Preliminary Findings from the OECD Education 2030 project[*]

OECD Education2030 プロジェクトからの中間報告

田熊　美保[**]

TAGUMA Miho

要旨

　　OECD では、Key Competency の更新とその実践やカリキュラムへの結び付けを支えるプラットフォーム作りのための「Education 2030 プロジェクト」を始めている。本稿では、OECD 諸国のカリキュラムに見る新しい学力観のレビューに基づき、これからの日本の教育と評価の在り方についての示唆を導いた。本レビューでは、中間報告として、新しい学力観の特徴として、１.「個人と社会双方のゴール達成のためのコンピテンシー」というホリスティックなヴィジョン、２.「コンテンツ焦点型」から「コンピテンシー焦点型」へ、そして「コンテンツ・コンピテンシー統合型」モデルへというカリキュラムモデルの変遷、３.「概念的理解」への注目が「概念にフォーカスし、（その学習に）コンピテンシーが埋め込まれている」モデルを生み出すという教科等の知識の関係変化、４.　教科横断的コンピテンシーに対する要求の高まり、５.　生涯学習の重要性の明示とそのために必要な生徒のメタ認知的なスキル・態度に裏付けられたエージェンシーの価値づけ、６.　カリキュラムとペダゴジーと評価のよりよい連携という六つを見いだした。これらの特徴と、新学習指導要領など、日本で現在進む教育と評価をめぐる改革との関係を考察した。

1. Six trends of curriculum responses to incorporating 21st century competencies in OECD countries

Curriculum is one of the powerful policy levers to change student performance, their experiences at school, and their relation with the world outside during as well as after their time spending at school. Thus, countries periodically and systematically reform curriculum to make it relevant to students as well as to the world outside school, while the change cycle varies across countries from 6 years to 10 years. Around 2015, in the midst of growing global debates surrounding technological changes such as automation and artificial intelligence, globalisation and migration, and climate change, countries started to revisit questions such as what kinds of competencies today's students will need in order to thrive in and shape the future of the world when they grow up, and how such competencies can be fostered through curriculum.

To answer such questions, the Education Policy Committee (EDPC) mandated the OECD Secretariat to update the OECD's Definition and Selection of Key Competencies (DeSeCo)[1] and to conduct an international comparative curriculum analysis and, thus, the OECD project, the Future of Education and Skills 2030 (E2030), was launched in 2015. It is worth noting that it is the first time for the EDPC to mandate the secretariat to conduct a policy analysis on "curriculum" because it has been considered as a highly domestic matter with high-stake political and sensitive issues. This time, however, the EDPC recognizes the need to consolidate a knowledge base that can help countries to make the process of curriculum design and development more evidence-based and systematic. The EDPC have also become more open to and interested in peer-learning and self-reflection opportunities by exchanging curriculum reform experiences among countries themselves where the secretariat can serve as a platform.

Curriculum and pedagogy come together in classrooms to create learning opportunities that have a powerful impact on student understanding and mastery of subject matter. However, most educational research has focused on pedagogy and student outcomes and there is less policy research on the links between curriculum and pedagogy despite the fact that specifying the scope and content of the curriculum is one of the key policy levers. The recent PISA analyses (OECD, 2013; Schmidt, Ziodo, & Cogan, 2013) show that certain features of the curriculum are strongly related to performance. In-depth analysis on the content of the curriculum can add new insights to the knowledge base on the relationship between curriculum, pedagogies, learning opportunities and student outcomes. The analysis is still in the developmental stage and the number of participating countries is still increasing at the time of writing this article. However, preliminary findings suggest six trends on the types of competencies that are embedded in curriculum and how they are embedded.

1.1. Holistic Visions – competencies to achieve individual and collective goals

First, countries are increasingly articulating the "visions" or goals of education more clearly in their curricu-

---

1 . At the forefront of DeSeCo's multi-year research program was the question: Apart from basic skills «*what competencies do we need to lead a successful and responsible life and to face the challenges of the present and future?*» DeSeCo was designed to complement international comparative assessments by stepping back from an immediate concern of how to measure or develop competencies in order to focus on questions such as *what is a competence* and *which competencie*s are important and *important for what*. Its main mission was to define a comprehensive, theory-grounded set of key competencies and to provide a basis for an overall long-term strategy for international assessments such as PISA.

lum frameworks in a holistic manner, much wider than the acquisition or masterly of knowledge. Such holistic visions are defined, as an educational response to a wide range of changes, including increasing globalization and migration, changing demands on employment accelerated by the rapid technological advancements, such as the Digital Revolution, or the 4th Industrial Revolution, growing inequalities across and within countries, increasing threat to security and peace, growing concerns on health issues, environmental issues, demographic changes, etc.

Recognition of such a wider range of social, economic and cultural concerns is reflected in the educational goals set out in curriculum. The desired student outcomes, as the goals of education, cover a broad spectrum, i.e. defined and selected in the ways in which students can develop individual competencies (e.g. intellectual curiosity, confident, healthy, autonomy, self-directed lifelong learning, self-reflection, entrepreneurial spirit) as well as competencies required to address, and act towards, collective goals. In doing so, students may require competencies not only to identify social challenges and find solutions, but also to tap into opportunities so that they will be able to both respond to the changing demands and to create new demands, new values and new world they will live in the future. The desired student outcomes to address collective goals typically include concepts such as "citizenship" (e.g. active, engaged, connected, ethical, responsible contribution/ participation), "creativity and productivity" (e.g. creative contributors, economic productive, social enterprising).

For example, New Zealand curriculum sets out the vision for their young people to "be confident, connected, actively involved, lifelong learners". In Canada, Ontario aims to ensure the success and well-being of every student by supporting them to "become personally successful, economically productive and actively engaged citizens" and Alberta supports "engaged thinkers, entrepreneurial spirit, and ethical citizen". Singapore envisions that their young people "be confident persons, self-directed learners, connected citizens, and active contributors". In the United Kingdom, Scotland is committed to support their children and young people to "become successful learners, confident individuals, responsible citizens and effective contributors" and Wales aims to develop their children and young people to "be ambitious, capable learners, enterprising, creative contributors, ethical, informed citizens, and healthy, confident individuals". South Korea envisions their youth to "be a person who seeks individuality for the base for the growth of the whole personality, who exhibits a capacity for fundamental creativity, who pioneers a career path within the wide spectrum of culture, and who contributes to the development of the community on the basis of democratic civil consciousness". Estonia sets out the educational goals to ensure students' moral, physical and social development…the development of "intellectual curiosity, learning skills, self-reflection and critical thinking, self-expression, social and cultural identity and participation in lifelong learning".

1.2. Shift from a "content-focused" to "competency-focused", and now to "content-competency integrated" model

Second, a common trend in the redesign of curriculum among participating countries is the shift of focus from "contents" to "competencies", and now to integrating and embedding "both of contents and competencies". Let us take an example of a case of New Zealand. Figure 1 illustrates some key milestones of evolution of the New Zealand secondary school curriculum.

Before 1990s, the curriculum redesign focused on "the scope and focus of contents". Around 1960s, the desired student outcomes were focused on the mastery of Latin, Greek and Mathematics. Around 1960's, the education goals were broadened to prepare students for a wider scope of subjects but, still, the preparation was focused on the masterly of knowledge, primarily for "core subjects" i.e. English, Maths, Science, History and as "non-core subjects", i.e. Geography, French, Arts, Physical Education, Craft, and Commercial studies.

In the 1990s, increased recognition that all areas of human endeavour are of equal value has led the curriculum to reframe "subjects" as "**key learning areas**" without a distinction between "core/ non-core", i.e. English, Maths, Science, Social studies, PE/ Health, Design and Technology, and Arts (Kennedy, 1995). Furthermore, a more dynamic curriculum redesign of the time was the introduction of "**generic competencies**" as essential skills or learning new basics (Mayer, 1992), in line with the OECD's definition and selection of key competencies of the time (1996-2001).

Challenges with the competency-focused curriculum included a misinterpretation of "competencies". Reviews of various initiatives revealed a lack of rigor and consistency in the use of terms related to competence. In public discourse and sometimes also in specialized literature, there was – and still is – a tendency to use terms such as "21st century skills" and "21st century competencies" either imprecisely or interchangeably, which has led some confusion or debate on "knowledge" vs. "skills", although students need both to be empowered.

At the OECD Education Ministerial (2001), competencies are understood in the context that **"sustainable development and social cohesion depend critically on the competencies of all of our population – with competencies understood to cover knowledge, skills, attitudes and values".** In line with the Ministerial communiqué, Gonczi (2003) argues for a relational, integrated, and holistic approach to competence; i.e. one which links the attributes of individual (i.e. knowledge, skills, attitudes, values) to the demands and challenges which individuals encounter in the context of work and in life. Therefore, key competencies should not be understood as separate or different from knowledge, subjects or learning areas; it should be understood as a holistic concept, i.e. the ability to meet complex demands by drawing on a combination of knowledge, skills, attitudes and values in a particular given context.
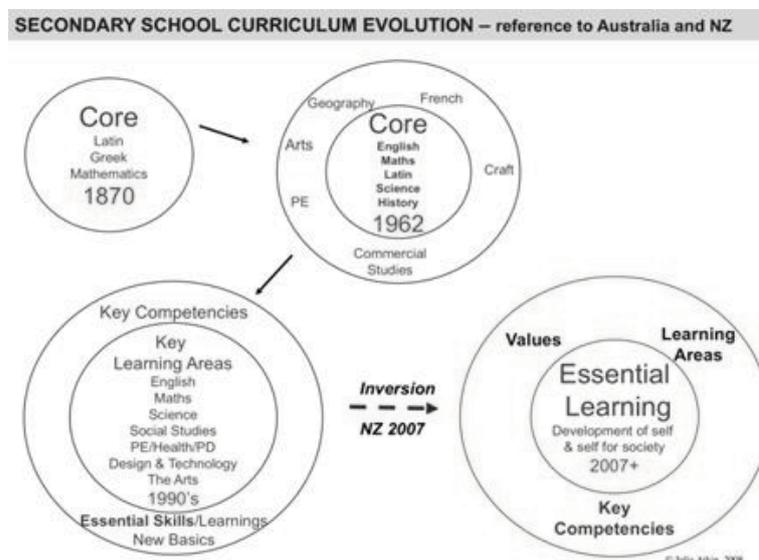

Figure 1 Evolution of curriculum with reference to New Zealand

The redesigned curriculum in New Zealand was launched in 2007 after an extensive review of the curriculum was undertaken between 2000 and 2002 with teachers, parents, policy makers and groups from the community and industry. The impetus to review the curriculum arose in response to the fact that the New Zealand population was becoming increasingly diverse, technologies were becoming more sophisticated and the demands of the workplace were growing in complexity. The revised curriculum was based on the holistic and integrated competence model, articulating the key competencies with the role of values and the key learning areas that encompass the traditional foundation disciplines in educating the whole person.

The similar holistic, integrating or embedding competence approach is also found in other countries. For example, Australia has also taken a similar curriculum redesign history to New Zealand. ACARA(The Australian Curriculum, Assessment and Reporting Authority) has defined general capabilities as the key "set of knowledge, skills, behavior and dispositions that can be developed and applied across the curriculum to help students become successful learners, confident and creative individuals and active and informed citizens". They specified the general capabilities as literacy, numeracy, critical and creative thinking, personal and social competence, ethical behavior, intercultural understanding, and information and communication technology competence (Figure 2). These capabilities are integrated within and across the contents of key learning areas as appropriate.

The private sector-led curriculum also recognizes a holistic competence model. For example, the Hewlett Foundation (2013) has set out a framework for students to internalise the subject knowledge through deeper learning and to succeed in 21st century jobs and civic life. [2] The framework suggests 6 key aspects of 21st century competencies to be built upon each other, i.e. mastery of rigorous academic content, critical thinking and problem solving skills, collaboration, effective communication, self-directed learning, and an academic mindset.

The Singaporean curriculum also articulates some of the competencies that are shared with other countries, e.g. critical and inventive thinking, communication and collaboration and information skills, and civic literacy, global awareness and cross-cultural skills. Furthermore, it deepens the scope by highlighting that the competencies are to be learned in the context of Singaporean core values at the center of learning, i.e. respect, resilience, responsibility, and harmony, not learning the 21st century competencies in a vacuum (Figure 3). Embedding "values" is increasingly recognized as integral part of the curriculum, while the selection and scope of values may vary across countries due to its national and local contexts. Scotland aims to embed values "wisdom, justice, compassion and integrity" in its curriculum. While Scotland broadly defines its core values, Estonia details its core values by specifying what students should value as "general human values" and "social values" (see Figure 4 for detail), and both core values and general competences are to be embedded into learning areas and cross-curricular topics (Figure 4).

---

2 .http://www.hewlett.org/uploads/documents/Deeper_Learning_Defined__April_2013.pdf

Figure 2 Australian curriculum   Figure 3 Singaporean curriculum   Figure 4 Estonia curriculum

1.3. Growing focus on "conceptual understanding", leading to a "concept-focused, competencies-embedded" model

Third, there is an emerging trend to separate "key concepts" or "big ideas" from the "detailed content knowledge" in specific subject areas. The New Zealand curriculum defines key concepts as the following:

"Key concepts are the ideas and understandings that we hope will remain with our students long after they have left school and have forgotten much of the detail. Key concepts sit above context but find their way into every context. Students need time and the opportunity to explore these concepts; to appreciate the breadth, depth, and subtlety of meaning that attaches to them; to learn that different people view them from different perspectives; and to understand that meaning is not static. By approaching these concepts in different ways and by revisiting them in different contexts within a relatively short time span, students come to refine and embed understandings".[3]

For example, three key concepts are introduced for math with an implication for applicability to other disciplinary areas: [4]

Change and variation	Students uncover stories in which variation is omnipresent. Mathematics and statistics can be used to model the beating of the heart and explore the efficacy of heart medications.
Structure and generalisation	Students unlock stories using models, abstractions, and representations. Mathematics and statistics can be used to investigate climate change and design new virtual worlds.
Argumentation and proof	Students tell stories using evidence and reasoning. Mathematics and statistics can be used to triangulate forensic data and prove Pythagoras' theorem in more than 300 different ways.

In social sciences, four key concepts are suggested to support authentic understanding in history and support students to be able to think like "historians": [5]

---

3 .http://seniorsecondary.tki.org.nz/Social-sciences/Business-studies/Key-concepts/What-are-key-concepts
4 .http://seniorsecondary.tki.org.nz/Mathematics-and-statistics/Key-concepts
5 .http://seniorsecondary.tki.org.nz/Social-sciences/History/Key-concepts

Another example of this approach is found in the curriculum of British Columbia, Canada. It also makes a distinction between Content (Knowing) and Big ideas (Understanding) in each learning area. And Curricular Competencies (Doing) are embedded in each learning area. All learning areas are built on the Know-Understand-Do approach (Figure 5). While the content learning standards detail the essential topics and knowledge at each grade level, the big ideas consist of generalizations and principles and the key concepts important in an area of learning. The big ideas are intended to endure beyond a single grade and contribute to future understanding. The Curricular Competencies are the skills, strategies, and processes that students develop over time.

|	
Significance	Historians weigh the importance, durability, and relevance of events, themes, and issues in the past and the appropriateness of using the past to provide contemporary lessons; historians debate what is historically significant and how and why the decisions about what is significant change.
Continuity and change	History examines change over time and continuity in times of change. Historians use chronology to place these developments in context. Historians debate what has changed, what has remained the same, and the impact of these changes.
Cause and effect	Historians investigate the reasons for and the results of events in history; they debate the causes of past events and how these events affect people's lives and communities. Historians study relationships between events to identify pervasive themes, ideas, and movements, such as terrorism, revolution, and migration.
Perspective	There are multiple perspectives on the past (both at the time and subsequently). Interpretations of the past are contested – historians base their arguments on historical evidence and draw from a variety of perspectives.
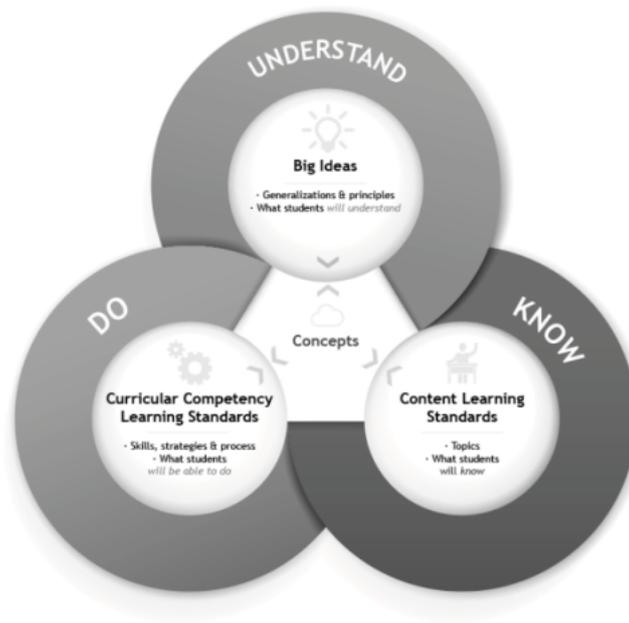
Figure 5 Curriculum of British Columbia (Canada)

Furthermore, the BC Canada's curriculum also aims to align the model with their Core Competencies, which are broadly defined, i.e. Thinking Competency, Communication Competency, and Personal & Social Competency.   The Curricular Competencies are defined more subject-specific and grade-specific (e.g. estimating reasonably by comparing to something familiar, such as "X must be more than Y meters / inches because it's taller than me", for math for grade 1). The Know-Understand-Do elements all work together to support deeper learning and lifelong learning in each learning area, while at the same time embedding the core competencies as an integral part of the learning in all curriculum areas so that they can use them every day in school and in life.

1.4. More demands on inter-disciplinary competencies

Fourth, there is an increasing demand on the competencies to respond to inter-disciplinary issues, such as ICT literacy, global competency, innovation and enterprising, sustainable development. Today the representation of the world as global, interdependent, complex, multipolar, rapidly changing, conflict-affected, fragile, uncertain has become part of the mainstream discourse. The expression "VUCA world", first used in the military context in the 1990s, has been established as a useful concept to reflect on the risks and opportunities of a world marked by volatility (nature and dynamics of change, and the nature and speed of drivers of change), uncertainty (lack of predictability), complexity (the confounding of issues, no cause-and-effect chain) and ambiguity (cause-and-effect confusion). When the concept is applied in the educational context, the focus of curriculum redesign is placed on the types of competencies as the ability to use one's knowledge, skills, attitudes and values to real-world circumstances and to solve novel problems to the issues are increasingly becoming inter-disciplinary.

To respond to such growing demands, countries have attempted to embed such inter-disciplinary aspects either into the desired student outcomes (e.g. Australia's "ICT literacy" and "intercultural understanding" as part of general capabilities), or into content areas as cross-curricular topics (e.g. Estonia's "environment and sustainability", "technology and innovation", and "health and safety"), which can be integrated in specific subject areas. In Finland, a significant reform was proposed in 2010 to regroup all subjects as "themes" and to significantly increase the share of optional studies, which faced a wide opposition and did not proceed to the parliament. In 2012, an incremental reform was proposed and approved to introduce interdisciplinary aspects as "phenomenon-based studies" but through subjects, and to include transversal goals, including thinking and learning to learn, cultural skills, self-sufficiency, multi-literacy, ICT, labor market and entrepreneurship, participation and sustainable future. The implementation is planned in the year of the writing this article, so there is no evidence yet whether or not such phenomenon-based studies through subjects, along with general competencies, while maintaining the total instruction time constant, will work.

This being said, it is important to note that disciplinary knowledge will still be fundamentally essential (Michael Young). Knowledge at the boundaries of the disciplines requires an understanding of how emerging disciplines are derived from foundation disciplines, e.g. mechanical engineering from physics and mathematics, or how emerging issues can be decomposed into foundation disciplines to gain necessary knowledge to tackle the issues.

1.5. Clearer articulation of the needs for lifelong learning, valuing student agency with their meta-cognitive skills and attitudes

Fifth, the importance of "lifelong learning" is articulated more clearly in curriculum frameworks in recent years. As mentioned earlier, the New Zealand curriculum includes, in its vision statements, that they envision that their children and students be lifelong learners, detailing i.e. who are "literate and numerate", "critical and creative thinkers", "active seekers, users, and creators of knowledge", and "informed decision makers". It also concretizes with its overall curriculum framework. They align the key competencies from early years, school and tertiary education, taking into account the age-appropriateness (Figure 6). For example, the development of a sense of "belonging" in early years are furthered into "participating and contributing" in school curriculum, and furthered into "operating in social groups" at the tertiary level.
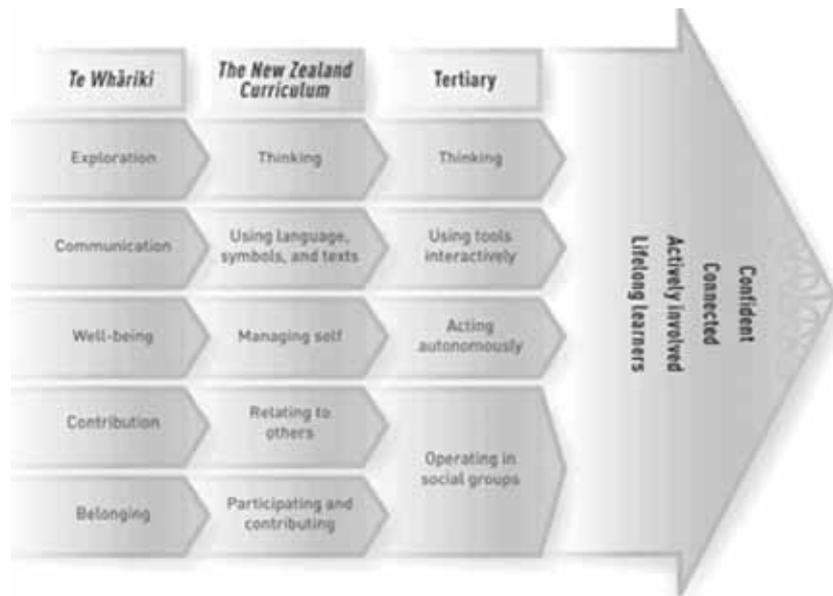

Figure 6 The New Zealand curriculum

Countries also articulate the importance of lifelong learning by highlighting the core competencies, general capabilities or curricular competencies which will play a key role in becoming a lifelong learner, in particular, metacognitive skills e.g. learning strategies, self-direction, self-reflection, self-management, academic mindset. The aforementioned New Zealand curriculum suggests "student agency" in classroom practices[6], e.g.

- students setting, managing, & reflecting on learning goals and processes (metacognition) through online learning journals
- students leading discussions with parents & teachers over reporting progress (3 way conferencing)
- students being responsible for cross-curricular homework tasks
- students contributing to school & classroom decision-making e.g. contexts for learning

---

6 .Presentation of the New Zealand Curriculum – The Journey So Far – by Sonia Glogowski, Acting Project Manager, NZ Curriculum, Ministry of Education

1.6. Better alignment between curriculum, pedagogy and assessment

Finally, as seen above, curriculum frameworks or learning standards are increasingly becoming common across countries, which defines the types of knowledge, skills, attitudes and values students are expected to have attained at different stages of their education. In such standards-based systems, student assessments focus on "attained" standards or curriculum, i.e. what students are able to demonstrate they have learned. They are often compared with "intended /written" curriculum, i.e. documents that identify what students are expected to learn as well as "implemented / taught" curriculum, i.e. classroom instructional experiences provided by teachers. Furthermore, policymakers are increasingly aspired to monitor the impact of curriculum redesign, not limited to the changes on student outcomes, but also on teachers, schools or systems, i.e. "evaluated curriculum" (Figure 7).
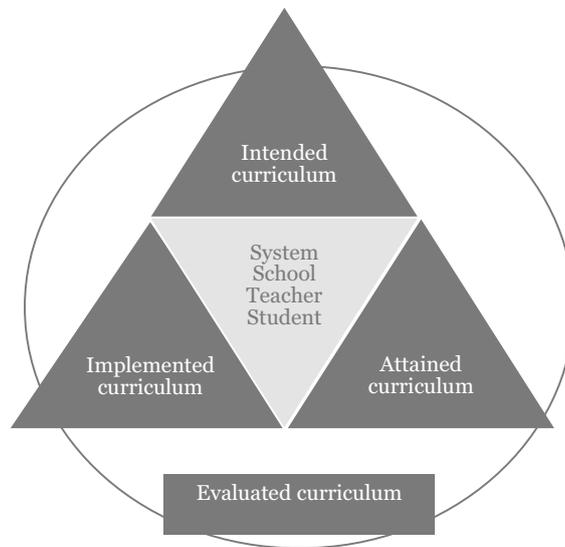

Figure 7 The intended, implemented and attained curriculum

The New Zealand Curriculum is a good example which ensures alignment of these key dimensions of curriculum. It sets the direction for student learning and provide guidance for schools as they design and review their curriculum. While recognizing the significant impact curriculum frameworks have on students, Kennedy (1995) argues that teachers' personal beliefs and classroom practices are more influential than the information gained through curriculum or teacher preparation courses and field experiences because 'most teachers teach the way they were taught'. Therefore, the New Zealand curriculum is composed of two sets of well-aligned strands, Directions for Learning and Guidance (Figure 8). The Direction of Learning is accompanied with Guidance, i.e. a number of support materials for teachers to be able to implement the intended curriculum most effectively as well as various tools to support them to monitor key competencies and student outcomes in specific learning areas so as to ensure attained curriculum by supporting teachers to improve their teaching and their students' learning (i.e. formative assessment).
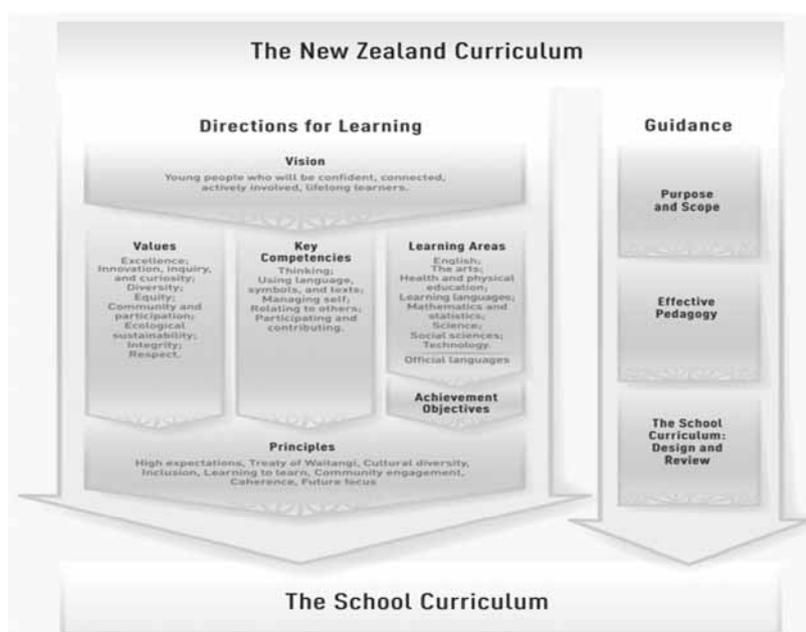
Figure 8 The New Zealand Curriculum

Therefore, documentation for monitoring is not simply about recording indicators, criteria, marks, grades, or rubrics, but more about rich descriptions, examples, accounts, and narratives. To support teachers, various types of monitoring tools are introduced, which teachers or schools can decide when to use which one with an aim to make "authentic assessments" for the benefits of both teachers and students.

The Australian curriculum also provides examples and guides for their implementation of general capabilities or core competencies into teaching and learning, linking to show where such capabilities are incorporated in key learning area descriptions.

The British Columbia, Canada, has prepared student profiles with assessment descriptors, as supporting tools, for each of the Core Competencies, i.e. creative thinking and critical thinking for the Thinking Competency, communication for the Communication Competency, and Positive Personal & Cultural Identify, personal awareness and responsibility, and social responsibility for the Personal & Social Competency.[7] Among the 28 participating countries who took part in the OECD Policy Review of Evaluation and Assessment for Improving School Outcomes, almost all countries use curriculum standards or goals, to some extent, as a reference for internal summative assessment[8], except Israel and Sweden.[9]

Private sector-led frameworks, such as the P21 framework, also align desired outcomes (including learning areas, core competencies and inter-disciplinary competencies) with standards and assessment, curriculum and instruction, professional development and learning environment.

2. Implications for Japan

In the OECD policy review on evaluation and assessment in education, a comprehensive, mul-

---

7 .Example of "creative thinking" from the the Thinking Competency domain:
  https://curriculum.gov.bc.ca/sites/curriculum.gov.bc.ca/files/pdf/CreativeThinkingCompetencyProfiles.pdf
8 .Forms of student assessment that are not standardised, but designed and marked by students' own teachers and implemented as part of regular classroom instruction in schools.
9 http://www.oecd.org/edu/school/oecdreviewonevaluationandassessmentframeworksforimprovingschooloutcomes.htm

ti-dimensional survey was conducted on (1) student assessment, (2) teacher appraisal, (3) appraisal of school principals and local government leadership skills, (4) school evaluation, and (5) educational system. It is of critical importance to recognize that all these dimensions are inter-related and thus a mere dimension does not indicate a causal relationship with student outcomes. In addition, it is also important to be reminded that each dimension is assessed and evaluated for different purposes, with different assessment targets and different methodologies, and with different incentives. They differ according to the political commitment and policies of the country of the time.

In Japan, the new courses of study focus on "fostering the competencies required in a new era, and enhancing learning assessment". At the core of the courses of study is "the realization of a curriculum open to society". This clearly suggests a vision to reduce the "time lag between societal transformations and school reform", which is a commonly identified curriculum challenge among participating countries. Therefore, once clarifying the competencies that need to be developed in each subject, the next step is to identify how to teach such competencies both within and across subjects, as well as how to measure such competencies within and across subjects.

In doing so, countries have suggested that that the burden laid on teachers caused through curriculum reform should not be overlooked. For example, in recent years, formative assessment, focusing on student-centered feedback, is receiving increased attention in OECD countries. To make this assessment work for all students, teachers will need sufficient time and are required to knowledge and expertise to carefully plan and ensure optimal learning processes of each student. Japanese teachers are working longer time by the international standards. Innovation be used to support Japanese busy teachers. For example, through the use of AI and big data, teachers can reduce the time spent on "tracing" learning processes so as to carefully understand the learning processes of individual learners, while teachers can focus their time to be spent on "building relationships" with the students and "giving individually tailored feedback" using such data.

If technological innovations are carefully designed and thoughtfully used, they may be able to create unprecedented opportunities to enhance students' learning experiences and outcomes in the course of the implementation of the new courses of study. In doing so, it is of fundamental importance to rethink the redefined "role" of teachers and the new demands of "teacher competencies" that are intrinsic to human value. If we can have better visions about new models of "learning, teaching and assessment" shared among students, teachers and technology, the advent of new technology will not only be welcomed in schools and classrooms but also teachers could suggest and create new demands on educational technology. To what extent should teachers and students rely on ICT tools, and which aspects should remain under teachers' initiative, practices, and responsibility?   We are approaching an era where the "coexistence of science & technology and human beings" is put to the test, including in schools and classrooms. Other countries are expecting to see new educational practices coming from Japan, which has been among top performers as an advanced country both in "educational outcomes" and in "scientific and technological innovations".

References

Gonczi, A. (2003). Teaching and learning of the key competencies. In Rychen, D.S., Salganik, L.H., & McLaughlin, M.E. (Eds.). (2003). *Contributions to the second DeSeCo symposium*. Neuchâtel, Switzerland: Swiss Federal Statistical Office.

Hewlett Foundation (2013) DEEPER LEARNING COMPETENCIES,

http://www.hewlett.org/wp-content/uploads/2016/08/Deeper_Learning_Defined__April_2013.pdf

Kennedy, K., Marcland, P. and Sturman, A. (1995) Implementing national curriculum statements   and profiles : Corporate federalism in retreat. Paper presented at the AARE Annual Conference, Hobart, 1995.

Mayer, E (1992), *Key competencies: report of the Committee to advise the Australian Education Council and Ministers of Vocational Education, Employment and Training on employment-related key competencies for postcompulsory education and training*. Australian Education Council. Retrieved from http://www.voced.edu.au/content/ngv%3A28045

Schmidt, W. H., Zoido, P., & Cogan, L. S. (2013). Schooling Matters: Opportunity to Learn in PISA 2012. *OECD Education Working Papers, No. 95*. Retrieved from: http://dx.doi.org/10.1787/5k3v0hldmchl-en