EDUCATION: FUTURE FRONTIERS

FUTURE FRONTIERS BACKGROUND PAPER

Hard focus on "soft" skills

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The term 'soft skills' has been applied to many of the competencies now being prioritised by countries in their curriculum reform and/or redesign agendas. This term, often used to profile the capabilities of employees and also given prominence in recruitment processes, refers to skills and dispositions, many of which have also been described as 21st century skills. These skills are no longer seen as "soft" or of secondary importance to other conventional and well-entrenched curriculum content owing to changing economic, social and environmental conditions in and across countries.

This paper has been developed to shine a light on the significant focus being given to the development of competencies across the globe. It also highlights the specific skills and dispositions that are receiving broad acceptance at national policy level as well as particular drivers behind this phenomenon.

GLOBAL INTEREST IN COMPETENCIES: SAME BUT DIFFERENT

The nature and pace of change in and across countries in recent years has brought into hard focus an acceptance that the competencies today's students need for a fulfilling life extend far beyond those required by young people from previous times (Griffin et al., 2012; Bruett, 2006; Autor et al., 2003; OECD, 2005; MCEETYA, 2008; Rotherham and Willingham, 2010; Saavedra and Opfer, 2012; Trilling and Fadel, 2012; Voogt et al., 2012).

Some say that the skills and dispositions referred to are not particularly 21st century – they existed and were promoted in the last century. This is true to some extent, however, their status has increased considerably, as Silva (2009) observes, they are:

…not new, just newly important.

So what has changed?

A lot. And a lot more is changing and at unprecedented rates. Some topics such as climate, demographic and technological change have been well discussed for more than a decade. Others such as the impact of globalisation, advances in artificial intelligence, brain research and new forms of automation and genome research are increasingly redefining and disrupting what we thought we knew or assumed about human life, cognition and relationships. These changes are creating many ethical, legal and social dilemmas. Mass migration and immigration, both planned and unplanned, are creating new challenges for governments, service systems and local communities. Conflicts and acts of violence are not only escalating but are also being reported in more immediate and graphic ways than in the past. And there is now greater insight into mental health

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issues: the varying kinds, indicators, environmental factors and implications (both financial and social), raising new questions regarding the respective roles and responsibilities of parents, the peer group, community, institutions and workplaces.

We have considerably greater understanding about these changes and issues, however, the solutions are yet to be found or when found are soon undone by new and even more complex challenges. We also know from these circumstances that more change can be expected throwing up many new dilemmas and issues. As Taleb (2010) warned in his award-winning account of randomness, 'The Black Swan', expect the wildly unexpected more so than the expected unexpected. Fitzsimmons (2017) expresses the same sentiments in her promotion of 'soft skills' in less dramatic, yet equally instructive words:

We are already living through an era of unprecedented change and the pace is accelerating. There is no new normal.

So what does this mean for schools and particularly, student learning?

It means a re-think is taking place in terms of what teachers should teach and what students should learn and, as a consequence, how teachers teach and how students learn. Kay (2010) lists two fundamental reasons why this re-think is justified: the world is changing and will continue to change dramatically throughout the 21st century and schools are not keeping up with these changes. Others agree (see for example Hazell, 2005; Darling-Hammond, 2010; Jacobs, 2010; Lemke, 2010).

At the centre of this re-think is the relative importance given to the competencies students need to acquire from their years of schooling. Governments are recognising that while obtaining and retaining knowledge remains a fundamental competency it is but one of many competencies young people need to survive and thrive in a world recognised as volatile, unpredictable, complex and ambiguous (Bennett and Lemoine, 2014; Berinato, 2014). This is a reality recognised and driving curriculum policy renewal and/or redesign across the globe.

However, it is important to point out that while the above circumstances are affecting countries across the globe, the actual selection and prioritisation of competencies in countries is not universal. Different factors are influencing the choices governments are making based on their particular geo-political circumstances, social constructs and current and projected workforce trends and needs, adding a new dimension to the well-practised strategy of policy-borrowing in education (Phillips, 2015; Halpin and Troyna, 1995; Ball, 1998).

The implications for schooling in Australia arising from the increase in this focus on 21st century competencies, both in terms of our current position on their relative importance as well as contextual factors that need to be considered when determining changes in teaching and learning, are considerable. More on this later.

21ST CENTURY COMPETENCIES: WHAT ARE THEY?

A great deal has been written and said about 21st century competencies in government policy, academic literature and professional publications in the past (Delors et al., 1996; Gordon et al., 2009; Binkley et al., 2012; Lippman et al., 2015).

Most of the literature and rhetoric is trifocal in nature, with one driver being the need for young people to acquire knowledge, skills and dispositions related to economic competitiveness caused by the transition from an information-based economy to a knowledge-based one (where new knowledge is seen as adding new value), particularly based on rapid technological advances. As observed by Singapore at the 2015 World Economic

Forum (Wong, 2015):
The potential scale of the disruption created by technological developments, such as artificial intelligence, machine learning and big data, requires that governments think deeply: how can they help mitigate the risks and fully harness the opportunities.

A second and related driver is the need to equip the employees of tomorrow with the kinds of competencies highly valued in and by the business sector. The third driver concerns dispositions related to attitudes and values considered as universally acceptable to the broader community including such matters as respect, responsibility and compassion.

These three drivers are not only current but have also increased in importance over recent years.

Added to these are new drivers related to the particular changes identified earlier concerning ecological destabilisation, resource depletion and loss of biodiversity; revolutionary technical change including new forms of communication; instability of norms and large scale value changes; substantial global inequalities and increasing gaps between the wealthy and the poor; substantial demographic shifts and resultant tensions and disruption; and new forms of violence. These drivers, which essentially concern both individual/personal wellbeing and societal/community wellbeing (Prilleltensky and Prilleltensky, 2007) fall into five main themes:

- Economic competitiveness: re-calibrating for a knowledge-based economy;
- Employability skills and dispositions for a changed and changing marketplace;
- Citizenship (and national identity);
- Social cohesion, understanding and valuing diversity, respect; and
- Personal growth.

While individual countries are advancing their own policy agendas in response to the drivers, they are also contributing to some collaborative efforts aimed at improving wellbeing in recognition of both a common policy interest in relation to 21st century competencies and the potential for collective impact across the globe.

An illustration of this global interest in 21st century competencies is the engagement of over 20 countries in two projects: the OECD's *Future of Education and Skills: OECD Education 2030 Framework project* (OECD, 2016a)[1] and UNESCO's *Transversal Skills* project (UNESCO, 2013; UNESCO, 2016)[2].

Both of these global projects involve an analysis of the extent to which 21st century competencies are currently being foregrounded in schools and assessed by jurisdictions, the exploration of strategies to strengthen teaching and the assessment of these competencies, and how jurisdictions are planning for the redesign and reform of curriculum and pedagogy to ensure these competencies are acquired by current and future students.

The European Union (EU) provides another example of collaboration across countries regarding the identification and selection of competencies. The EU's 'Lifelong Learning Framework' provides a list of eight competencies[3] identified by the 28 member countries as being particularly relevant to Europe and its current and future needs. Many of the EU countries have prioritised

[1] with its broad categories of creating new value (creative thinking/adaptability/open mind-set), coping with tensions and dilemmas (empathy, resilience, collaboration) and taking responsibility (critical thinking, mindfulness, responsibility)

[2] with its five domains: critical and innovative thinking; interpersonal skills; intrapersonal skills; global citizenship; and media and information literacy

[3] The EU's competencies include…*'traditional' skills such as communication in one's mother tongue, foreign languages, digital skills, literacy, and basic skills in maths and science, as well as horizontal skills such as learning to learn, social and civic responsibility, initiative and entrepreneurship, cultural awareness, and creativity.* (European Commission, 2006)

the competencies for incorporation into their curricula and are now awaiting the outcome of a current review of the Framework.

Though terminology differs across the globe the competencies most countries include (in some form or other) or are looking to include in their curricula are:

- problem solving/critical thinking/creative thinking;
- communication (multi-literacies);
- social skills and teamwork;
- resilience;
- ICT skills/digital literacy;
- self and social awareness;
- respectful relationships;
- innovation and enterprise;
- intercultural understanding/global mindset; and
- self-efficacy.

WHY ARE THESE IMPORTANT: WHAT IS THE EVIDENCE?

While the value of particular competencies varies between countries there are some that have been identified by many countries as key in relation to the purpose of schooling in contemporary times. This is based on a common understanding of the implications of globalisation particularly in relation to work, relationships, culture and values and is best summed up in the European Union's rationale for competencies:

There is growing consensus in Europe that individuals need to be better prepared for the changing living and working ecologies of this 21st century. Knowledge alone is not sufficient; a broader range of skills and abilities are needed to navigate a changed landscape…

This last point is particularly important as amongst the list of subject areas schools are expected to provide are some undergirding disciplines that have rightfully acquired a status that is, on the whole, unchallengeable. No-one is questioning, for example, the need for students to acquire good understanding in relation to the basics in literacy and numeracy, hence the importance of national language/s and mathematics in curricula frameworks and the focus given to these in international assessment programs such as PISA[4]. Evidence regarding the need for such fundamental skills and understanding in these areas is deep and well-established (Lefevre, 2000; Martin et al., 2012). This is not the case in relation to the development, acquisition, application and progress regarding competencies. However, there is a growing body of literature regarding individual competencies, including their assessment. References to this literature are included below in relation to specific competencies.

WHAT ARE THE MAIN POLICY DRIVERS AND WHO IS PRIORITISING WHAT (AND WHY)?

As indicated earlier the attraction to competencies is global yet not universal in relation to the take-up of particular competencies. The major policy drivers behind the identification and selection of competencies and the contextual factors influencing choices made by some countries are outlined below using the five themes identified earlier in this paper.

[4] PISA: Program for International Student Assessment conducted conducted every three years by the OECD.

THE TRANSITION FROM AN INFORMATION-BASED ECONOMY TO A KNOWLEDGE-BASED ECONOMY IS OCCUPYING THE INTEREST OF MOST COUNTRIES ACROSS THE GLOBE.

Economic competitiveness: re-calibrating for a knowledge-based economy

The transition from an information-based economy to a knowledge-based economy is occupying the interest of most countries across the globe. This is the result of a duel change: rapid technological and scientific advancements and rapid obsolescence of existing knowledge and sources (Powell and Snellman, 2004), leading to consequential workforce and workplace reforms. For some countries like Singapore, Japan and South Korea, whose economies have each experienced miracle growth followed by economic busts and recoveries, such reform is part of ongoing structural adjustments and dexterity in relation to finding and establishing new markets and opportunities. As observed by Singapore's Committee on the Future Economy in its 'Pioneers of the Next Generation' report (2017) in relation to the country's track record in sustaining growth and weathering economic crises:

We (Singapore) have achieved this by restructuring our economy repeatedly, adapting to evolving global as well as domestic circumstances.

In response to current and projected circumstances, Singapore is seeking to develop a nation of people who have deep skills and are inspired to learn throughout their lives; and who work in settings that are innovative and nimble and connected to the world. Such structural adjustments are also currently underway in South Korea, where the family-dominated conglomerates (known as chaebols[5]), which have played a strong role in the country's spectacular rise in the list of world economies, are seen as being both an asset and a hindrance in terms of innovation and change. In essence, strong competition from China and the dominance of the hierarchical nature of chaebols are leading to increased demands for economic democratisation, and for the country to, as Marlow (2015) says:

…shift gears and foster a more innovative service-orientated economy.

For other countries, such as the oil-rich countries of the Middle East (such as the United Arab Emirates and the Kingdom of Saudi Arabia) such a shift in base economic sources is dramatic and significantly brought on by depleting supplies of their chief commodity. There is a clear imperative to create new and sustainable sources of revenue, and a pressing need for more nationals to enter private sector employment (particularly at professional levels). The resulting mismatch between skills and labour market demand has led to education reforms taking place across the Gulf states, with curriculum reform (inclusive of a focus on competencies) a major plank.

The changing circumstances in these and many other countries is partly an explanation for the global interest in the promotion of STEM subjects. It also explains why competencies that have the potential to create new value

[5] with some of the world's best known multinational brands: Samsung; Hyundai; Kia; Daewoo; LG.

in the market, such as problem solving, creative thinking (innovation; entrepreneurial skills), those that enable participation in the knowledge-economy (communication; ICT skills; teamwork; critical thinking) and dispositions that are in keeping with adapting to and coping in an ever-changing world (flexibility; growth mindset; resilience) are being given such prominence in national education reform initiatives. In addition to the collaborative actions being undertaken through the OECD, UNESCO (Asia Pacific) and the European Commission, regarding these competencies, specific country examples of this policy focus include:

- the emphasis given to student learning for work and the economy in the curriculum of Northern Ireland and specifically for students to acquire skills that will enable them to "manage information, problem solve and make decisions and thus create new knowledge within the knowledge age" (Council for the Curriculum, Examinations and Assessment, 2007); and
- the current curriculum reform process in Norway has signalled major changes required to the curriculum with an emphasis to be given to competencies for lifelong learning and for participation in a world where knowledge is constantly changing, increasing and expanding. As posited by the Ludvigsen Committee (Norwegian Ministry of Education and Research, 2015):

Society is changing at an increasingly rapid pace, and this means that knowledge has to be renewed on a continuous basis…Research, innovation and technological development are important contributors to Norwegian business and industry's competiveness…In sum, the trends offer a picture of a future society that will typically feature rapid changes, development of technology and knowledge.

Employability skills and dispositions for a changed and changing marketplace

In addition to the interest in STEM and knowledge-economy related competencies, there is a desire to broaden the capabilities of young people in skills and dispositions that are recognised as being particularly conducive in contemporary workplace settings. Competencies such as resilience, flexibility, collaboration and co-operation are all seen as valuable qualities required to participate actively and effectively in the workforce. These are the highly valued "soft skills" now seen as essential for sustained employability in sectors ranging from the low-pay service sector to the high-end finance and professional sectors. As LinkedIn economist, Guy Berger (2016) observes:

Hard skills vary based on the job, but soft skills are required for every job.

While the value of these skills have been well-known by employers, interest in the development of these competencies has captured the attention of policy developers and advisers owing to changing economic circumstances.

While some of the wealthiest countries in the world have relied on the mobilisation of their workforce, market opportunism or having a high-demand commodity,

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others have been able to gain significant leverage from their circumstances. The BRIC[6] economies of Brazil, Russia, India and China, for example, which are characterised as having significant populations, land masses and natural resources have experienced major societal change over the last decade with rapid increases in the middle class in each country. This has brought demand for services at levels that are far beyond supply both in quantity and quality, expectations that the economic benefits and opportunities will flow across the population, and new levels of scrutiny regarding government policy (and in some cases growing mistrust of government officials, politicians and institutions), particularly in recent years during periods of economic instability. To illustrate this Li (2010) provides insight to the challenges facing China as it reorientates its economy from one overly dependent on exports to one driven by domestic demand:

There already appears widespread resentment among the middle class towards official corruption…Another potential source of socio-political ferment lies in the increasing number of college graduates, many of whom belong to middle-class families, who are unable to find work.

Recent and projected depletions in natural resources are creating serious concern in the BRIC economies and many others with high or growing middle class demands and economies that are primarily based around exports. These challenges require significant changes in the outcomes of education. In some cases it means the development of young people with higher levels of education than current pipelines provide. In other cases it means young people graduating from school with different skills and dispositions to those required by previous cohorts. In all cases it means the development of young people with the competencies required for countries, businesses and individuals to survive and thrive in the 21st century.

Hence the call from the World Economic Forum (2016) for a re-think of education systems highlighting the need for future employees to have cross-functional roles and, as a consequence, needing a mix of technical, social and analytical skills, observing that most existing education systems are highly siloed and operate under 20th century practices. The Forum has encouraged businesses to work closely with governments and education providers to:
…imagine what a true 21st century curriculum might look like.

[6] BRIC: the acronym used for the economic giants - Brazil, Russia, India and China, also referred to as "The Big Four".

While it cannot be said that such an undertaking is occurring in all countries there are a number of actions underway in and across countries to highlight and embed particular competencies in curricula aimed at developing the employability of young people for a changed and changing marketplace. Specific examples of a policy focus in this area include:

- the alignment of school curriculum with the needs of Hong Kong's "new economy" (Kennedy, 2005) with a focus on integrated learning, problem solving, critical thinking and project learning; and
- Finland's recently implemented curriculum reforms which, despite its early PISA success and highly successful promotion of its education credentials, have not stopped it from recognising that "competencies needed in society and working life have changed, requiring skills for building a sustainable future" (Halinen, 2016). This has resulted in a new focus on broad-based competencies such as cultural competence, participation and empowerment, multi-literacies, ICT competence, and competence for working life and entrepreneurship.

Citizenship (and national identity)

Renewed interest in citizenship and national identity are also featuring in curriculum policy discussions and/or redesign processes in many parts of the world. The basis for this varies and includes recent societal disruption; heightened geo-political tensions; transitional governance processes and in some cases, global stewardship of environmental resources.

Mass unplanned migration, such as that experienced in Europe in recent years following the ill-prepared yet determined flow of people from Western Asia and Northern Africa across and through borders, has presented governments with a crisis not seen since World War II (European Commission, 2016). In response, a number of European countries are engaged in discussions about developing students' skills and understandings about citizenship and national identity as both nationals and Europeans.

While the recent crisis has foregrounded the importance of competencies such as justice values, civic responsibility and attitudes about civic liberties (Barr et al., 2015); compassion, empathy, social responsibility, pro-social skills and behaviours (Peredo and McLean, 2006); and intercultural competence and cultural humility (Deardorff, 2006), the importance of these competencies is not new. This is illustrated in the report on a 2012 review of citizenship education in Europe which found the curricula content of EU member countries was based around three main categories: the national socio-political system; societal issues; and the European and international dimension. It also found that tolerance and discrimination, cultural diversity, and sustainable development were the most common themes addressed by European countries in citizenship curricula (European Commission, 2012).

Security-related matters caused by geo-political tensions and developments are also factors in the current heightened interest in citizenship and national identity in some countries. While such tensions are also not new, the stakes have been raised in recent years for countries such as South Korea and Japan where the rise of China as both an economic and military and naval power, and North Korea's provocative actions on the Korean peninsula have focused their attention on developing the competencies of their young people for the future in response to "mega-trend" areas including safety risks, territorial claims and counter-claims, and the unification of Korea.

There are also a number of cases where renewed effort is being made to engage young people in supporting the ongoing political transition from former regimes through a focus on the value of citizenship, skills and attitudes associated with democratic participation, and

ADDED TO THE INCREASED INTEREST IN CITIZENSHIP AT THE LOCAL LEVEL IS THE IMPORTANCE OF GLOBAL CITIZENSHIP – HAVING A GLOBAL MINDSET AND SOCIAL RESPONSIBILITY.

understandings concerning current conditions and the legacies of previous regimes. Examples of this include former Soviet bloc states with maturing democracies such as Estonia and Latvia and those such as Kazakhstan with an emerging middle class (Boonstra, 2012) and where the transition to democracy is still in its early days (McFaul, 2002). Similarly, there are countries in South America that have experienced alternating periods of dictatorship and democracy such as Brazil (Samuels and Abrucio, 2000) and Chile (Keech, 2004), where there are strong community-based efforts to ensure the benefits of democracy and the limitations of previous forms of rule are known and valued by their young people.

Added to the increased interest in citizenship at the local level is the importance of global citizenship – having a global mindset and social responsibility. Such dispositions and skills are seen as valuable capabilities by employers with a global reach (Jantunen et al., 2008) and also valuable in terms of actions related to climate change and pro-environment actions (Kollmuss and Agyeman, 2002).

Some examples of the above are:

- Japan's new curriculum which includes specific objectives such as "contributing to world peace"; "civic spirit"; "loving the country and region that nurtured them" and "respecting other countries". Added to these objectives are specific guidelines outlining "the inherent part of the territory of Japan"; and
- the rights related to "political principles" incorporated into Brazil's recently developed national learning standards where knowledge about historical events have contributed to the construction of an "empathetic society in which freedom, autonomy and accountability thrive" and where students will be capable of "dialoguing and exercising freedom of speech, observing the principles and values of a democratic society, in order to assume a critical position in decision-making processes, and have full participation in different realms of public life".

Social cohesion; understanding and valuing diversity; respect

Changing demographics as well as a range of social issues, many of which are contributing to escalating costs for social services and other interventions, are presenting new challenges for countries across the globe. This has led to demands for primary prevention initiatives in general and specifically in

schools through the development of competencies to support social cohesion, equity and inclusivity.

In some cases the demands for development of empathy, tolerance and inclusive behaviours relates to unplanned immigration such as the arrival of great numbers of refugees in Europe, referred to previously in this paper or, as in the case of South Korea, the arrival of families defecting from North Korea.

Though the circumstances are different, the need for the acquisition of similar competencies is also occurring in some countries where planned immigration is taking place. The situation in Japan is an example here where there are increasing number of migrant workers (mostly from China, Vietnam, the Philippines and Brazil) being employed in various industries to counter the impact of the country's demographic circumstances – a shrinking and aging population. As reported by Shmuel (2016):

...depopulation and aging in recent years mean the country faces one of the world's most severe labour shortages, sapping the economy despite plenty of quantitative-easing efforts by the Bank of Japan. The scale of Japan's problem can be seen in its vacant buildings. Every year, 400 to 500 schools are shut down due to a lack of children.

As a consequence the country is being prepared by the Japanese government for a future where its population is significantly more diverse. However, increased diversity is not the only social issue facing Japan where the country's "relentless march toward a hyper-aged society" and the "tectonic social consequences" (Coulmas, 2007) are forcing the government to:
Face challenges concerning intergenerational fairness and social cohesion.

Paradoxically, while Japan has acquired a strong reputation for its outward expressions of respect, this is the very issue that is driving the explicit need for young people to develop and maintain positive attitudes towards the elderly, who they will be expected to support at levels and for periods not experienced by previous generations. This need (as well as some pro-national objectives) has resulted in the decision by the Japanese government to make Moral Education, once a non-compulsory subject, a mandatory course. Under the four pillars of Basic Lifestyle and Behaviour; Moral Mentality and Judgement; Expansion of Personality and Creative Lifestyle; and Ethical Attitude and Practical Motivation as a Member of the Nation and Society, the course includes learning outcomes previously considered the responsibility of families. This means that values and attitudes such as valuing justice and responsibility, mutual respect and co-operation; responsibilities associated with forming a peaceful and democratic state and society; performing duties; cultivating a "rich and wholesome heart" and "respect for one's ancestors" are now mandatory curriculum areas.

Respect has also been highlighted as a 'Social and Personal' competency by Brazil in the development of its recently endorsed national learning standards. In Brazil's case the attention paid to respect in the development of the country's first national curriculum follows some highly publicised incidents concerning intolerance, bullying and discrimination of individuals based on their sexual orientation. This has resulted in the incorporation of skills, attitudes and values specifically aimed at developing students' capabilities related to identity construction regarding themselves and others in their community and broader society. In addition to these capabilities, which are aimed at guiding students to build "a more inclusive and fairer world", are skills, attitudes and values such as respect, empathy, conflict resolution and valuing diversity.

These competencies along with tolerance, compassion and sympathy are seen as necessary requirements for reducing violence (Finlay and Stephan, 2000) and for forming or maintaining a society that is both cohesive and inclusive and which treats its citizens equitably.

Specific examples of a policy focus in this area include:

- the approach taken by the Canadian province of Ontario through its 'Citizenship Framework'. While Canada is known for performing well by international academic measures and for its cultural diversity, inclusive laws and society, maintaining harmony and tolerance, and a commitment to equity are seen as ongoing obligations and responsibilities. Accordingly, Ontario provides under its 'Citizenship Framework' clear direction for teachers regarding "what it means to be a responsible, active citizen in the community of the classroom and diverse communities to which they belong within and outside the school" (Ontario Ministry of Education, 2013). The Framework, which is applicable to all subject areas, has four elements: active participation, identity, attributes and structures through which students learn how and why to demonstrate self-respect, and respect and empathy for others through topics such as inclusiveness, equity, fairness, justice and social cohesion; and
- The Czech Republic's Framework Programme for Education (curriculum framework) includes six key competencies that "form a non-negotiable basis for the pupils' lifelong learning and their start in life" (VUP: Research Institute of Education, 2007). These competencies, described as "variously interconnected, multifunctional" and having "an interdisciplinary nature", are to be acquired by children and young people from pre-school and throughout their schooling with the "entire educational content and all the activities taking place at school" aimed at forming and developing these competencies. Two of the key competencies, Social and Personal Competency and Civic Competency are particularly relevant to social cohesion, understanding and valuing diversity and respect. Student learning outcomes listed under these competencies include respecting different viewpoints; drawing lessons from what others think, say and do; respecting others' beliefs and intrinsic values; empathising with the circumstances of others; rejecting oppression and abusive treatment; and realising one's duty to oppose physical or psychological violence.

Personal growth

The development of personal growth competencies is increasingly being seen by countries as fundamental to student wellbeing (Dweck, 2017) and essential for later life. These competencies, which include being a challenge seeker, having a growth mindset, agency and optimism; utilising self-efficacy skills; being resilient and having perseverance (or what the American's refer to as "grit"), are also seen as valuable for accessing and maintaining employment, and for successfully managing the increasing demands of work (Duckworth, 2016; Laursen, 2015).

One of the drivers behind growing interest in these competencies is a concern with the level of anxiety, depression and overt behaviours demonstrated by students in countries where the stakes are high in terms of keeping pace with curriculum demands, achieving in the face of fierce competition and attaining particular results at school and for entry to university.

The situation in South Korea is an example here, where the OECD found that South Korean students report a lower sense of belonging and social connectedness at

MOST OF THE POLICY WORK IN RELATION TO PERSONAL GROWTH COMPETENCIES IS IN ITS INFANCY WITH INITIATIVES PRIMARILY TAKING PLACE IN INDIVIDUAL SCHOOLS RATHER THAN AT SYSTEM-LEVEL OR THROUGH CURRICULUM REDESIGN.

school than their peers in other OECD countries with only sixty percent reporting being happy at school compared to eighty percent on average in OECD countries (OECD, 2016b). These findings confirmed what the Korean government already knew and followed the Ministry of Education's decision in 2013 to pilot a "circuit-breaker" for middle school students, known as the "free semester"[7], which was subsequently extended as a provision for all middle school students in 2016.

Another country where students report significant levels of stress and pressure to achieve in school is India. An example of this is provided in a study of secondary students in Kolkata that found that nearly two-thirds of the students surveyed reported stress owing to academic pressure and eighty-one percent reported examination-related anxiety. Data obtained from this study also indicate that academic stress positively correlated with parental pressure and psychiatric problems (Sibnath et al., 2015).

While measures have been taken to reduce curriculum load such as the free semester system in South Korea and successive curriculum content reduction efforts in Japan and Singapore (with its "Teach Less Learn More" strategy), there are strong and historical factors behind the commitment to study and academic success that are deeply ingrained in the cultures of Confucian-heritage countries (China, Korea, Japan, Vietnam and Singapore). The link between the focus on study and high performance of students from these countries and the concerning psychological consequences has been referred to as the Confucian-heritage paradox (Ho et al., 2001).

At this stage most of the policy work in relation to personal growth competencies is in its infancy with initiatives primarily taking place in individual schools rather than at system-level or through curriculum redesign or reform efforts. There are, however, a few examples where the policy rhetoric has also led to action.

Singapore provides such an example with student wellbeing being given particular attention as part of its curriculum reforms. In its 'Framework for

[7] This one-semester is exam free and aims to "enhance the happiness and wellbeing of students by giving them opportunities to explore dreams and aptitudes through participatory instructions, diverse learning experiences, and flexible curricula." (MEST, 2016)

21st Century Competencies and Student Outcomes', Singapore gives particular focus to Social and Emotional Competencies, which are applicable to all subjects and are described as the skills, knowledge and dispositions that enable students to make responsible decisions, manage self and relationships and handle challenging situations effectively. The two domains of self-awareness and self-management are described as relating to "the understanding of self which helps in managing one's emotions and personal behaviours." (Ministry of Education Singapore, 2012).

Similarly, the new curriculum developed by the Canadian province of British Columbia includes three core competencies: Communication; Thinking; Personal and Social, the latter of which incorporates personal growth competencies. The core competencies, described by the Ministry of Education as being "at the centre of the redesign of curriculum and assessment", are "sets of intellectual, personal, and social and emotional proficiencies that all students need to develop in order to engage in deep learning and lifelong learning" (Ministry of Education British Columbia, 2015). As part of the reform package British Columbia has developed profiles which illustrate student progress in relation to each competency.

Personal growth competencies are addressed in the redesign of British Columbia's curriculum under the 'Personal and Social' core competency which includes the areas of personal awareness and responsibility (self-determination, self-regulation and wellbeing); and positive personal and cultural identity (personal strengths and abilities). The associated profiles of student learning are provided for each of these areas incorporating the "skills, strategies and dispositions that help students to stay healthy and active, set goals, monitor progress, regulate emotions, manage stress, respect their own rights and those of others, and persevere in difficult situations." (Ministry of Education British Columbia, 2015)

A country that has given particular attention to students' agency is Scotland. In its recently implemented 'Curriculum for Excellence' (CfE), Scotland has produced learning objectives and experiences from the perspective of the student (the learner), a departure from how curriculum standards are most often presented. By way of example an objective for Reading is expressed as: "I regularly select and read, listen to or watch texts for enjoyment and interest, and I can express how well they meet my needs and expectations and give reasons, with evidence, for my personal response". A further example from Health and Wellbeing provides insight into the student-centred nature of the standards: "I can expect my learning environment to support me to develop self-awareness, self-worth…meet challenges, manage change…build my resilience and confidence."

In addition to the student-centred nature of the Scottish curriculum the CfE includes four competencies, two of which are relevant to the personal growth competency: Successful Learners (which includes objectives such as having enthusiasm and motivation to learn; and determination to reach high standards of achievement) and Confident Individuals (which includes objectives such as being self-aware; and having self-respect and a sense of physical, mental and emotional wellbeing).

IN AUSTRALIA, COMPETENCIES ARE BEING ADDRESSED BUT AT VARYING DEGREES OF FOCUS AND ATTENTION AT NATIONAL, STATE/TERRITORY, SYSTEM/SCHOOL AUTHORITY LEVEL AND CLASSROOM LEVELS.

COMPETENCIES AND THE AUSTRALIAN CONTEXT

As the above examples show, even where a common set of competencies might be being foregrounded across the globe, there are different factors influencing their selection in and across countries. They also demonstrate that there are competencies that are specific to particular countries owing to contextual circumstances.
Given this reality, what might a focus on competencies mean in an Australian context?

Before answering this, it is important to look at how competencies are currently being addressed in Australia. The answer to this is simple in part yet also complex: competencies are being addressed but at varying degrees of focus and attention at national, state/territory, system/school authority level and classrooms levels (UNESCO, 2016).

At a national level, the development of 21st century competencies are best represented through the seven general capabilities[8] embedded in the content of the Australian Curriculum's eight learning areas as well as to some extent through the cross-curriculum priorities.

When it comes to the state/territory level, Victoria has taken the most significant step in authorising the importance of competencies, developing the Australian Curriculum content into four separate curriculum areas: Critical and Creative Thinking Capability; Ethical Capability; Intercultural Capability and Personal and Social Capability. The curriculum for each of these capabilities includes a scope and sequence of learning and achievement standards.

The other Australian states and territories vary from this approach and in some cases each other, with the majority accessing the Australian Curriculum directly. In the case of NSW, the Australian Curriculum's general capabilities and cross-curriculum priorities are included under the Learning Across the Curriculum section within that jurisdiction's syllabus structure.

[8] the Australian Curriculum includes seven general capabilities: Literacy; Numeracy; Information and Communication Technology (ICT) Capability; Critical and Creative Thinking; Personal and Social Capability; Ethical Understanding; Intercultural Understanding, and three cross-curriculum priorities: Aboriginal and Torres Strait Islander History and Cultures; Asia and Australia's Engagement with Asia; Sustainability.

The Australian Curriculum, and the general capabilities in particular, also provide the basis for a number of initiatives taking place within schools across the country which are driven by broader societal and economic imperatives and align with the themes outlined earlier in this paper. In this sense school education is playing a part through the curriculum and various programs and projects in orientating and equipping young Australians for changed and changing circumstances and for an unpredictable future.

As with many other countries significant emphasis has recently been placed on STEM in Australia. In the Australian context this has resulted in a plethora of programs, projects and strategies of varying design, scope and quality. Three issues are driving government interest in STEM in Australia. The first concerns the need to position Australia for a future where its intellectual resources and capacity for innovation dominate investment in the country and, in terms of economic sustainability, replace a reliance on the export of natural resources. The second issue concerns declining numbers of graduates skilled in STEM-related subjects. A previous concern with a loss of highly skilled Australians to other countries, often referred to as a "brain drain" (or human capital flight), has been replaced with an issue of supply rather than loss – a thinning pipeline of STEM-capable school graduates[9], dissatisfaction within the tertiary sector with the capabilities of students who enter and exit their courses, the under-representation of young women in many STEM-related courses, and the resultant low numbers of highly skilled professionals entering the workforce. The third and related issue is the need to arrest Australia's declining performance in mathematics and science in international comparative assessments (such as PISA and TIMSS[10]) where, the downward trend in Australia's overall rankings and the percentage of high level achievers has mobilised Australian governments to find STEM-based solutions.

A related area of increasing interest is 'coding'. While coding is essentially an aspect of STEM, with disciplinary roots in mathematics and digital technologies, it has acquired recent status in its own right. Australia's approach in relation to coding has in many ways mirrored STEM initiatives with increased activity through, for example, initiatives such as coding clubs, coding courses and coding events. It is worth noting that while some countries include short courses or elective junior high or senior secondary coding courses, Australia, through the Australian Curriculum's digital technologies subject area, is one of the few countries that has included coding (referred to as 'programming' in the Australian Curriculum) for all students from the first year of school.

The extent to which STEM and coding programs, projects and strategies (both individually and collectively) are either leading to or likely to result in greater numbers of STEM-capable graduates, is yet to be determined. However, there is little doubt that in terms of rhetoric, funding and profile, STEM and coding are currently favoured areas in Australia.

Another area that has received considerable attention in Australia is 'student wellbeing'. Interest in student wellbeing in Australia is multi-dimensional. The overall intention of student wellbeing in schools is to enable young people to flourish in a caring, respectful and supportive environment based on a recognised link between student wellbeing and learning (Australian Catholic University and Erebus International; 2008; NSW Department of Education, 2015). There are also some high profile wellbeing issues – such as bullying, depression

[9] Broadening of the secondary course options available to students, less numbers selecting high level mathematics and science options or in some cases these subjects at all.

[10] TIMSS: Trends in International Mathematics and Science Study conducted every four years by the International Association for the Evaluation of Educational Achievement

THERE IS CLEAR RECOGNITION ACROSS THE GLOBE THAT THE ACQUISITION OF TECHNICAL KNOWLEDGE AND KNOW-HOW, THOUGH VALUED, ARE NOT SUFFICIENT FOR YOUNG PEOPLE TO NAVIGATE A WORLD THAT IS CHARACTERISED BY AMBIGUITIES AND UNCERTAINTY.

and anxiety – that have captured the attention of the broader population as much as those in schools. The Australian Curriculum includes the general capability of Personal and Social Capability, which is aimed at supporting students:
…in becoming creative and confident individuals who, as stated in the Melbourne Declaration on Educational Goals for Young Australians (MCEETYA, 2008), 'have a sense of self-worth, self-awareness and personal identity that enables them to manage their emotional, mental, spiritual and physical wellbeing', with a sense of hope and 'optimism about their lives and the future'. (ACARA, 2015)

Added to this curriculum strategy are government supported programs such as *Mind Matters and Bullying No Way* aimed at establishing whole school approaches to address student wellbeing issues and equipping young people with competencies needed for dealing with the complexities and challenges they face in and out of school and will experience in later life and work.
'Respect' is another competency where governments in Australia, as elsewhere, have undertaken primary prevention strategies in schools (including through the curriculum) in an effort to address particular societal problems. In the Australian context the focus on 'respectful relationships education' has been used to cover a range of interpersonal matters in schools, gaining greater currency recently in response to increased public concern about the prevalence and impact of violence against women and girls. As a consequence, respectful relationships capabilities have been incorporated into the Australian Curriculum through the general capability of Personal and Social Capability and specific content in the Health and Physical Education curriculum.

COMPETENCIES: A YET TO BE CONCLUDED GLOBAL DEVELOPMENT

There is clear recognition across the globe that the acquisition of technical knowledge and know-how (mastery and techniques), though valued, are not sufficient for young people to navigate life and work in a world that is complex and characterised by ambiguities and uncertainty.

Many countries are taking steps in response to this reality. They are doing this as part of broader reforms and through different measures including curriculum policy renewal and/or redesign. While there is a degree of commonality in the competencies being foregrounded, there are local contextual factors at play driving the prioritisation of particular skills, attitudes, dispositions and knowledge within each country.

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