Examples of 'inter-disciplinary' or 'cross-disciplinary' studies include the International Baccalaureate Diploma (IBD) interdisciplinary Theory-of-Knowledge subject, the ACT's cross-discipline Cultural Studies Framework and the Ontario interdisciplinary studies courses. The ACT framework offers a coherent approach to analysing and comprehending the social, historical, geographical, political and economic factors that have influenced and continue to influence the development of specific cultures. The Ontario interdisciplinary studies courses are offered in Grades 11 and 12 and provide students with opportunities to understand the links among discrete subjects/disciplines and to develop their knowledge and skills beyond the scope of individual disciplines to solve problems, make decisions, and present new findings.

Given the inter-dependence of Australia with its Asian neighbours for trade and security, and the growing likelihood that whether young people are working locally or overseas, they will be working alongside peoples from a diverse range of cultures, students need to become more knowledgeable about other cultures and particularly about Asian cultures.

As most recent statements of the goals of schooling emphasise, we need to ensure that the curriculum incorporates a strong emphasis on cultural and global studies right through secondary schooling. In the junior and middle years greater attention is

being given to this concern. However, the curriculum that is experienced by most students at the senior level leaves little if any room for studies or even topics that are international in outlook and orientation. This shortcoming needs to be addressed.

This issue has been addressed by the IBD which is avowedly international in outlook. It seeks to develop young people who are outward looking, aware of other cultures and have ability with a second language. The Asia Education Foundation has also developed excellent resources to assist with infusing studies of Asia into various subject areas.

Several jurisdictions have identified the need to promote learning that builds 'responsible citizenship' and develops young people's community spirit. Strong statements about this are also evident in the various national and most state and territory education goals statements.

As students start to consider pathways at Year 10 and stay at school longer, the school will be expected to provide opportunities for them to function within their communities and experience work locations. Whilst this has been a part of the Year 9 and 10 learning experience, in the senior years opportunities for community and workplace learning tend to be replaced by formal structured classroom-based learning. Exceptions to this occur in some vocational courses, but these courses only cater for a minority of senior secondary students. In most jurisdictions, programs for advancing this outcome of schooling stop at the age of 15.

We need to ensure that community and service learning experiences are able to be pursued and recognised within the senior secondary curriculum.

This issue is being addressed in Ontario, Canada where all students are required to participate in 40 hours of community involvement before they graduate. The IBD also has a similar but more extensive requirement that covers participation in activities to do with creativity, action and community and social service. The IBD time requirement is 150 hours over two years.

Whilst personal and interpersonal learning is considered to be essential learning in the compulsory years, with several jurisdictions to formally assess and report standards in this dimension, in the senior years this dimension is no longer seen to be an essential ingredient of the curriculum.

In Hong Kong schools, personal learning will be addressed by making Liberal studies a core element of the HKDSE (10% of total lesson time) so that all students in the senior secondary years will study
- Self and Personal Development
- Society and Culture
- Science, Technology and the Environment.

Employers are asking for the recording of student attainment to better reflect the personal attributes and skills attained by the students. Employers want people who are literate and numerate, information technology savvy, problem-solvers, decision makers, flexible, adaptable and willing to learn new skills. They want employees who have the social and inter-personal skills to build and maintain relationships, work productively in teams and communicate effectively, and they believe these skills can and should be developed through the curriculum.

If in the compulsory years the interpersonal development, personal learning and thinking dimensions of learning are 'essential' it would seem that their essentiality would not diminish as students move into their senior years of schooling and establish

learning pathways to further education, training and employment. Most senior years' students do not engage in courses that are specifically designed to develop interpersonal skills and personal, social and interdisciplinary learning competencies are generally not included in senior secondary qualification requirements.

In contrast, the Singapore A level curriculum includes a multi-disciplinary subject, Knowledge and Inquiry, that incorporates a research paper that is to be worked on for 6 months. The IBD also requires students to commit time to an extended essay, studying the theory of knowledge and undertaking community and other activities and projects. Several local jurisdictions have flagged the intention to incorporate similar elements into their senior certificates. Clearly, opportunities for the development of communication, interpersonal and cross-discipline learning skills also need to be incorporated into all senior students' learning experiences.

However, these learning opportunities will not be provided if the focus on curriculum renewal is confined to 'updating' the content of current senior curriculum subjects. Renewal considerations need to be expanded so that consideration is also given to the way senior secondary curriculum is developed, packaged and delivered. This broader agenda for curriculum reform is necessary to ensure that programs in the senior years are not structured in ways that undercut opportunities for the further development of knowledge, skills and attitudes necessary to achieve the goals of schooling as outlined in various government documents.

Implications of the above observations

What is being advocated here is that the curriculum provided in the senior years of schooling needs a significant overhaul, not only in terms of subject design but also in terms of certification requirements. The requirements for senior secondary certification largely determine what, when and how learning is experienced by students in their final three or two years of schooling. At various times, restrictions have been placed on the combinations of subjects that students can choose as part of their senior secondary course. Some jurisdictions made an English subject compulsory and some insisted that too narrow a specialisation was avoided by requiring students to select a least one subject from another subject category (e.g. a mathematics/science student was required t undertake at least one humanities subject and vice versa).

However, with the vast majority of students now progressing through to the end of secondary schooling, less confronting requirements for pattern of study and increased diversity of subjects and courses has become the norm, as this approach lessens the impact of certification rules that, for some students, would be a significant barrier to successful course completion.

Changes to the structure (e.g. unitising subjects and courses, the development of applied learning subjects and cross credit arrangements) and requirements for gaining a senior secondary qualification are increasing the possibility that the vast majority of students will successfully complete a secondary qualification. This is a positive development. But in the drive for greater completion rates, discussion about what important understandings a senior years' curriculum should provide students with has been totally sidelined. A fundamental question that needs to be asked is whether the majority of students in their last two or three years of schooling could be provided with a richer and more appropriate range of learning experiences than they are.

From the previous discussion of 'concerns' with current senior years curriculum arrangements it would come as no surprise that I believe we could be significantly

improving the learning experiences provided in the senior years and that we should be looking at possible alternatives to the way that senior curriculum is designed, packaged and delivered.

Some alternative arrangements to consider

I would suggest that we should be modifying the smorgasbord approach to senior curriculum and developing a model that has greater coherence, requires students to undertake studies in several broad discipline categories, requires the completion of a community project and a substantial research project, is global in outlook and is taken over two or three years. Four possible broad categories are maths/science, English/humanities, languages/cultural studies and the arts/applied studies.

This suggestion is not without precedent. The European Baccalaureate (EB) requires students to study some common subjects for two-thirds of the week and electives for the rest of the time. The common studies in the EB are Mathematics, English, History, a Second language, Science, Geography, Ethics and religion, and Physical Education.

The International Baccalaureate Diploma (IBD) has a structure which requires students to select one subject from each of the six subject groups which correspond to the principal domains of knowledge – namely, language; second language; individuals and societies; experimental sciences; mathematics and computer science; and the arts. Normally three subjects are studied at a higher level and the remaining three subjects are studied at a standard level. Students also undertake three core requirements: Extended Essay; Theory of Knowledge; and Creativity, Action, Service. Subjects are normally studied over a two year period.

The Singapore curriculum emphasises breadth of learning and flexibility and subjects are pitched at three levels of study- H1, H2 and H3. H1 is 'half of H2 in breadth but similar to H2 in depth' and H3 offers opportunity for extension (e.g. advanced content, research paper, university module) from H2 subjects. The curriculum consists of life skills, knowledge skills (e.g. developing thinking, process and communication skills) and content-based subjects.

Core and option subjects in the Welsh Baccalaureate are offered at Foundation, Intermediate and Advanced levels.

Whilst the opportunity to pursue high level learning in all areas would need to be provided, subjects that enabled students to understand key concepts and big ideas derived from a discipline would also need to be available. For example, one of the science subjects could be a study of the history and philosophy of science, and one of the maths subjects could be an understanding of key concepts and big maths ideas. However, as students may only have time to undertake between five and seven subjects, some of the subjects on offer may need to be 'hybrid' or merged subjects such as 'Politics, law and the economy' or 'Events that shaped our world'. The dilemma being addressed here is that the more discrete subjects there are the less likely they are to be experienced by students.

The starting point for the actual subject design would be asking what are the most useful studies and activities we can get students to engage with so that they become knowledgeable about contemporary society and where it has come from, how it works locally and globally and so forth.

The point at which the pursuit of common studies or common study categories should give way to the pursuit of 'personalised' subject specialisation is a vexed issue. To maintain motivation and sustain interest jurisdictions don't want to require students to

continue studying in areas where they have no interest or where they have experienced several years of failure. When the more senior of us were in school, specialisation was decided by teachers and depending on how you were performing at Year 9 you could be streamed into or out of the 'real' maths classes in Year 10 (which were the only pathway to maths in Year 11). If you were a girl you could be removed from general classes and placed in the secretarial stream with the expectation that you would leave at the end of Year 10.

It is now fairly standard practice for nearly all students to have a common core of studies up to Year 10 and for differences in ability and interest to be responded to by modifying in-class requirements and offering a choice of electives. In Years 11 and 12 the common studies element is usually reduced to one subject (or none in some jurisdictions) and concern for 'breadth' is met by a requirement to select at least one study from two category areas or there are no 'breadth' requirements. Student choice (tempered by counselling, pre-requisites, certification rules and timetable constraints) largely determines the subjects within a student's program and provided the school can accommodate the necessary range of subjects, specialisation within a 'pathways' area is possible and encouraged.

A two-year senior course based on student choice is typically adopted by jurisdictions as Year 11 is seen as the best point in schooling for a student to start to specialise. Certainly by this stage of their schooling students' interests and capabilities in subjects have become fairly apparent. However, as the discussion above indicates, there are always positives and negatives associated with the schooling level at which arrangements that promote study breadth are replaced by arrangements that support study specialisation. Most Australian jurisdictions abandon the concept of common areas of study after Year 10 and have minimal requirements for study breadth in the senior years.

Alternatives to the smorgasbord model are provided by the Honk Kong senior curriculum, the European Baccalaureate (EB) and the Welsh Baccalaureate. The new senior curriculum in Hong Kong requires students to study four core subjects: Chinese language, English language, Mathematics, and Liberal studies for 45–55% of the time. The EB requires students to study some common subjects for two-thirds of the week and electives for the rest of the time. This model adopts the typical Year 10 program structure and carries it on through to the end of schooling. The common studies in the EB are Mathematics, English, History, a second language, Science, Geography, Ethics and Religion, and PE. The Welsh Baccalaureate also has a core and option structure with the core consisting of four components: Key Skills; Wales, Europe and the World; Work-related Education; and Personal and Social Education.

These models offer the opportunity to combine studies for breadth requirements with the desire for specialisation.

The dilemma that needs to be faced when advocating some common elements of study in the senior years is that the requirement for common study does not result in some students being discouraged from continuing their studies because they have no interest or limited aptitude for the required common elements.

For example, whilst the IBD has common elements, it has been developed for 'highly motivated average and above average students' and would be too demanding to be a course that the majority of students could experience success in. Clearly if a model with a common core was adopted, the subjects within this model could not be as 'content full' as those in the IBD and instead of the two levels within the IBD, there may need to be three levels of rigour – introductory, standard and advanced.

Also the requirement within the IBD that all students study a language at a fairly sophisticated level is unrealistic when the model applies to all students. However, the option of encouraging second language learning could be available at the three proposed levels as even students who have never studied a second language before could take up a second language based on promoting basic conversation competence – a beginner's language course studied over 2 years would get students started on second language oral competency.

An Australian 'baccalaureate' that picks up the salient structural features of the European Baccalaureate, Welsh Baccalaureate, International Baccalaureate and the Singapore and Hong Kong senior curriculum needs to be developed and done so in a way that results in students' knowledge, skills and attitudes being strongly aligned with the outcomes sought in the national goals of schooling and that accommodates the different interests and aptitudes of a diverse senior student cohort. Whist this is a challenging undertaking, it is nonetheless a challenge that needs to be pursued at the national level as the National Curriculum agreement presents the best opportunity ever for substantial and consistent curriculum reform across Australia.

Rethinking senior secondary curriculum delivery

Typically senior curriculum in Australian jurisdictions is conceived as being a two year course undertaken in Years 11 and 12, with the final year being the 'high stakes' year when success in school-based and/or external assessments strongly determines the students opportunities for accessing higher learning institutions. Subjects tend to be designed as semester units and recognition is given for the completion of two-unit sequences of study. Senior studies are largely undertaken in the final two years of secondary school (i.e. Years 11 and 12) and it is also commonplace for students in Year 10 undertake one or two senior (Year 11) curriculum units. Provided they meet requirements for qualification, students may change their subject selection after Year 11 and take up a new subject in Year 12. That is, subjects are generally conceived as being a year's study.

Whilst the take up of senior curriculum units at Year 10 has been a growing phenomenon, the bulk of a student's Year 10 study is focused on 'middle years' curriculum and it could not be said that Year 10 is conceived as being the first year of senior curriculum delivery.

A different subject structure is provided by the IBD. Rather than being conceived as year long subjects, standard and higher level IBD subjects and course requirements (e.g. the extended essay) are undertaken concurrently over two years and standard and higher level subjects are of 'Year 12 standard'. That is, subjects are not unitised so that some units can be completed by the end of Year 11. This structure makes the delivery and learning of the subjects a two year task and allows time for the other (non-discipline learning) requirements of the diploma to be completed.

As a two year structure enables students to undertake learning of some depth in each area of study, regardless of whether they are entering the study for the first time or already have a sound foundation that can be built upon, and provides time for the development and reflection upon personal skills and values, subjects should be developed so they engage students for two years.

However, if Year 10 is included as a year in which the senior curriculum is delivered, greater flexibility is provided for the design and delivery of senior curriculum. By adopting a three year perspective various components of the senior curriculum could be commenced in Year 10 and be developed over the following two years and subjects/requirements could be developed as one year (e.g. community project),

two year (e.g. the research project or a common study at 'standard' level) or three year commitment (e.g. 'standard' second language learning or a 'higher level' study subject). As well as proving greater flexibility in the design and delivery of curriculum, commencing senior curriculum delivery in Year 10 could help to motivate these students who often feel they are 'in limbo' as they are usually required to undertake two senior curriculum semester units and often are part of a senior campus whilst still largely undertaking middle school studies. By developing a senior curriculum for the senior years (i.e. Years 10-12), Year 10 students' studies would be contributing to the earning of a senior certificate and by the end of year 10 they could have achieved a foundation of senior study credits and be part way through a two year or three year senior study.

Another delivery option is for Years 10 and 11 to be the focus for a two year common course and for Year 12 to be a specialist year in which the curriculum undertaken was largely determined through student choice. The benefits of this alternative are that it enables schools to maintain a common curriculum focus through to Year 11 when students are becoming more mature learners and it invests greater weight to the studies undertaken at Year 10 as they are part of a senior course. As it enables senior years' activities designed to equip students for a productive personal and civic life to be commenced in Year 10, and it increases the possibility that essential understandings will be grasped by students prior to them specialising in Year 12.

Conclusion

This paper contends that the discussion of (national) curriculum should extend beyond which subjects should be available and what their content should be, to include and give precedence to considerations of the understandings that all young people should have by the time they leave school and what arrangements need to be in place, particularly for the later years of schooling, to ensure these understandings are gained by all students.

It also suggests that although the disjunction may be reducing between what students learn in school and what the various statements about the goals of schooling say they should learn, there remains a concern that it is unrealistic to assume that the broad goals of schooling can be achieved by the age of 15 or by the end of Year 10. And if they aren't achieved by the age of 15, they are unlikely to be achieved by the end of schooling as the curriculum in the senior years is not structured in a way to allow this to happen.

The over-riding message of this paper is that if we are serious about achieving the various goals of schooling, we will need to re-think the way curriculum is designed, packaged and delivered in the senior years so that an element of 'planned' commonality is incorporated into the curriculum. We will also need to remember that curriculum design should not be divorced from considerations of how a curriculum will be delivered. There is little point in developing the world's best history, science or politics subjects if very few students elect to choose these subjects. Indeed if the curriculum being designed contains important or essential learning the goal should be to optimise the likelihood of the studies being developed being offered by schools and being experienced by the vast majority of students. This means that we should avoid replicating the subject diversity and choice delivery model currently adopted in the senior years.

In summary it is contended that a senior curriculum for the twenty-first century should contain a common core component of 'hybrid' and other studies in a few broad areas (e.g. Sciences, Humanities, The Arts and Applied Learning) that occupies between 50-60% of students' curriculum time. It is also suggested that the three years

from Years 10-12 be available for the delivery of senior curriculum as this increases the flexibility of delivery. For example, it enables the possibility of using the majority of Year 10 and 11 for the completion of the core elements, freeing Year 12 for 'personalised' studies or for varying the proportion of time devoted to the delivery of the common component as students progress through their senior years (e.g. the proportion delivered could decrease from one year to the next with 60% of time in Year 10, 50% in Year 11 and 40% in Year 12 being taken up by the common core).

It is further suggested that all students should engage in a major or minor study from each of the broad learning areas and be able to undertake their core studies at a basic, intermediate or advanced level.

If the broad ideas suggested in this paper about the design, packaging and delivery of curriculum are taken up in the development of national curriculum, or an Australian Baccalaureate, this could result in significant changes to:

- the content that has been traditionally taught within the disciplines
- current assessment regimes that test the recall and manipulation of facts and the ability to mimic procedures
- the way staff are allocated within a school
- the way a school timetable is structured
- the kinds of teaching and learning experiences offered to students
- the way a school relates to its locality and uses its community
- the way teachers are trained.

It would also result in a greater alignment between the curriculum provided to students and the national goals of schooling.

Appendix 1: A curriculum in the 21st Century

It seems generally agreed that the world that is ahead for school leavers will have the following features:

- globalization of economies – economic power centred on China and India
- reliance on international markets – entrepreneurs and workers will need to have a global outlook and international competence
- increased concern about environmental degradation, water and energy shortages, global warming, pandemics (e.g. AIDS and Avian Flu) - globalisation of environmental concerns will require international cooperation for global solutions
- insecurity of nations and competing power blocs – citizens will need to be able to engage with national and international issues of security, understand the need to build alliances, understand the factors that generate conflict and mistrust between nations
- internationalisation of employment – accelerated international migration, working overseas increased, multinational work teams, will require cultural awareness, sophisticated inter-personal skills
- a science and technology edge will be important for gaining an economic edge – an interest in innovation and in science and technology will need to be nurtured in schools
- the knowledge economy will be the generator of most wealth and jobs – the capacity to identify problems, to work in multidisciplinary teams to identify solutions, to manage complex and multidimensional tasks, to synthesise ideas and to communicate effectively will be needed.

Others[4] have developed more expansive lists, but these seem a pretty good starting point for framing a discussion of what a curriculum in the Twenty-first Century should achieve for all students.

Each of the states and territories have set out in their 'essential curriculum' statements their views about the knowledge, skills and attitudes that schools need to nurture. Many of these statements acknowledge that traditional subjects or key learning areas need to be supplemented by learning that develops 'soft skills' and the capacity to keep learning. Some of the propositions below reflect perspectives currently covered in the curriculum statements of most States and Territories, but others are not typically represented in curriculum statements.

At the most general level by the time they leave school all students are likely to need:

- to be able to receive, retrieve and express increasingly complex ideas and information in visual and spoken form. This requires them to be highly competent in assembling, manipulating and interpreting numbers and in listening, reading, writing, viewing and speaking. And in presenting information in a variety of forms using a variety of media.

  Why? Because creativity, imagination, adaptability, social competence, problem identification and problem-solving, and the capacity for informed decision-making depends upon a good facility in language and in reading and interpreting number-based information and in presenting ideas and findings.

[4] For example, see the Framework for 21st Century Learning (www.21stcenturyskills.org) and *enGauge* 21st Century Skills (www.ncrel.org/engauge)

- personal and inter-person skills to be able to sustain a healthy lifestyle and build positive relations with others, to establish a values framework that embraces a concern for others and to understand and reflect on their personal motives and behaviours and if need be change these to sustain personal wellbeing and support the wellbeing of others.

  Why? Because poorly developed skills in these areas affects self esteem, happiness and the capacity to participate in a rich social, community and work life. Well developed skills in these areas open up relationship opportunities, enhance job prospects, and build respect, trust and self-esteem.

- an understanding of human society – Where have we come from? What innovations changed civilisations? What accounts for economic differences, religious differences, political differences, differences in traditions and values? What are the 'big isms' that inform peoples' mindsets and understandings? How do our minds work?

  Why? Because political, economic and religious theories and beliefs are key shapers of our world and young people need to know this and understand how differences in these domains play out in a society in terms of values, social behaviour and civic institutions. A basic knowledge of psychology and philosophy is needed to help understand what it means to be human.

- an understanding of science and technology - They should also have knowledge of the history and philosophy of science and of key figures in the development of scientific understanding. They should know how science and technology contribute to and impact on the world.

  Why? An understanding of the place of science and technology in society is necessary for an understanding of our world as the big ideas of science have significantly shaped our understanding of nature, space, and our past and possible future.

- to be familiar with cultural activities and artefacts, to know who have been significant contributors to cultural life in its various forms and to be supported to become producers, supporters and consumers of cultural life.

  Why? Because everyone should be equipped to participate in, appreciate and benefit from the cultural and artistic life of societies.

- to be global in outlook, to see themselves as a citizen of the world and be culturally aware and sensitive and acquire skills in a second language.

  Why? Because there is a danger that the next divide will be between those students that have a global outlook and international language and those who do not.

- to be environmentally aware and ecologically responsible – in one sense this is a subset of the impact of the actions that nations take in response to economic and political beliefs and pressures and of the need to understand science and technology and their possible contributions to destroying and salvaging our planet.

  Why? Because the continuation of the planet depends upon how nature's

resources are used, the environment deserves to be singled out as an essential area for study and action.

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