INTEGRATING TRANSVERSAL COMPETENCIES IN EDUCATION POLICY AND PRACTICE (PHASE I)

Country Case Study: JAPAN
Country Case Studies

Integrating transversal competencies in education policy and practice in Japan

Shinobu Yume Yamaguchi
Junko Onodera
Mihoko Kurokawa

Tokyo Institute of Technology
Executive Summary

As we enter the 21st century, Japan is not an exception in facing rapid social changes in knowledge-based society, and thus, it is considered vital for young generation to develop relevant skills and competencies to cope with ever changing environment. Along with the concept of “Zest for Living”, promoting balance between academic knowledge, morals, and physical and mental health, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) introduced the 2008 New Courses of Study as guidelines for curriculum development in primary schools in 2011. The 2008 New Courses of Study particularly focuses on the importance of verbal activities integrated into all the subjects, and thus, nurturing skills to think critically, to present own ideas and to make decisions based on information available. The Second Basic Plan for Promoting Education (2013) further emphasizes the importance of creative, self-reliant citizens to lead the society.

The paper particularly focuses on three major characteristics found in the 2008 New Courses of Study. First, promoting verbal activities in different subjects is considered as the basis for students to develop their communication and presentation skills with analyzing information available. Relevant examples and model cases are widely distributed to schools in promoting new approaches of classroom teaching. Second, schools are expected to strengthen partnership with local communities, local enterprises, and other relevant institutions including libraries, museums and local broadcasting companies. Third, with such partnerships, schools are expected to provide students more experienced-based learning opportunities for building well-rounded characters by actively interacting with people outside of the schools. Further, the 2008 New Courses of Study introduced 10% increase of lesson hours and contents in each grade. The survey results of experts and government officials revealed that teachers do not have sufficient time to work on lesson plan, and thus, more in-service training is found crucial.

In promoting discussion on key skills and competencies, the paper analyzes the framework of curriculum contents and objectives for promoting principles of “Zest for Living” (MEXT, 2005). This framework identifies 12 skills, categorized into three, namely, “independent and self-reliance”, “relationship with others in schools and families” and “relationship with
the society for career and living in the community”. As MEXT identified 96 pilot schools across Japan in introducing innovative curriculums and school activities, the paper illustrates selected innovative curriculum focusing on developing important skills and competencies. While such innovative curriculum are established and implemented with high level of community involvement, the difficulty of measuring progress of acquiring such skills was identified.

The paper concludes with other challenges and potential areas of intervention including: 1) need to develop assessment system, by carefully examining the current entrance examination system; 2) need to provide more support for teacher training in line with the 2008 New Courses of Study; and 3) need to promote more awareness among stakeholders including parents and community members.
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The research team of Global Scientific Information and Computing Center, Tokyo Institute of Technology consists of Shinobu Yume Yamaguchi, Junko Onodera, Mihoko Kurokawa, Akina Ueno, and Naoko Enomoto. Assistance was provided by Shotaro Yano.
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<tr>
<td>ACT21S</td>
<td>Assessment &amp; Teaching of 21st Century Skills</td>
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<td>CCE</td>
<td>Central Council for Education</td>
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<td>ERI-Net</td>
<td>Education Research Institutes- Network</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>MEXT</td>
<td>Ministry of Education, Culture, Sports, Science and Technology</td>
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<td>NIER</td>
<td>National Institute for Educational Policy Research</td>
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<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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<td>PISA</td>
<td>Programme for International Student Assessment</td>
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<td>PDCA</td>
<td>Plan-Do-Check-Act</td>
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<td>TIMSS</td>
<td>Trends in International Mathematics and Science Study</td>
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1. Introduction

“Zest for Living (competencies for positive living)” (NIER, 2013) is the key word of the recent education policies of Japan. This concept was already introduced in the policies in 1998; however, the importance of its concept is even more emphasized in the 2008 New Courses of Study, which was announced in 2008 and started its implementation in 2011 as a national standard of school curriculums. “Zest for Living” means well-balanced competencies of “Chi-Toku-Tai” (solid academic prowess, well-rounded character, and healthy body) in order to live in a fast-changing society. The 2008 New Courses of Study underscores the balance between acquisition of knowledge/skills, development of creative thinking and sense of judgment/critical thinking. It also highlights the importance of verbal activities across all subjects, resulting in increases in lesson hours and curriculum contents. Further, collaboration among schools, parents and communities is emphasized to support education for children. The principles underlying “Zest for Living” is considered current interpretation of “non-cognitive skills” in Japanese education policy, considered important to live in under the global and knowledge-based society.

The reasons behind this education policy are the advent of a knowledge-based society, in which technological innovation is constantly expected and people need to have competencies for creating new knowledge and values as well as coping with the situation in flexible manner. In addition, it would be more important to have skills to cooperate with people from different cultures to solve global issues in the age of accelerated globalization. On the other hand, recent national and international test results revealed that Japanese students are not good at applying basic knowledge and skills in a real-life setting. Further, Japanese lower secondary school students have level of interests in math and science compared with its international average (MEXT, 2010).

In March 2011, the Great East Japan Earthquake hit the northeast of Japan. After this catastrophic incident and the devastation caused by the tsunami, Japanese citizens are dedicated to the reconstruction and rehabilitation of the damaged areas. At the same time, under the unexpected catastrophic circumstances, Japan has encountered issues of low-birthrate, changes in family and community, widening economic disparity, and
environmental issues to name a few. In response to the current situations, educators and researchers, parents and communities have come to recognize the importance of competencies for positive living as independent individuals and as living in a harmony with others. Under such condition, the basic education policy was defined in “The Second Basic Plan for the Promotion of Education,” adopted upon the Cabinet decision on June 2013. This policy aims to build a society where life-long learning is available to anyone in order to nurture the individual with the principle of “creativity, collaboration and self-reliance.”

This research paper first summarizes the recent education reforms in Japan and discusses the policies and strategies in education sector. Further, the analysis of curricula integrating non-cognitive skills is presented. This paper also introduces a case of a public primary school in Niigata and Akita prefectures that has unique curriculum, which is designed not only to acquire basic knowledge but also to foster skills and competencies for the 21st century. Achievement and challenges of the current education policies are also discussed. This paper concludes with potential areas of intervention for future policy implementation.

2. Research Framework

The country study of Japan was conducted as part of the ERI-Net 2013 research project on transversal competencies in education policies and practice. The research framework, which includes recommended research approaches and questionnaires, was developed by the ERI-Net secretariat and approved by the ERI-Net members at the ERI-Net expert meeting held in March 2013.

The overarching research questions are:

- What is the status of integrating and applying transversal competencies into education policy and practice in countries of the Asia-Pacific region?

- What are the experiences?

- What are the lessons learned?

For analysis on the policies and strategies, the authors conducted desk study on policy papers and documents of the MEXT and the National Institute for Educational Policy
Research (NIER). In addition, a total of twenty-one interviewees including policy makers, researchers, journalist, academics, teachers and officers of the board of education in Joetsu city, participated in this research from June to November 2013. Questions for policy makers were designed to obtain information on the rationale behind reforms related to integration of non-cognitive skills in education.

The authors also visited a public primary school, Otemachi Primary School in Niigata prefecture. Illustration of cases in public school is based on field visit and on-site interviews and lesson observations. Questionnaires were also used for this part of the study. The questionnaire consisted of the original research questions proposed in the research framework drafted by the ERI-Net Secretariat, as well as additional questions. In total twelve questionnaires from education experts and policy makers, fourteen questionnaires from teachers of Otemachi Primary School, and nineteen questionnaires from teachers of Ugo Junior High School in Akita prefecture were collected and analyzed.

3. Sociopolitical Context

3.1 Background

The concepts of competency-based educational goals and objectives were introduced in Japan’s education policy since the 1980s, as “the ability to self-educate” (1983), “new academic ability” (1989), “Zest for living” (1998), and “the ability to think, to make decisions, and to express themselves” (2008) (Katsuno 2013). Since the late 1980s, new subjects and activities have been implemented in order to accomplish these competency-based goals. The motivations of these educational reforms are drawn, recognizing the importance of human resource development in a global era.

The results of PISA (Programme for International Student Assessment) in 2003 raised a debate about Japanese students’ academic ability. According to the international ranking of mathematics literacy and reading, Japan was ranked as the 6th and 14th respectively, which were declining rankings from the previous test results. This trend continued to the 2006 PISA result. Especially, it was highlighted that Japanese students have a weakness in reading comprehension and word problems. Further, TIMSS (Trends in International
Mathematics and Science Study) 2007 results revealed 8th grade students' lower interests in math and science study compared to international average points. The results of the National Assessment of Academic Ability in 2007 indicated that Japanese 6th grade students were not good at applying basic knowledge and skills in a real-life setting. For example, 96% of the students correctly calculated the area of a parallelogram with a height of 6cm and a width of 4cm; however, only 18.2% of them obtained the right answer when applied to the word problem (Figure 1). As a part of the National Assessment, surveys on students' daily habits and school environment are also conducted. According to the survey results, schools which promote students' communication by writing their ideas, opinions and thorough inquiry investigation showed higher test performance. At the same time, schools that have Parent-Teacher Associations (PTAs) and the community actively participate in school activities showed similar results (MEXT 2011 pp2-5).

Figure 1: Basic Questions and Applied Questions in the National Assessment of Academic Ability 2007

(MEXT 2010, pp2-3)
3.2 Review on Japanese Education Reform

3.2.1 Amendment of the Basic Act of Education

In 2006, the Basic Act on Education was amended for the first time in 60 years since its adoption. The revisions were made in views of nurturing mentally and physically strong citizens who could explore and live with empathy in the 21st century. The main revisions are as follows:

1) The education goals are prescribed with new ideas (i.e. enriched sense of empathy and morals, sense of self-reliance and civic responsibility, respect for Japanese culture and tradition, world peace and contribution to development);

2) Purpose of compulsory education is defined as enhancement of individual unique ability and sense of independence as a citizen;

3) New ideas are incorporated as: life-long learning (article 3), educational support for people with disabilities (article 4), teacher training purpose of compulsory education (article 5), parents and guardians as the first responsible constituents for child education (article 10), training for teachers (article 9), importance of pre-school education (article 11), collaboration among schools, parents and community (article 13), responsibilities of educational administration at national and municipal levels, (article 16) national basic plan for education development and its disclosure including reporting to the Diet. (The Basic Act on Education 2006)

4) The government is required to formulate a Basic Plan for the Promotion of Education to clearly show the aims of education and measures to achieve them (article 17).

3.2.2 School Education Act (2007)

In response to the amendment of the Basic Act on Education, the School Education Act was partially revised in 2007. The act prescribes the goals of compulsory education as well as specifies objectives at each level for primary to high school levels. As one of the most notable points of the amendments, the three elements of academic purposes are prescribed. In order to cultivate basis for life-long learning, it should be carefully
considered for students: 1) to acquire basic knowledge and skills; 2) to nurture the ability to think, make decisions, express oneself, and other skills to tackle issues; and 3) to foster positive attitude toward learning. These three elements became the core ideas of the changing the curriculum and guidelines defined in the 2008 New Courses of Study.

3.2.3 “Zest for Living” and the 1998 Courses of Study

Each school creates its curriculum based on the national standard, called “Courses of Study.” The Courses of Study is usually revised every 10 years. Since 1945, 6 revisions have taken place responding to the social needs and situations at the time. Since the first revision of the Course of Study (from 1958 to 1960), the importance of non-cognitive aspects has been incorporated into the principles. For example, the concept of “Chi-Toku-Tai (solid academic prowess, well-rounded character, and healthy body) was introduced in the Course of Study revised from 1977 to 1978. Further, the importance of fostering “Zest for living” was introduced in 1998.

In July 1996, “The Model for Japanese Education in the Perspective of the 21st Century” submitted by the Central Council for Education (CCE) identified the skills and competencies required for children to be able to cope with difficult issues and rapid changes of Japan’s future. The report highlighted environment that Japan would face in the future, such as accelerated globalization, need for development of science and technologies, energy and environment issues, the advancement of ageing society, and a low birthrate. In order to live in such a society, it outlined the following abilities and qualities for children as vital:

1) The abilities and qualities conducive to identifying problems for themselves, studying on their own initiative and thinking for themselves, exercising their own judgment and acting independently, and solving problems properly;

2) A rich sense of humanity, embracing an ability to self-control, a willingness to cooperate with others, and a heart that allows them to care about others and to be sensitive to valuable and precious things;

3) The health and physical strength enable them to live an active life (NIER, 2013 p.10).
These abilities and qualities are called “Zest for Living.” The idea of “Zest for Living”, illustrated as below (Figure 2), consists of solid academic prowess, healthy body and well-rounded character. In order to implement principles underlined in “Zest for Living,” the Council recommended the review and reduction of curriculum contents, avoiding teaching style focusing on memorization in 1996. As a result, “Integrated Study Periods” was newly introduced, promoting cross-subject and holistic approaches to learn social issues such as international understanding, environmental issues, social welfare through hands-on experiences, volunteer activities, and collaborations among parents and communities. Schools were expected to create their own lesson contents and activities for the “Integrated Study Periods.”

Figure 2: Image of Zest for Living (translated by authors)

(Source: MEXT n.d.-a)

In 1998, following the recommendations of the Council, the 1998 Courses of Study was announced. This Course of Study was implemented from 2002 to 2012. During this period, “five-day school week” was introduced in all public schools. The major changes of the 1998 Course of Study were the 30% reduction of the curriculum contents and lesson hours. For
example, the total lesson hours of the 6th grade students were reduced from 1015 to 945 hours (NIER 2013 p11).

3.2.4 New Courses of Study (2011- present)

According to MEXT (2008 b), specific assistances to promote the principles of “Zest for Living” were not sufficiently provided to schools and stakeholders. The report of the CCE identified the five issues during the implementation of the 1998 Courses of Study (CCE, 2008 pp. 17-19). First, the concept and importance of the principles were not well informed by MEXT and that resulted in a lack of shared understanding among stakeholders. Second, teachers overestimated the self-reliance of students. Third, there was lack of integration of problem-solving approaches to subject-based skills and knowledge learned from lessons. Fourth, lesson hours were insufficient for experience-based learning, reporting and dissertation that were applied from learned knowledge and skills. Fifth, the decline in educational functions of families/communities was underestimated.

Given the background above, the 2008 New Courses of Study was announced in March 2008 and gradually implemented from 2011 to 2013. In line with the School Education Act, amended in 2006, the 2008 New Courses of Study aims at learning basic knowledge and skills, acquiring thinking, decision-making, and expression skills to solve issues and nurturing positive attitude toward learning. The 2008 New Courses of Study maintained the fundamental principles of “Zest for Living,” conceptualized in the 1998 Courses of Study.

4. Policies and strategies on integration of non-cognitive skills in education

4.1 The First Basic Plan for the Promotion of Education

The First Basic Plan for the Promotion of Education (The First Basic Plan) was established following the Basic Act on Education in 2006. The First Basic Plan clarified the educational visions of the 10 years ahead, as well as policies and measures to be implemented between 2007 and 2010. The educational visions prescribed in the First Basic Plan were “to cultivate, in all children, the foundations for independence within society by the time they
complete compulsory education" and "to develop human resources capable of supporting and developing our society and leading the international society" (MEXT 2008-a).

Regarding the basic policy directions in the First Basic Plan, four policy measures were highlighted: “materialization of society-wide commitment to improve education,” “development of people’s basic strengths to lead the lives of independent citizens and members of society, through ability building on the basis of respect for individuality,” “development of human resources with a wide range of essential knowledge, expertise and intelligence to support social development,” and “materialization of safety and security for children and creation of an environment for high-quality education” (MEXT 2008-a).

The review of the First Basic Plan concluded that the status of accomplishment of educational visions was still in the process. At the same time, new issues such as gap in academic performance, further need of collaboration with community, importance of ICT use in education were raised. Also, low standard of students’ study hours, low academic performance, inward-looking mindset of youth were not yet solved. Several reasons were discussed such as insufficient teachers’ skill to identify student’s individual strength, lack of smooth transitions from primary schools to secondary schools, as well as from school to the society, and insufficient implementation of PDCA cycle (MEXT 2013 p16).

4.2 The Second Basic Plan for the Promotion of Education

In accordance with the Cabinet decision in June 2013, the Second Basic Plan for the Promotion of Education (the Second Basic Plan) was adopted. The Second Basic Plan clarified the policies and measures that are planning to be implemented from 2013 to 2017.

The Second Basic Plan illustrates the circumstances surrounding Japan, stating that Japan is seeking for proactive learning of individuals for "self-reliance and cooperation and creativity" (MEXT 2013). Rapid changes in the progress of globalization, hollowing out of industry and aging population have created serious problems that have threatened the decline of Japan’s national power. Further, it argues that the Great East Japan Earthquake that occurred in 2011 has questioned the way that society is heavily based on the consumption-oriented lifestyle. In order to overcome unprecedented difficulties, and to
realize a sustainable society, it suggests that every citizen must share the sense of crisis and explore the solutions. It further mentions that Japan has a global reputation for its strengths such as a high level of knowledge and skills, and “human ties-Kizuna”, and thus emphasizes the importance of building a mature society based on a new social model. Given this context, three important key words of "self-reliance, cooperation and creativity" are highlighted.

4.2.1 Four basic policy directions and key measures related to the development of non-cognitive skills

The Second Basic Plan (MEXT, 2013a) presents the four basic policy directions and measures: 1) development of social competencies for survival; 2) development of human resources for a brighter future; 3) establishment of learning safety net; and 4) establishment of vibrant communities based on a strongly-tied society. In total the Second Basic Plan presents the four policy directions, eight missions and 30 actions. The following section summarizes the concepts of the four policy directions and the key measures that are related to the development of non-cognitive skills.

1) Development of social competencies for survival

The first policy direction consists of four missions, namely: 1) nurturing “Zest for Living,” which expects children to acquire the basic skills for lifelong learning, “proactive learning, thinking and taking actions,” 2) exploring optimal solutions to the issues “unanswered questions,” (3) acquiring “self-reliant, cooperative and creative” abilities through a lifelong learning, and (4) nurturing skills and abilities to grow as independent citizens in social and professional contexts.

1st Mission: Nurturing “Zest for Living.”

The first mission consists of the following seven actions with twenty-five policy efforts. Here, main policy efforts are illustrated with the key seven action categories: (1) follow-up and steady implementation of the 2008 New Courses of Study through promoting language activities, ICT utilization for collaborative and interactive learning to name a few; (2) nurturing well-rounded character through promotion of moral education to solve issues of bullying and school violence; (3) nurturing healthy body through providing quality school
lunch, food education and increase of sports activities in schools and communities: (4) improvement of teachers’ capacities through the reform of teacher training, in-service training and recruitment systems; (5) quality improvement of pre-school education; (6) improvement of education for special needs and (7) establishment of PDCA cycle at primary and secondary school levels. Various policy efforts are designed underlining the basic principles of “Zest for Living.” This policy mission will be evaluated through several measurements such as the results of international and national tests, the number of reported bullying cases and non-attendance and dropout rates of upper secondary schools.

2nd Mission: Exploring optimal solutions to the issues without an answer
The second mission consists of the following three actions with fourteen policy efforts. The main policy efforts are illustrated with the key three action categories: (1) transformation of higher education quality based on students’ proactive learning through establishment of university reform cycle, and improvement of special staff for faculty development; (2) quality assurance of higher education through establishment of quality assurance system; (3) establishment of a new school system for child’s development based on research. This policy mission will be evaluated by several measurements such as an improvement of universities’ courses of study reflecting European and American systems, improvement of learning support environment to name a few. This policy missions mainly cover the efforts for improving of learning environment at higher education.

3rd Mission: Acquiring “self-reliant, cooperative and creative” abilities through a lifelong learning
The third mission consists of the following two actions with five policy efforts. Here, main policy efforts are illustrated with the key two action categories: (1) promotion of learning corresponding to contemporary and social issues through various experienced-based activities and book readings; (2) promotion of quality assurance and learning achievement assessment and its effective utilization to measure learners’ performance. This policy mission will be evaluated by the multiple measurements such as the growth rates of experienced-based activities at school level, the adoption of book reading activity plan at municipal level as well as the increase of private education providers who are engaged in assessment and evaluation.
4th Mission: nurturing skills and abilities to grow as independent citizen in social and professional context

The fourth mission consists of the following action with five policy efforts. The main policy efforts are illustrated with one key action category: 1) improvement of career education staring from primary schools with workplace experience activities. Especially lower secondary level is targeted to implement these policy efforts. This mission will be evaluated by the several measurements including the increase of the student numbers who have a future dream and who take appropriate subject study for their future professions. The measurements are also targeted the increase the efforts implemented by the secondary and technical and vocational schools. It is notable that this measurement include primary students’ positive attitude toward their future.

2) Development of human resources for a brighter future

The second policy direction consists of a mission, nurturing human resources who can create new values and contribute to global society.

5th Mission: Nurturing human resources that can create a new value and contribute to global society

The fifth mission consists of the following three actions with nine policy efforts. The main policy efforts are illustrated with the key three action categories: (1) provision of various and high-level learning opportunities for bringing out talents and unique individuals through support for super science high school, junior athletes to name a few, (2) strengthening the function of universities as research institutions supporting innovative and talented researchers, and (3) strengthening efforts for nurturing human resources to contribute and lead global society through improvement of foreign language education and international exchange activities from upper secondary and vocational schools. Assessment of this mission includes the results of international achievement test scores, doubling the number of research universities, improvement of students’ English proficiency, increase in the number of foreign students and Japanese students studying abroad.
3) Establishment of learning safety net

The third policy direction consists of two missions with eight policy efforts. Here, main policy efforts are illustrated with the key two action categories namely, “ensuring learning opportunities for those who are motivated to learn” and “ensuring safe and secure education and research environment.

6th Mission: Ensuring learning opportunities for those who are motivated to learn

The sixth mission consists of the following two actions with 8 policy efforts. The main policy efforts are illustrated with the key two action categories: (1) financial support to reduce educational cost especially for pre-school to upper secondary schools, and (2) provision of learning opportunities for students who are under severe social and financial conditions as well as those who are suffering from the Great East Japan Earthquake. This mission will be evaluated by the several measurements including the alleviation of the situation in which household economic conditions and educational environments effect on students’ academic performance.

7th Mission: Ensuring safe and secure education and research environment

The seventh mission consists of an action, “promotion of safety education and assurance of safety in school with two policy efforts. This policy mission mainly focuses on the school safety to cope with disasters. This is to improve the safety level of school infrastructure as well as awareness-raising among students for safety issues in terms of daily life, road traffic and disaster. Especially, after the Great East Japan Earthquake, the idea of “proactive action” to keep own safety as well as contribution to safe and secured society through mutual assistance are highlighted.

4) Establishment of vibrant communities based on strongly-tied society

The fourth policy direction consists of a mission, “establishment of vibrant communities with mutual assistance.”

8th Mission: Establishment of vibrant communities with mutual assistance

The mission has three actions, namely “promotion of learning environment and collaborative system for developing sense of belongingness and vibrant community,” “promotion of utilizing the resources of higher educational institutions as the center of
community,” and “enhancing home education through the quality community participation.” These actions targeted seven policy efforts underlining the importance of community for school education as well as lifelong-learning. This mission will be evaluated by the several measurements including increase the number of community school by 10%, and increase in the number of educational program provided by universities in collaboration with local enterprises and governments to name a few. It is also expected that all school districts establish a system with which school and community they would collaborate.

4.2.2 Supportive actions for implementing the four policy directions
In order for smooth implementation of the four policy directions, eight actions are prescribed. Three actions related to primary and secondary education are as follows:

1. Reformation of the administrations at school level as well as regional/municipal levels, which focuses on local ownership and creativity;
2. Arrangement for school system including reexamination of school size and staffing of teachers;
3. Strengthening social environment which encourage further collaborations among schools, local governments, universities, communities, and enterprises for creating vibrant communities and developing human resources that cope with in the future society.

4.3 Community schools
As the importance of community is highlighted in the policy directions, MEXT has been promoting to establish Community Schools (MEXT n.d.-b). In Community School, school administrations are supported by School Management Councils, which consists of parents and community representatives with the following authority and responsibility. The members of the School Management Councils are appointed by municipal and provincial boards of education. The School Management Councils are entitled to approve the basic school policies developed by the school principals including curriculum composition, and other decisions, made by the board of education; to provide inputs to school management including recruitment of teachers. Thus, this Community School system guarantees parents and other community members to participate in school management and to observe its
progress. As of 1st April 2013, 1570 schools are registered as Community Schools (MEXT 2013-b).

The Second Basic Plan for the Promotion of Education set the policies related to the promotion of further implementation of the 2008 New Courses of Study and nurturing “Zest for Living.” It may be peculiar that the emphasis on the communities’ roles is covered in entire missions in the Second Basic Plan.

5. Analysis of curricula in relation to integration of non-cognitive skills in education

5.1 Basic Information

The 2008 New Courses of Study underlines the need to balance between acquisition of knowledge/skills and development of creative thinking and ability to make decisions. In addition, healthy body and mind are to be fostered through the moral education and physical education. In consequence, annual lesson hours of Japanese language, social studies, math, science and physical education at primary schools increased by 10%. As a consequence, the number of lessons per week increased: 2 lessons for 1st and 2nd grade students; 1 lesson for the 3rd, 4th, 5th and 6th grade students. Similar changes were seen at the junior high schools; total lesson hours of Japanese, Social studies, Math, Science, English and Physical Education increased by 10%. One lesson was added to weekly lesson schedule. The figure 3 illustrates the changes of increased lesson hours and number of lessons.
Based on (MEXT 2010 p11), the authors created.

5.2 Curriculum changes

Main changes in the curriculum can be categorized into seven areas as follows (MEXT 2010 pp 13-20):

1) Verbal activities

In all subjects, promotion of verbal activities is targeted through various activities such as reporting and writing exercise, discussion and presentation. Since activities related to improve Japanese language proficiency are considered important in subjects, further analysis will be presented later.

2) Quality math and science lesson

The curriculum contents of math and science was reexamined and increased. Repetitive and experienced-based learning is considered important to acquire basic knowledge and skills.

3) Revisit of Japanese culture and tradition
Traditional and cultural topics are covered in subjects to promote better understanding about Japanese culture and tradition. For example, Japanese martial art (Budo) is covered in physical education for junior high school students.

4) Enrichment of moral education

According to the development of students’ development, a sense of self-reliance, respect for others, roles and responsibilities in a group and society is encouraged through various activities and lesson materials.

5) Extra curricula activities

It is encouraged for schools to increase opportunities to enrich students’ understanding about society and nature, such as camp, office visit and work experience.

6) English

At primary school, the 5th and 6th grade start learning English (35hrs/year). At junior high school, well-balanced acquisition of listening, speaking, reading and writing skills are targeted in lesson (140hrs/year). The number of words learned in junior high school increased from 900 to 1200. At high schools, English lesson is supposed to be conducted in English.

7) Daily life and social issues

Topics related to contemporary issues are highlighted such as education for sustainable development, disaster prevention, consumer education and dietary education.

8) Smooth transition from pre-school to primary school education

In order to provide smooth transition from pre-school to primary school education, teachers in kinder garden and primary schools started collaboration to share information and opinion exchanges.
5.3 Promotion of verbal activities

The 2008 New Courses of Study particularly emphasizes the enhancement of verbal activities. MEXT (n.d.-c p25) argues the three main motives: 1) importance of fostering skills responding to changes in knowledge-based and global society; 2) results of lower international and national test score (e.g. dropped Japan’s rank in reading comprehension of PISA, lower scores for word problem of national test; and 3) newly revised School Education Act (2006), focusing on acquiring knowledge and skills to cope with challenging issues and nurturing positive attitude toward learning.

In national language subject, Japanese, specific skills such as recording, summarizing, explaining, dissenting, and debating are expected to be developed together with enjoying the beauty of its language. Further, for developing lesson plans, activities to focus on Japanese language proficiency are to be expanded in each subject. Such activities are considered particularly important to foster decision-making, thinking, and expression skills. The CCE (2008) indicated several types of activities to foster decision-making, thinking, and expression skill such as:

1) To express feelings that students experience through writing, singing, painting, and performing art
2) To correctly understand and communicate facts through report writing and presentation
3) To explain and utilize concepts, laws and intentions by interpreting its meaning.
4) To analyze, assess and dissent information
5) To plan, implement, evaluate the assignment and to further improve through research and experiment.
6) To exchange opinion and expand individual and group ideas through discussion and debate (CCE, 2008, p54).

The announcement by MEXT’s Elementary and Secondary Education Bureau in April 2012 underlined that the verbal activities should be incorporated in line with the specific purposes of each subject, rather than focusing on verbal activity itself. MEXT provides the model lesson cases to promote its implementation through its website.
5.4 Framework of curriculum contents and objectives for promoting principles of “Zest for Living”

The framework of curriculum contents and objectives for nurturing “Zest for Living” are illustrated in Figure 4. In the framework, 12 skills and competencies as “Zest for Living” are categorized into three, namely, “independence and self-reliance,” “relationship with others in school and family,” and “relationship with the society for career and living in community.”

In each category, associated skills and competencies are listed as follows:

a) Independence and autonomy for individual life
   1) Self-understanding and self-responsibility
   2) Promotion of health
   3) Decision-making skill
   4) Life planning skill

b) Relationship with others in school and family
   5) Collaboration and responsibility
   6) Sensitivity/Expression
   7) Establishing good relationship with others

c) Relationship with the society for career and living in community
   8) Responsibility, rights and work
   9) Understanding of society, culture and natural environment
  10) Application of language and information
  11) Application of knowledge and technology
  12) Problem-identification and solving skill

These skills and competencies, components of “Zest for Living,” are associated with what students learn from academic subjects, understand through moral education, and experience through special activities and daily life both in and outside of school.

One of the three fundamental principles, “solid academic prowess” expects students to apply their academic knowledge and skills to “think, make decisions and express one’s ideas.” In the framework, these skills are specified as the following four abilities: (1)
express what are learned from experiences; (2) to obtain information and express properly; (3) to apply knowledge and skills into a daily life; (4) to draw up a plan, implement and evaluate the action for further improvement. For example, the first ability of “to express what are learned from experiences” is related to “sensibility expression” and “understanding of society, culture and natural environment”. The Figure 4 shows the relationship between the required skills and competencies of “Zest for Living” and abilities of “decision making, thinking and expression skills.”

Given this framework, teachers are expected to plan their lesson activities to promote relevant abilities particularly to improve decision-making, thinking, and expression skills. For example, when students learn the concepts of “supply”, “demand”, and “price” in a social study class, as they are expected to be able to apply acquired knowledge and skills into a daily life situation and present their thoughts, they would be able to compare the current prices of vegetables with those of the previous seasons. In order to analyze the differences between them and consider reasons, they would research weather conditions during the periods, then conclude the reason, “long rain has caused a steep rise of vegetable prices.” Draft framework of curriculum content and objectives are illustrated in Figure 4.
5.5 Surveys for education experts and policy makers

5.5.1 Background

The authors redesigned a survey questionnaire for policy makers and experts based on the draft survey questionnaire proposed by UNESCO ERI-Net. A total of twelve responses were collected from education experts and policy makers. In addition, interviews were conducted with twenty-one people to reflect voices of those who are closely related this subject. The modified questionnaire consists of research questions proposed by ERI-Net concept paper: policy review; curriculum framework; and achievements and challenges. Further, additional questions are incorporated such as “role of teachers,” “changes in pedagogy,” “clarity of description of non-cognitive aspects in the 2008 New Courses of Study,” “changes in students’ attitude,” “desirable support from the government to
teachers.” It also included open-ended questions such as “expectations of the 2008 New Courses of study,” “suggestions for pedagogy to promote Japanese language proficiency,” “cases of ICT use in classroom,” and “opinions on superior and characteristic points of Japanese pedagogy” (Appendix 1 and 2).

5.5.2 Preliminary findings from the surveys for experts and policy makers

1) Societal changes are considered as a main factor to shift towards integration of non-cognitive skills into education policy

As the rationale behind the government policy shift towards integration of non-cognitive skills, “meeting societal changes” was the reason selected the most, followed by “increased international competition”, “low interpersonal skills due to diluted relationship with others” and “decreased children’s motivation and independence”

2) Respondents identify intrapersonal skills, abilities to communicate and collaborate as important skills in the 2008 New Courses of Study

Regarding skills and competencies considered as important in the 2008 New Courses of study, “reflective thinking,” “problem-solving,” and “communication” were mostly chosen followed by “collaboration,” and “self-motivation” (Box 1).

It is notable that “entrepreneurship,” “leadership,” “awareness and respect for diversity,” and “intercultural understanding” were not selected, though the word of “globalization” is often mentioned in policy documents.
3) Increases in verbal activities and group exercise are noticeable under the 2008 New Courses of Study

Besides increase in topics covered in curriculums, and lesson hours, together with textbook revisions, the experts consider that activities to enhance language proficiency and group exercises are increased under the 2008 New Courses of Study. Some experts pointed out focusing on language proficiency also influenced the pedagogy. It is more evident in primary schools as the 2008 New Courses of Study has been implemented over two years.

4) Insufficient teacher training opportunity is a bottleneck for smooth implementation of the 2008 New Courses of Study

Most respondents indicated that teachers do not have sufficient in-service training opportunities to fully apply the 2008 New Courses of Study. Schools and teachers are making effort to conduct lessons in line with the 2008 Courses of Study; however busy schedule preparing and implementing new curriculum hampers teachers to attend trainings. It is also suggested that “insufficient lesson hours” may be caused by the fact that teachers have not developed enough capacity to design lesson plans to fit into designate hours. Most respondents indicate the necessity to provide more assistance for in-service teacher training. Also, support for “providing more teaching and learning materials” as

**Box 1: Skills and Competencies Considered Important (selected by experts/policy makers)**

- **Group 1:** The most selected: Reflective thinking, Problem-solving, Communication
- **Group 2:** 2nd most selected: Collaboration, Self-motivation
- **Group 3:** 3rd most selected: Resourcefulness, Application skills
- **Group 4:** 4th most selected: Creativity, Reasoned decision-making, Tolerance, Civic/political Participation
- **Group 5:** 5th most selected: Presentation skills, Organization skills, Media/information literacy, Career planning, Planning, Self-discipline, Compassion, Commitment, Ability to resolve conflicts, Respect for environment, Working with others
well as financial assistance is considered necessary to implement the 2008 New Courses of Study.

5) More research and evidence on 21st century skills and pedagogy are required
Regarding the areas that require more research and evidence to strengthen the policies related to integration of non-cognitive skills in education, “21st century skills” and “pedagogy” are identified followed by “student evaluation” and “curriculum evaluation.”

6) Importance to reconsider entrance examination system for implementation of the policies related to non-cognitive skill development
According to the interviews and questionnaire survey, importance to reconsider entrance examination system for implementation of the policies related to non-cognitive skill development. In the society, the entrance examination results are still considered as the most important achievements of students. Entrance examination system, which normally focuses on students’ academic achievements, affects the way of students’ learning style as well as teaching style especially in the secondary schools. Thus, it would be required to design the entrance examination reform from a viewpoint of nurturing non-cognitive skills if the Government wishes to strengthen its policy.

7) Respondents’ opinions vary in terms of clarity of the learning objectives related to non-cognitive skills in the 2008 New Courses of Study
Survey found no consolidated opinion whether the learning objectives related to non-cognitive skills are clearly defined in the 2008 New Courses of Study. Half of the respondents somewhat agreed the clarity of the descriptions: the others have various opinions.

8) “Self-reliance” and “Collaboration with others” are considered key messages of the 2008 New Courses of Study
Experts show various expectations to the 2011 new courses of study; however, some commonalities are found with the words such as “independent-minded person” “independent-minded learning style,” and “collaboration and living together.”
5.6 Survey for Teachers

5.6.1 Background

The authors conducted a survey (Appendix 3) of teachers of Otemachi Primary School, Joetsu-shi, Niigata prefecture and Ugo Junior High School, Yuzawa-shi, Akita prefecture. A total of fourteen responses were collected from Otemachi Primary School and nineteen were collected from Ugo Junior High School. In addition, interviews were conducted with the school principle, vice principle, and the head teacher of Otemachi School to supplement the survey results.

As a MEXT pilot school, Otemachi Primary School has the freedom to implement its own unique curriculum. Its curriculum aims at nurturing skills and competencies defined by the school. Therefore, the respondents from Otemachi Primary School answered based on their experiences at the pilot school. Detailed information of Otemachi Primary School’s philosophy and curriculum are covered in the next chapter.

Ugo Junior High School is located in the southern part of Akita prefecture. Akita is one of the prefectures in the Tohoku region (northeast Japan), which has received nation-wide attention on its educational approach due to its high academic performances on the national achievement examination for six consecutive years. The national achievement examination measures students’ academic knowledge (Question type A) and abilities of problem solving with applying knowledge to real life settings (Question type B) in mathematics and Japanese. According to an analysis report, students from Akita prefecture performed best in Question type A as well as Question type B in 2009. It was also revealed that most primary and lower secondary schools in Akita performed better than the average of schools in any other prefectures. Thus, the academic performance gap among schools in Akita was the smallest (Tanaka, 2011). Tanaka (2011) mentions five factors for the Akita students’ brilliant results as follows: 1) student’s good learning attitude; 2) learning with a focus on exchanging opinions; 3) accustomed home learning; 4) strong cooperation between school, households, and community; and 5) good teacher education system and the contents.
As the two surveyed schools have quite unique educational practices, and the number of responses (N=33) is relatively small, the result cannot be interpreted as the general tendency of Japanese schools. However, the analysis can illustrate teachers’ views and intention on their innovative efforts in relation to the implementation of the 2008 New Courses of Study.

5.6.2 Findings from the survey

1) *Changes of the society as well as low students’ motivation are considered as main factor towards integration of non-cognitive skills into education policy*

As the rationale behind the government policy shift towards integration of non-cognitive skills, “meeting societal changes” was selected the most, followed by “decreased level of children’s self-reliance and motivation” and “low interpersonal skills due to diluted relationship with others.” It is clear that teachers feel that skill oriented approaches to education is vital as they see the students losing communication skills in daily life.

2) *School teachers identify “problem solving” and “creativity” as defined important skills for children’s development*

Regarding skills and competencies considered as important for children's development, “problem solving” and “creativity” were chosen by two schoolteachers. “Resourcefulness,” and “self-discipline” were also selected as important skills. Experts and policy makers considered “communication,” “collaboration,” and “self-motivation” as important skills under the 2008 New Courses of Study. Thus, it was found that the two schoolteachers focus more on enhancing practical skills compared to those experts and policy makers underlined in the 2008 New Courses of Study.

3) *School curriculum include non-cognitive skills into the learning objectives*

28 teachers answered that their school curriculum specifically identifies the learning objectives related to nurturing non-cognitive skills. The on-site interviews at Otemachi School found that the school develops detailed curriculum for each subject and grade, aiming at developing relevant competencies. Some comments on what they expect for the 2008 New Courses of Study include: “enhancement of students’ problem-solving skills for improving comprehensive academic ability,” “confirmation of students’ future contribution...”
to the society,” and “communication skills with one’s own thought.” It indicates that the teachers expect students to be equipped with non-cognitive skills through learning activities defined under the 2008 New Courses of Study.

4) Teachers recognize that their teaching style has changed to nurture skills and competencies, paying more attention to students’ self-reliance and unique ideas

26 teachers answered that their teaching style has changed to nurture skills and competencies of their students. Also, they have come to pay more attention to students’ self-reliance and ideas, by introducing more verbal activities and interactive communication with students. Teachers who consider their roles changed after implementation of the new curriculum indicated that they coordinate the class activities through linking the ideas and expressions of their students to real life experiences. Also, teachers intend to inform students of the meaning of learning objectives in relation to potential future career of the students.

5) Most teachers recognize positive changes among their students after introducing their unique curriculum

Both school teachers consider that the number of students who have come to acquire interpersonal skills such as “express their ideas” “presentation” and “discussion and debate with classmates.” Interestingly, in terms of critical thinking and creativity, Otemachi schoolteachers consider that the number of students with critical thinking ability and skills to analyze information has increased. On the other hand, teachers of Ugo Junior High School have not seen much changes among their students’ critical thinking and creativity, indicating that it takes time to develop such skills among students.

6) Most teachers build their capacity at school-based training

Most teachers answered that they increased their capacities through “lesson study at school,” “opinion exchanges among fellow-teachers,” and “lesson observation of other schools.” Since Otemachi schoolteachers collaborate with Joetsu University of Education for its curriculum design, “training by the experts from collaborated university” was also a popular response. Several teachers at Otemachi School have been enrolled in the degree program at the graduate school of Joetsu University of Education by using a mid-career
study program. They have an advantage of the locality being in the community with the education college. On the other hand, Ugo schoolteachers answered “training organized by city” and “training organized by prefecture” as their professional development scheme. It seems that more teachers of Ugo School participate in the in-service training provided by local governments.

7) **Teachers expect more official financial assistance, support for teacher training and provisions of guidelines and teaching materials**

It was identified that both schoolteachers expect more financial assistance, support for teacher training as well as provisions of guidelines and teaching materials. In the case of Otemachi School, a MEXT pilot school, it is being allocated a special budget for teachers to visit other schools for their training purpose; however, it may not be sufficient to continuously study and improve their teaching and curriculum.

8) **Both schools have strong ties with parents and community for their curriculum implementation**

Otemachi School collaborates with its neighboring community and parents for their curriculum implementation. Its curriculum contents are closely related to community events, local environment, community’s history, and current issues. Therefore, neighbors, school graduates, and parents actively participate in school activities. Further, student evaluation is tri-partite evaluation, including students’ self-evaluation, inputs from the parents and teachers’ evaluation. Ugo School teachers also answered that they have strong partnership with local community, including career workshop for the students, involving various institutions and industries available in locality.

9) **Otemachi school teachers re-categorize subject topics into their own curriculum with trial and error approach**

Some teachers argue that it is difficult to link classroom activity of every subject together. Since the curriculum of the Otemachi School was re-designed as seven types of competencies, namely 1) ability to investigate; 2) ability to utilize information effectively; 3) communication skills; 4) creativity; 5) self-discipline, 6) living together; and 7) reflective thinking, it needs careful consideration to design and develop the curriculums. In that context, teachers always reflect on what took place in the classroom activities and share
such experiences among teachers to improve the curriculum. Teachers consider that informal discussion and after-school workshop play an important role for the teachers to try new approaches and review with multiple perspectives.

10) Teachers are motivated to provide lesson to nurture non-cognitive skills for the sake of students’ development

Survey responses illustrate that teachers feel high level of satisfaction to contribute to the human resource development for the next generation. They strongly feel that children in the future need to be catered with non-cognitive skills to survive and contribute to the problems that society might face. At the same time, some indicate that their professional skills have improved through providing lessons to develop non-cognitive skills of students. This is indicated by the comment such as “I am now able to see my students with wider perspectives.”

6. Current discussion about 21st Century skills and competencies in Japan

National Institute for Educational Research (NIER) proposes a preliminary idea of 21st century skills and competencies in Japanese context with the five-year research project. NIER is to propose the basic principles of curriculum composition, which links competencies required in the future and knowledge and skills through a cross-subject approach. The research aims to identify the societal changes under globalization, educational reforms and curriculum compositions in other countries, analyze the cases of pilot schools for MEXT’s research on nurturing competencies.

The study also refers to educational practices and researches in other countries. According to the study (NIER 2013 pp45-57; Katsuno 2013), education reforms in the studied countries have been influenced by the two streams: OECD’s “key competencies” (Rychen & Salganik 2003, cited in Katsuno 2013) and “21st century skills” (Griffin, McGaw & Care 2012, cited in Katsuno 2013). In the concept of OECD’s “key competencies,” global society is considered as a society of lifelong learning and preparation for lifelong learning is emphasized. The study (Katsuno 2013) discusses that the concept of “21st century skills” illustrates a society in which people collaboratively solve issues through digital networks and shows the required skills including digital literacy. In the both concepts,
“competencies” are considered as skills that learners integrate what they learn in schools and what they receive from external resources such as information and knowledge through their experiences, discussion with others, to name a few. Through such integration, learners are expected to solve issues in a creative manner. Further, the study shows three tiers from the researched countries’ educational competency-based goals: 1) “basic literacy, such as literacy, numeracy, and ICT literacy, which allows learners to participate in the real world”; 2) “higher-order cognitive skills including innovation, problem solving, and learning to learn”; and 3) “Societal skills such as communication, collaboration, and self-directed learning” (Katusno, 2013).

The study (NIER 2013) also suggests findings from the analysis of the pilot schools for MEXT’s research on nurturing competencies. In the pilot schools, various skills and competencies are identified to response to societal changes and educational issues; thus, lessons are conducted to nurture them. To utilize these research practices for future curriculum composition, it is necessary to conceptualize the key skills and competencies differentiating cross-curricular skills and subject specific skills. In addition, it was emphasized that integrating curriculum of “academic prowess” (decision making, thinking, and expression skills) with “well-rounded character (morality, citizenship) is essential. The case of primary school having citizenship education was a good example to apply the academic knowledge and skills to become a better individual of the community. In this curriculum, students are encouraged to work in team through discussing, exchanging opinions, encountering various opinions among classmates which nurtures thinking skills and citizenship awareness (NIER 2012 p78; Katsuno 2013).

Further, the study proposes “Japanese version of the key competencies as ‘21st century competency’ (NIER 2013 p83; Katsuno 2013), illustrated as Figure 5. This “21st century competency” consists of “basic literacy as thinking tools” as the first layer, “collaborative thinking and problem solving ability” as the second layer and “practical ability to act for the world” as the third layer. “Basic literacy” includes language proficiency, mathematic skill and ICT literacy that are required for fundamentals in the knowledge-based society. This “basic literacy” is the basis of “collaborative thinking and problem solving ability,” which also includes creativity, logical and critical thinking as well as metacognition to reflect own
learning and problem solving. The third layer of “collaborative thinking and problem solving ability” also includes skills for such as developing personal relationship, social and community participation. These skills orient how to utilize “practical ability” for taking actions in a real life situation, therefore, such skills are most externally located. As the figure shows, the all circles overlap. That is, every lesson is planned and conducted considering key competencies of the “21st century competency” (NIER, 2013, pp26-29)

Figure 5: Japanese version of 21st Century Competency

(Source: NIER 2012 p83; Katsuno 2013)

The study indicates the 2008 New Courses of Study clearly specifies the targeted skills and competencies in each subject; however, an overview and relationships among each skill and competency are still unclear (NIER 2013 p86). It also points out that the targeted skills and competencies are not presented as key skills and competencies to be nurtured in every subject. This study aims to change the viewpoint of education from “what students know about the world” to “what students can do for the world” through identifying common key skills targeted in all subjects. It is also expected to improve the education contents, teaching methods and evaluation (NIER, 2012, p30).
The study concludes the importance of designing institutional and holistic arrangements that provide curriculum and lesson design for nurturing key skills and competencies (NIER, 2013, pp31-36). The following three issues are identified as follows:

1. **Curriculum design in line with development state of the students**

There is a debate on whether or not the goals of acquired key skills and competencies should be identified according to the developmental stage of the students. The curriculum contents are significantly affected which stance of the curriculum design principle would be based on: whether the goals of acquired key skills and competencies need to be arranged based on the developmental stage of students or not. The 2008 New Courses of Study defines the curriculum contents based on developmental stage of children. If the future curriculum-design principle maintains the same as that of the 2008 New Courses of Study, key skills and competencies are expected to follows each stage of development acquired by each developmental stage. If we take a stance that every child possesses the key skills and competencies but they have not brought out as important educational goals, they need to be repeatedly nurtured no matter which grade students belong to.

2. **Curriculum design principle reflecting subject contents**

Curriculum design principle could be influenced how much peculiarity of each subject affects nurturing key skills and competencies. For example, repetitive learning can be the basis for development. Acquiring basic arithmetic skills and language proficiency could apply to other subjects such as science and social studies as well as “collaborative thinking and problem solving.” On the other hand, if teachers do not effectively show students why such repetitive learning is meaningful, they just go over exercise in a workbook. Therefore, it is highly important that teachers give students a clear picture how these basic academic skills enable them to contribute to solving issues or creating new ideas. Such efforts make it possible to nurture key skills and competencies. Thus, further study is necessary to find mechanisms and conditions that give successful learning outcomes of Japanese version of 21st century competency.

3. **Student evaluation**
It is considered that diverse assessment system is necessary for effective student evaluation in relation to 21st century skill acquisition. Not only using examination score indicating academic performance, using feedback and rubric (evaluation standard) are considered highly effective. Skills and competencies required for the 21st century are skills that bring creative, collaborative and progressive process in which learners understand each other and find a new goal through solving issues. Therefore, new evaluation method require to the development process of the individual skills. It is suggested that ICT is a potential tool to utilization are necessary to create such evaluation system.

4. Teacher training

Teachers need to be equipped with skills on experience learning activities before implementing in classroom. Experts in organizing teacher training at teachers colleges and universities also have to know well about the key skills and competencies. Teachers are also expected to have deep understanding about evaluation method and evaluation principles. In order to build capacity of teachers, it is urgent to establish institutional arrangements among schools, universities, education boards to enable them to acquire necessary knowledge and skills.

7. Case Study- Otemachi primary school, Joetsu city, Niigata

7.1 Background

This section introduces a pilot primary school that applies the concept of “Zest for Living” into practice. The term “pilot school” refers to schools that are designated by MEXT to unique special experimental courses. Unlike other Japanese schools that use standard curriculum based on the Courses of Study, those pilot schools develop their own curricula, examine its effectiveness, and further improve useful curricula which may be. Currently there are 96 pilot schools in the country, applied at receive research funds from MEXT.

Otemachi primary school is located, far from prefectural capital of Niigata, suffering from winter weather. People in this area traditionally are known as being enthusiastic about education since the 12th century. Otemachi primary school, was known as a “shudokan” in Edo period and is celebrating its 140th anniversary this year. This school has been
researching “integrated study” for nearly 30 years. It focuses on developing students' own talents without over-emphasizing academic knowledge acquisition. This is the philosophy of Otemachi primary school since it was first assigned as a pilot school in 1976.

7.2 Curriculum in Otemachi Primary School

Otemachi school developed and practiced educational courses that improve children's sense of humanity during 2006-2010. The courses (Otemachi Primary School 2013-a) emphasized activities on problem solving through communication with others, intrapersonal thinking with sense of empathy. According to the school principal, after experiencing 2011 Great East Japan Earthquake, it has become more and more important further to shift from cramming knowledge to nurturing non-cognitive skills. In the whole society, and further improvement of their curricula has become more urgent for the school.

Given this background, the school set two main objectives for all the children. One is self-reliance which focuses on the ability to think and make decisions independently, and the other is “living together,” which emphasizes respecting and getting along with others. Otemachi primary school set six core skills that are considered particularly important for children, namely, 1) ability to investigate, 2) ability to utilize information effectively, 3) communication skills, 4) creativity, 5) self-discipline, and 6) living together and places “intrapersonal thinking” as the base for these six core skills. Based on these six core skills/abilities the school developed six main categories of curriculum – “Life/General Education”, “Math and Science”, “Languages”, “Creative and Communication”, “Health Education”, and “Human Relationships” –Further “Learning Time” (Otemachi Primary School 2013-a).

1) Life/General Education

The focus of this category is to develop students' ability to investigate through identifying their own interests. This category allows students to be involved in activities that investigate any phenomena surrounding their lives. Through individual and group activities, students find their own motivation, proactivity, curiosity, intellectual and commitment, and understand the main causes of social phenomena taking place around them. This category is composed of regular school subjects such as "life and integrated
sing “general education”, “Japanese”, “social studies”, “science”, and “home economics”. This course emphasizes experiences and language learning, thus increase children’s ability to investigate.

2) Math and Science

This category consists of the regular subjects of “math” and “science” but aims to improve children’s abilities to apply available information effectively. Through this learning process, students are expected to improve problem-solving abilities. This category makes use of quantitative science, geometrics, and natural science to help children solve diverse problems. Students learn to organize their ideas in response to questions, and learn to think logically, critically, and analyze information, thus, nurturing the ability to achieve the goal to make effective use of information and by organizing their thinking.

3) Languages

This category includes topics covered by regular subjects of “Japanese” and “foreign languages.” It enables children to use various types of expressions and vocabularies to response to people to illustrate phenomenon and the environments, thus enhancing their communication skills. This category employs diverse activities to help students enjoy the languages and increase their abilities to listen and respond to others, and connect themselves with people and the environment around them. Speaking, listening, writing, and discussion are mutually considered important to develop effective communication skills.

4) Creativity and Expressions

This category focuses on activities that help children create different ways of expressing their feelings and ideas. It employs creative activities using sound, objects, and body languages among others. The lessons will use music, craftwork, drawing, calligraphy, and body languages to express own ideas and thus, help students create new product every time they are engaged in work. This category takes an essence of music, arts, physical education, and Japanese classes, aiming at nurturing individual.
5) **Health Education**

This is a new category added in 2013. It aims at improving their self-discipline through exercises and reflecting their daily actives. In this category, students will learn how to develop physical strength, understand others, and thus acquire attitude to develop healthy life style.

6) **Human Relationships**

This category enables students to understand the importance of “living together” and getting along with others. Students learn from each other by understanding the individual and by appreciating friendship, thus develop attitude of cooperating with others to form a better relationship and cooperate with others. This category includes topics covered by moral education and special activities. Otemachi primary school, to help students form a better attitude towards “living together,” organizes interactive activities by integrating different grades and ages of children. The activities are combined with verbal activities, in order to reflect their experience by communicating to others. The school has also designed learning cycles that place language activities before and after those interactive activities to help students develop communication skills.

In addition to above six main categories, the school has set a “Time to Learn Session” During the “Time to Learn Session,” students are asked to review what they have experienced and learned to deepen their understandings. Students are engaged in “Time to learn Session” every day before leaving school. Students in lower grades are asked to write a diary in their notes, while those in higher grades write by gradually accumulating notes and records of what they have learned. Moreover, higher graders are asked to review the notes every month to reflect what they have learned/acquired in the past.

In Otemachi Primary School, teachers keep records of students’ leaning progress to design the forthcoming curriculum. From this fiscal year, in addition to students’ self-evaluation of their own work, parents also evaluate students’ progress for each child, so that a clearer set of goals and outputs can be set. The evaluation system is not fixed yet and is being reviewed and revised regularly. In developing the new courses, Otemachi primary school
regularly consults with parents group and community representatives. By doing so, the community is involved in different activities and able to understand and support children’s education.

This system enables students’ experiential learning activities expand and richer in contents; since the community is more aware of the school activities, they are willing to provide more support for teachers to practice this new courses. Otemachi primary school also creates environment that children are encouraged to express opinions and share their learning experiences through the school’s website. Comments and advices for the open lessons are always welcome. This system not only enables teachers to communicate openly, but also help the school to monitor the teaching activities and share innovative activities.

Developing non-cognitive skills is considered challenging. Teachers in Otemachi primary school are given high flexibility to design their own lesson, and are constantly encouraged to attend external training to learn other interesting teaching methods. This system reflects the school principal’s policy of “keep doing what you think is interesting,” and teachers' proactive attitudes toward lesson designs are also encouraged affecting children in a positive way.

Students in Otemachi primary school are known to express their opinions without hesitation, and further, they are free to discuss and argue with different opinion. It seems that diverse verbal activities in different fields enable them to listen and understand different views and ideas. However, such skills are difficult for lower graders to acquire, and thus, the support programs are prepared. For example, students are not divided into classrooms immediately after they enter the school. Instead all students are required to study together for a month. During that month, teachers observe students’ behavior and assign classrooms according to their level of preparedness. The school also consults with kindergartens and day-care centers to understand every student’s personality and background to prepare individual assignment.

The field-visit and on-site interviews identified some issues. The most notable problem is that different primary schools are developing innovative programs; however, unfortunately, such efforts may not continue while children are moved to next level of
schooling when more academic exams are focus of learning to prepare for entrance examination.

7.3 Evaluation of skills and competencies

During the interviews with the school principal and the vice principal, it was repeatedly mentioned the necessity and the difficulty of evaluating skills and abilities of the students with quantifiable measurement. Otemachi primary school has uniquely prepared questionnaires by skills and competencies and has conducted questionnaire surveys for all students (300 pupils in May, 2015) and their parents since 2012. Also, based on the results of the surveys, teachers assess students' progress in the six types of skills and competencies in the combination of the six fields. A three-level scale is applied for evaluation: 1) performance fully meets expectations, 2) performance mostly/partially meets expectations, and 3) needs improvement (Otemachi Primary School 2013-b). In 2013, in addition to existing six types of skills and competencies, the school has introduced "introspection" as the basis of the six types of skills and competencies. With the six types of skills and competencies and newly added "introspection," Otemachi primary school conducted questionnaire surveys for students and teachers in July 2013. (Otemachi Primary School 2013-c)

The results of students' survey (Otemachi Primary School 2013-d) indicate that they are highly confident in their performance in "behavior for living together", represented by questions such as "Working collaboratively with friends (98%" and "Caring family members and friends (94%)". The result from Parents confirms this. Parents also acknowledge their children's progress in creativity, through the question items such as "Utilizing own idea in activities ", which goes with the result in 2012.

The results about communication ability (Otemachi Primary School 2013-d) need careful analysis. In response to the question: "Communicating in a way that one's intention can be clearly understood," the net positive response rate of the student is 85 per cent, while the rate tends to decrease in higher grades: 79 per cent in fifth grade and 66 per cent in six grade. At the same time, 52 per cent of the parents gave a positive response, which marks the lowest number among the fifteen questions. Teachers analyze that the school has a long
history of developing students’ communication ability and the expectation of the parents has become higher year by year.

The question to assess introspection, “reflecting own thoughts and behaviors and passing on the benefits of this to daily life”, is given to third graders and above. Parents and students seem to maintain a relatively cautious stance towards the development of introspection--- even though 49 per cent of the parents and 89 per cent of the students positively responded, this is a comparatively lower result. Simultaneously, students’ responses to the question tend to be lower as their grade becomes higher. However, the school favorably receives this result, thinking this reflects the fact that students have gradually developed a skill for objective self-evaluation.

Otemachi Primary School also conducted a questionnaire survey for teachers in 2013, which includes such a question as “How do you evaluate the changes in your students after the new courses of study?” The results (Otemachi Primary School 2013-d) show that teachers value the development of students positively. For instance, teachers acknowledge improvement on communication ability of students, indicating that students have learned to express what they felt and thought. Also, teachers are satisfied with students’ progress in introspection, with responses such as “the number of students motivated to study is increased” or “the number of students respecting diversity is increased”. Moreover, 10 teachers out of 13 observe as students have developed information utilization, while parents and students did not positively response the same question in 2012.

The evaluation of skills and competencies entails certain difficulties, so that objectivity should be given heed to its evaluation system. As a response, Otemachi primary school includes not only teachers but also parents and students into its evaluation system to attain objectivity. However, this evaluation system is still in a developmental stage, aiming at more trustworthy evaluation system for all.

8. Achievement, challenges and recommendations

The 2008 New Courses of Study and the Second Basic Plan for the Promotion of Education highly place the principles of “Zest for Living.” Rapid social changes, increased international
competition, students’ low interpersonal skills, and decreased students’ motivation and independence are considered as main reasons behind education promoting non-cognitive skills.

The most important changes in the 2008 New Courses of Study is that promoting verbal activity is considered as the basis for students to develop their ability to think, to make decisions and expressing one’s ideas. Further, schools are required to create partnership with local community, local enterprises, and various educational institutions such as libraries and museums. Such institutions are also expected to provide students more experienced-based learning opportunities for not only building solid academic prowess but also nurturing well-rounded characters by active interaction with people outside of the schools.

Compared to the 1998 Courses of Study, the 2008 New Courses of Study introduces the 10% increase of lesson hours and contents annually. The survey results of experts and government officials revealed that teachers do not have sufficient time to work on lesson study nor participating in in-service training, despite the fact that their teaching practices are expected to pay more attention to verbal activities in each subject mentioned above.

In order to further promote key skills and competencies, NIER has been conducting a research to propose the basic principles of curriculum composition that links competencies required in the future and knowledge and skills through a cross-subject approach. NIER also suggests a preliminary idea of the 21st century skills and competencies in Japanese context. The framework refers to “key competencies” of OECD and “21st century skills” of ACT21s, but further incorporates specific conditions and educational context of Japan, described in section 7.

The case of Otemachi Primary School, a MEXT pilot school in Niigata, illustrates curriculum implementation, particularly focusing on nurturing non-cognitive skills through collaboration with community and local institutions. The survey conducted at Otemachi School indicates that the teachers try to identify individual creativity and key skills and competencies, and find ways to develop unique characteristics to educate children while teaching academic subjects. Fortunately, as the size of the classroom is relatively small
compared to the schools in urban areas, such intensive attention to individual student becomes possible. Similar curriculum may encounter different problems in urban schools where the number of students is close to 40 per class. However, the lessons learned from their practices can serve as a useful reference for future curriculum design integrating non-cognitive skills development.

The bottlenecks and challenges for further implementation of education policies related to nurturing non-cognitive skills are suggested by education experts and government officials. This section also refers to potential areas of intervention further to promote non-cognitive development among children in Japanese context.

1) Difficulty in measuring non-cognitive skills

It is important to identify key skills and competencies expected to be developed within the curriculum in order to properly assess students’ performance and progress. Otemachi Primary School started its own unique evaluation system for students, parents, and teachers. Academic performance report is developed, incorporating tri-partite assessment on skills and competencies of each student. This has become possible after long years of experiences and practices as well as cooperation with the community members. Identifying required skills and competencies and its measurement criteria is a challenge for the schools to establish. Both survey result and interviews revealed the urgent need for further research on non-cognitive skills as well as measurement criteria setting and its methodologies of development.

2) Need for carefully analyzing entrance examination system

During the interviews, most interviewees agreed with the importance of carefully reconsidering entrance examination system if Japanese education system is to further implement the policies related to non-cognitive skill development. Some prefectures already changed the contents of upper secondary school entrance examination by including more applied questions and word problems for each subject. These changes are considered the cause of success for the students to be able to answer questions with critical thinking and problem-solving attitude.
3) Need for supporting teachers' skill development

Teachers are engaged in various activities, not only planning and giving lessons but also dealing with daily administrative work and supervising extra-curricular activities. In addition, the 2008 New Courses of Study increased lesson hours and curriculum contents, promoting verbal activities in every subject. Interviews with education experts revealed that teachers have tendency to incorporate verbal activities into lessons, but the activity is not well-linked to the lesson objective and activity itself become a goal of the lesson. Survey results also emphasizes on more assistance for teacher training in this particular area. Thus, it is highly expected for the government to provide practical assistance to teachers for effective implementation of the 2008 New Courses of Study.

4) Need for awareness raising of stakeholders to support education policies integrating non-cognitive skills

Interviews with education experts in this area laid out the argument that the principles of “Zest for Living” is not well understood and shared among stakeholders, especially parents. Although parents are aware of the increase in lesson hours and curriculum contents, in most cases, the rationale behind such changes based on the 2008 New Courses of Study is not clearly informed. Experts of private research institution urge more involvement of the parents to better understand the movement towards nurturing skills and competencies needed for 21st century. As the Second Basic Plan for the Promotion of Education apparently emphasizes revitalized community's role in educating children as a whole, the concept of “Zest for Living” ought to be well shared and understood among citizens.

9. Conclusions

This paper aimed to review the policies related non-cognitive skills in the education system Japan. In the history of Japanese education policies, the concept of “Zest for Living” (1998) and its development were introduced in line with the Basic Plan for Promoting Education. Given the background that Japan is facing rapid social changes in knowledge-based society, urgent needs for young generation to cope with ever changing environment is vital. Second Basic Plan for Promoting Education (2013) emphasizes the importance of creative, self-
reliant citizens to lead the society. With the concept of "Zest for Living" promoting balance between academic knowledge, morals, and physical and mental health, the 2008 New Courses of Study was developed and has started to be implemented since 2011. The 2008 New Courses of Study particularly emphasizes the importance of verbal activates integrated into every subject, and thus, nurturing skills of thinking critically, making decisions based on information available, and presenting own ideas.

In addition to documents analysis, surveys and interviews were conducted for education experts and government officials who are engaged in developing guidelines for the 2008 New Courses of Study, and research on integrating non-cognitive skills into school curriculums. Further, innovative curriculum focusing on developing important six skills and competencies, and thus reorganizing curriculum into seven fields at the MEXT pilot school was introduced. While such innovative curriculum are established and implemented with high level of community involvement, difficulty of measuring progress of acquiring such skills and competencies was identified at both research institutional level and school level. Additional challenges and potential areas of intervention include need to carefully examine current entrance examination system, need to provide more support for teacher training in line with the 2008 New Courses of Study, promoting more awareness among stakeholders including parents and community members.

This study also presents framework of skills and competencies required for children to be acquired to live in 21st century. Although discussion is still continuing and more specific implementation plans need to be developed, this marks new phase of Japanese education policies to further emphasize non-cognitive skills to be incorporating into school curriculum and community activities.
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http://www.mext.go.jp/component/a_menu/education/micro_detail/__icsFiles/afieldfile/ 
2014/02/17/1344297_012.pdf (In Japanese)
Annexes

Annex 1: Questionnaire for Education Experts

日本の新学習指導要領「生きる力」と21世紀型スキルに関する調査

質問票

【教育専門家用】

このアンケート調査は、日本の学習指導要領において、「非認知的スキル(non-cognitive skills)」、「汎用性スキル」、「横断的スキル（transversal skills）」または「21世紀型スキル」1と呼ばれている能力の要素がどのように取り入れられ、実践されているかを調査分析し、公表することで今後のアジア地域における教育施策の策定に役立てることを目的としています。データ処理においては、個人が特定できないようにいたしますので、安心してご回答ください。ご多忙の折、誠に恐縮ですがご協力のほど何卒よろしくお願いいたします。

1:現在時点においての上記のスキルに関する定義はまだ確定していませんが、本調査においては、（1）批判的・創造的思考力、（2）対人能力(コミュニケーション力、協調性など)、（3）内省的思考能力(自制心、自発性など)（4）責任ある市民としての考え方(異文化理解、多様性の尊重など、環境保全の理解など)(5)心身の健康を増

I. 回答者の基本情報
   1. お名前                  
   2. ご所属機関・役職

II. 教育政策一般について
   1. 新学習指導要領が「言語活動」のようにわゆる「21世紀型スキル」の要素が取り入れられた理由として以下のどの項目が考えられると思いますか。該当するものを囲ってください。（複数回答可）
      ア）国際競争力の激化
      イ）社会の変化に対応するため
ウ）経済成長のため

エ）人間関係の希薄化による対人能力の低下

オ）子どもの主体性・意欲の低下

カ）子どもの体力低下

キ）生徒の学習到達度の低下

ク）学力偏重に偏らないための方策として

ケ）産業界の求める人材ニーズに合わせるため

コ）その他(自由回答)

2．新学習指導要領では以下のどのスキルまたは能力に重点がおかれてていると考えられますか。該当するものを囲ってください。（複数回答可）

・創造性(creativity) ・起業家精神(entrepreneurship)

・状況に応じて対応する能力(resourcefulness) ・応用力(application skills)

・反省的思考(reflective thinking) ・決断力(reasoned decision-making)

・問題解決能力(problem-solving) ・プレゼンテーションスキル(presentation skills)

・コミュニケーション力(communication) ・リーダーシップ(leadership)

・組織力(organization skills) ・協調性(collaboration)

・自発性(self-motivation) ・メディア/情報リテラシー(media/information literacy)

・キャリアプランニング(career planning) ・計画性（planning）

・自制心(self-discipline) ・熱意(enthusiasm) ・根気強さ(perseverance) ・思いやり(compassion) ・誠実さ(integrity)

・責任感(commitment) ・多様性の尊重(awareness and respect for diversity)

・独断的でないものの見方(tolerance) ・異なる文化/価値観/経験などへの寛容さ(openness)

・異文化理解(intercultural understanding) ・意見の衝突などを解決する力(ability to resolve conflicts)
III. 新学習指導要領について

1. 21世紀型スキルの要素が新学習指導要領にとりいれられたことで生じた大きな変化として以下のどれがあてはまりますか。該当するものを囲ってください。（複数回答可）
（ア）新しい教科/領域が導入された
（イ）新しい単元が導入された
（ウ）複数の教科/領域が統合された
（エ）複数の単元が統合された
（オ）21世紀型スキルの要素を取り入れるために既存教科の教授内容が変更された
（カ）授業時間数が増加した
（キ）授業時間数が減少した
（ク）ICTの活用機会が増えた
（ケ）教科書が改訂された
（コ）グループで実施する活動が導入された
（サ）グループで実施する活動が増加した
（シ）学校レベルで専門家の知見を取り入れる機会が導入された/増加した
（ス）特定分野のスキルや能力に関する評価が導入された
（セ）その他（自由記述欄にご記入下さい。）

IV. 新学習指導要領実施状況及び課題について

1. 新学習指導要領を実施するにあたっての障壁や難しさは以下のどれにあたると思いますか。（複数回答可）
2. 今後以下のどのようなテーマの研究が、21世紀型スキル育成に関する教育政策の策定に際し必要だと思いますか。 （複数回答可）
（ア）21世紀型スキルに関する研究（価値、定義、など）
（イ）教授法
（ウ）生徒の評価
（エ）教員研修
（オ）教員評価
（カ）学校評価
（キ）カリキュラム評価
（ク）教科書
（ケ）その他 （自由記述欄にご記入ください）

自由記述欄：

V. 学校及び教員に関して

学校教育現場でのご知見・ご意見をお聞かせください。

1-1. 新学習指導要領が実施されてから、現場の教員の役割が変化したと思いますか。

ア）とても変化した

イ）少し変化した

自由記述欄：

49
ウ）変わらない

エ）その他（ ）

オ）わからない

1-2. 上記質問でア）またはイ）と回答された場合、どのような変化があったとお考えですか。

自由記述欄:

1-3. 新学習指導要領が実施され、現場ではどのように教授法が変化したと思いますか。

自由記述欄:

1-4. 授業計画を作成するにあたり、21世紀型スキルを育むための学習目標が、新学習指導要領に明確に記されていると思いますか。

ア）完全に記されている

イ）いくらか記されている

ウ）あまり記されていない

エ）記されていない

オ）その他（ ）

カ）わからない

1-5. 新学習指導要領が実施され、生徒に何か変化がみられましたか？

ア）とても良い変化がみられた

イ）いくらか良い変化がみられた
ウ)  特に変化はみられない
エ)  いくらか良くない変化がみられた
オ)  とても良くない変化がみられた
カ)  その他 （ご記入ください ）

1 - 6. 新学習指導要領実施に際して、行政からどのような教員支援が望ましいとお考えですか？

ア） 教員研修
イ） より明確なガイドラインの設定
ウ） 指導・学習教材の充実
エ） 先輩教員からの助言・指導の促進
オ） 教員間の情報共有の手助け
カ） 財政的支援
キ） その他（ご記入ください ）

VI. 自由回答質問
1. 新学習指導要領「生きる力」から最も期待できる事柄はなんだと思いますか

自由記述欄（選択解答欄）：
・言語活動の活発化
・地域との連携を推進させる
・学術に偏重されない能力の構築ができる
・アントレプレナー精神（起業家精神）を育てる

2. 「言語活動」の指導方法についてどんな提案があげられますか。

自由記述欄：

3. ICT を活用した取組み事例についてご存知でしたら教えてください。
4. 日本の教授法が他国と比べどのような特徴があり、どのような点が優れているとお考えですか。

自由記述欄：

5. ご所属の機関では、新学習指導要領を進めるためのどのようなサポートをされていますか。具体的にお聞かせください。また、そのサポートに関しての反応はいかがでしたか。

自由記述欄：

ご協力どうもありがとうございました。

Annex 2: Questionnaire for academic subject experts
日本の新学習指導要領「生きる力」と21世紀型スキルに関する調査

質問票

【教科専門家用】

このアンケート調査は、日本の学習指導要領において、「非認知的スキル（non-cognitive skills）」、「汎用性スキル」、「横断的スキル（transversal skills）」または「21世紀型スキル」1として呼ばれている能力の要素がどのように取り入れられ、実践されているかを調査分析し、公表することで今後のアジア地域における教育施策の策定に役立てることを目的としています。データ処理においては、個人が特定できないようにいたしますので、安心してご回答ください。ご多忙の折、誠に恐縮ですがご協力のほど何卒よろしくお願いいたします。

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I. 回答者の基本情報
   1. お名前 [ ]
   2. ご所属機関・役職 [ ]
   3. 専門分野 [ ]

II. 教育政策一般について
   1. 新学習指導要領が「言語活動」のようなわゆる「21世紀型スキル」の要素が取り入れられた理由として以下のどの項目が考えられますか。該当するものを囲ってください。（複数回答可）
   ア）国際競争力の激化
   イ）社会の変化に対応するため
   ウ）経済成長のため
   エ）人間関係の希薄化による対人能力の低下
オ）子どもの主体性・意欲の低下
カ）子どもの体力低下
キ）生徒の学習到達度の低下
ク）学力偏重に偏らないための方策として
ケ）産業界の求める人材ニーズに合わせるため
コ）その他

自由記述欄:

2．ご専門の分野/教科に関して、新学習指導要領では以下のどのスキルまたは能力に重点がおかれていると考えられますか。該当するものを囲ってください。（複数回答可）

<table>
<thead>
<tr>
<th>スキル/能力</th>
</tr>
</thead>
<tbody>
<tr>
<td>創造性 (creativity) • 起業家精神 (entrepreneurship)</td>
</tr>
<tr>
<td>状況に応じて対応する能力 (resourcefulness) • 応用力 (application skills)</td>
</tr>
<tr>
<td>反省的思考 (reflective thinking) • 決断力 (reasoned decision-making)</td>
</tr>
<tr>
<td>問題解決能力 (problem-solving) • プレゼンテーションスキル (presentation skills)</td>
</tr>
<tr>
<td>コミュニケーション力 (communication) • リーダーシップ (leadership)</td>
</tr>
<tr>
<td>組織力 (organization skills) • 協調性 (collaboration) • 自発性 (self-motivation)</td>
</tr>
<tr>
<td>メディア/情報リテラシー (media/information literacy)</td>
</tr>
<tr>
<td>マリアプランニング (career planning) • 計画性 (planning) • 自制心 (self-discipline)</td>
</tr>
<tr>
<td>熱意 (enthusiasm) • 根気強さ (perseverance) • 思いやり (compassion) • 誠実さ (integrity)</td>
</tr>
<tr>
<td>責任感 (commitment) • 多様性の尊重 (awareness and respect for diversity)</td>
</tr>
<tr>
<td>独断的でないものの見方 (tolerance) • 異なる文化 / 価値観 / 経験などへの寛容さ (openness)</td>
</tr>
</tbody>
</table>
・異文化理解(intercultural understanding)
・意見の衝突などを解決する力(ability to resolve conflicts)
・市民参加(civic/political participation)・環境保全の理解 (respect for the environment)
・デジタル機器を使用する能力(digital literacy)・チームワーク力(Working with others)
・その他 (Others:自由記述欄にご記入ください)

自由記述欄:

III. 新学習指導要領について
1. ご専門の分野/教科に関して、21世紀型スキルの要素が新学習指導要領にとり入れられたことで生じた大きな変化として以下のどれがあてはまりますか。該当するものを囲ってください。（複数回答可）
（ア）新しい教科/領域が導入された
（イ）新しい単元が導入された
（ウ）複数の教科/領域が統合された
（エ）複数の単元が統合された
（オ）21世紀型スキルの要素を取り入れるために既存教科の教授内容が変更された
（カ）21世紀型スキルの要素を取り入れるために既存単元の教授内容が変更された
（キ）授業時間数が増加した
（ク）授業時間数が減少した
（ケ）ICTの活用機会が増えた
（コ）教科書が改訂された
（サ）グループで実施する活動が導入された
（シ）グループで実施する活動が増加した
（ス）学校レベルで専門家の知識を取り入れる機会が導入された/増加した
（セ）特定分野のスキルや能力に関する評価が導入された
（ソ）その他 （自由記述欄にご記入ください。）

自由記述欄:

55
2. ご専門の分野/教科に関して、新学習指導要領ではどのように２１世紀型スキルの育成を奨励しているか、事例を挙げてください。

<table>
<thead>
<tr>
<th>教科</th>
<th>区分（幼・小・中・高・特別支援）</th>
<th>方法</th>
</tr>
</thead>
</table>

は単元）はありませんか。もしありましたら、どのような能力・スキルの育成に特化していますか。その教科（または単元）の授業時間数についてもご存知でしたら教えてください。

自由記述欄:

3.

4.

5. ご専門の教科/分野に関して、２１世紀型スキルを育むために以下のどの学外での活動が奨励されていますか。（複数回答可）

ア) 放課後のスポーツや芸術関連の活動
イ) 地域における活動
ウ) ボランティア活動
エ) 地元の文化的な活動
オ) その他（自由記述欄にご記入ください）

自由記述欄:

IV. 新学習指導要領実施状況及び課題について

<table>
<thead>
<tr>
<th>教科</th>
<th>区分（幼・小・中・高・特別支援）</th>
<th>方法</th>
</tr>
</thead>
</table>

56
1. 新学習指導要領を実施するにあたっての障壁や難しさは以下のどれにあたるとと思いますか。（複数回答可）
   ・教員の理解が乏しい・教員に実施能力が欠けている・教員研修不足
   ・授業時間が足りない・教材が不足している・保護者の理解が乏しい
   ・生徒からの反発・その他（自由記述欄にご記入下さい）

自由記述欄：

2. 今後以下のどのようなテーマの研究が、21世紀型スキル育成に関する教育政策の策定に際し必要だと思いますか。（複数回答可）
（ア）21世紀型スキルに関する研究（価値、定義、など）
（イ）教授法
（ウ）生徒の評価
V. 学校及び教員に関して

ご専門の分野・教科に関する学校教育現場でのご知見・ご意見をお聞かせください。

1-1. 新学習指導要領が実施されてから、現場の教員の役割が変化したと思いますか？

ア）とても変化した

イ）少し変化した

ウ）変わらない

エ）その他（  ）

オ）わからない

1-2. 上記質問でア）またはイ）と回答された場合、どのような変化があったとお考えですか？

自由記述欄：

1-3. 新学習指導要領が実施され、現場ではどのように教授法が変化したと思いますか？
1 - 4．授業計画を作成するにあたり、21世紀型スキルを育む上での学習目標が、新学習指導要領に明確に記されていると思いますか。

ア) 完全に記されている
イ) いくらか記されている
ウ) あまり記されていない
エ) 記されていない
オ) その他（ ）
カ) わからない

1 - 5．新学習指導要領が実施され、生徒に何か変化がみられましたか?

ア) とても良い変化がみられた
イ) いくらか良い変化がみられた
ウ) 特に変化はみられない
エ) いくらか不良く変化がみられた
オ) とても良くない変化がみられた
カ) その他（ご記入ください ）

1 - 6. 新学習指導要領実施に際して、行政からどのような教員支援が望ましいとお考えですか?

ア) 教員研修
イ) より明確なガイドラインの設定
ウ) 指導・学習教材の充実
エ) 先輩教員からの助言・指導の促進
オ) 教員間の情報共有
カ) その他（ご記入ください）

VI．自由回答質問
1. 新学習指導要領「生きる力」に最も期待することはなんですか。

自由記述欄:

2. ご専門の分野/教科における「言語活動」の指導方法についてどんな提案があげられますか。

自由記述欄:

3. 1) ご専門の分野/教科においてどのようなICTが最も活用されていますか。

自由記述欄:

でも有効性が高いものと活用方法について事例がありましたら教えて下さい。

自由記述欄:

4. ご専門の分野/教科の中で日本の教授法が他国と比べどのような特徴があり、どのような点が優れているとお考えですか。

自由記述欄:

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5. ご所属の機関では、新学習指導要領を進めるためのどのようなサポートをされていますか。具体的にお聞かせください。また、そのサポートに関しての反応はいかがでしたか。

自由記述欄：

ご協力どうもありがとうございました。

ご協力どうもありがとうございました。
日本人の新学習指導要領「生きる力」と21世紀型スキルに関する調査

質問票

[先生用]

このアンケート調査は、国連教育科学文化機関アジア太平洋事務所との協働のもと、日本の新学習指導要領において、「非認知的スキル(non-cognitive skills)」、「汎用技能」、「横断的スキル(transversal skills)」または「21世紀型スキル」1と呼ばれている能力の要素がどのように取り入れられ、実践されているかを調査分析し、公表することで今後のアジア地域における教育施策の策定に役立てる目的としています。データ処理においては、個人が特定できないようにいたしますので、安心してご回答ください。ご多忙の折、誠に恐縮ですがご協力のほど何卒よろしくお願いいたします。

（1） 現時点においての上記のスキルに関する定義はまだ確定していませんが、本調査においては、（1）批判的・創造的思考力、（2）対人能力(コミュニケーション力、協調性など)、（3）内省的思考能力(自制心、自発性など)（4）責任ある市民としての考え方（異文化理解、多様性の尊重など、環境保全の理解など）（5）心身の健康を増進・維持する力、に分類されるスキルを示します。本調査票では「21世紀型スキル」と記しています。（UNESCO ERI-NET）。

なお、このアンケートでは、子どもたちの生きる力を育むための新学習指導要領（以下、新学習指導要領）に沿って研究開発校として導入しているあなたの学校の新カリキュラムについて回答してください。

<table>
<thead>
<tr>
<th>VII. 回答者の基本情報</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. 性別  1. 男  2. 女</td>
</tr>
<tr>
<td>5. ご専門教科  [ ]</td>
</tr>
<tr>
<td>6. 教員としてのご経験年数  [ ]</td>
</tr>
<tr>
<td>7. ご担当学年  [ ]</td>
</tr>
</tbody>
</table>
8. ご担当クラス人数  [  ]
9. 1週間の授業時間数

VIII. 教育政策一般について
3. 新学習指導要領（あなたの学校の新カリキュラム）が「対人能力」や「内省的思考能力」のようにわゆる「２１世紀型スキル」の要素が取り入れられた理由として以下のどの項目が考えられるか。該当するものを囲ってください。（複数回答可）
ア）国際競争力の激化
イ）社会の変化に対応するため
ウ）経済成長のため
エ）人間関係の希薄化による対人能力の低下
オ）子どもの主体性・意欲の低下
カ）子どもの体力の低下
カ）子どもの学習到達度の低下
キ）学力偏重に偏らないための方策として
ク）産業界の求める人材ニーズに合わせるため
ケ）その他

自由記述欄：

4. 新学習指導要領（あなたの学校の新カリキュラム）では、「２１世紀型スキル」の要素（定義）についてどの程度明確に記されていると思いますか。
ア）とても明確に記されている
イ）いくらか明確に記されている
ウ）あまり明確に記されていない
エ）まったく不明確である
5. 以下のどのスキルまたは能力が子どもの発達に重要とお考えですか。該当するものを囲ってください。（複数回答可）

・創造性・起業家精神・状況に応じて対応する能力・応用力・反省的思考・決断力
・問題解決能力・プレゼンテーションスキル・コミュニケーション力・リーダーシップ
・組織力・協調性・自発性・メディア/情報リテラシー・キャリアプランニング・計画性
・自制心・熱意・根気強さ・思いやり・誠実さ・責任感・多様性の尊重
・独断的でないものの見方・異なる文化/価値観/経験などへの寛容さ・異文化理解
・意見の衝突などを解決する力・市民参加・環境保全の理解
・デジタル機器を使用する能力・チームワーク力

・その他（自由記述欄にご記入ください）

1. 新学習指導要領（あなたの学校の新カリキュラム）の実施後、どのようにご自身の指導法に変化があったとお考えですか。

自由記述欄：
2. 授業計画を作成するにあたり、新学習指導要領（あなたの学校の新カリキュラム）には21世紀型スキルを育むための学習目標が明確に記されていますか。
ア) 完全に記されている
イ) いくらか記されている
ウ) あまり記されていない
エ) まったく記されていない
オ) その他（自由記述欄にご記入ください）

自由記述欄:

3. 新学習指導要領（あなたの学校の新カリキュラム）が実施されてから、現場の教員の役割が変化したと思いますか？
ア）とても変化した
イ）少し変化した
ウ）変わらない
エ）その他（ ）
オ）わからない

4. 上記質問でア）またはイ）と回答された場合、どのような変化があったとお考えですか。
自由記述欄:

5. 新学習指導要領（あなたの学校の新カリキュラム）が実施され、子どもに何か変化がみ
6. 研究開発校として新カリキュラムを実施する際、自分の力を高める研修にはどのようなものがありますか。

ア）校内での授業研究

イ）校内での教員間での意見交換

ウ）他校への授業視察

エ）市主催による研修

オ）県主催による研修

カ）連携大学の専門家による研修

その他 （自由記述欄にご記入ください）
7. 新学習指導要領実施に際し、特別な指導書または教材（ハンドブックなど）が提供されましたか。
（タ）学校内研修において指導書及び教材が十分に提供された。
（チ）学校内研修において指導書及び教材がある程度提供された。
（ツ）市レベルの研修において指導書及び教材が提供された。
（テ）県レベルの研修において指導書及び教材がある程度提供された。
（ト）県レベルの研修において指導書及び教材は提供されていない。
（ナ）特に追加的な指導書や教材は提供されていない。
（ニ）その他（自由記述欄にご記入ください）

自由記述欄：

8. 新学習指導要領（あなたの学校の新カリキュラム）実施に際して、行政（国／県／市）からどのような教員支援が望ましいとお考えですか？
（キ）教員研修
（ク）より明確なガイドラインの設定
（ケ）指導・学習教材の充実
（コ）先輩教員からの助言・指導の促進
（サ）教員間の情報共有の手助け
（シ）財政的支援
（ス）その他（ご記入ください）

9. 子どもが21世紀型スキルを育むことはあなたにとってどのような意味（良さ）がありますか？

自由記述欄：

10. あなたの学校の新カリキュラムの実施に際し、以下のどれの学外のパートナーシップを強めていますか。（複数回答可）
（ア）民間企業
（イ）地域社会
（ウ）家族
11. ご自身のクラスでは年間のカリキュラム計画通りに授業が実施されていると感じていま
すか。
  ア) 予定より早いペースで実施されている
  イ) 予定通りに実施されている
  ウ) 予定より遅れている
  エ) わからない

12. あなたの学校の新カリキュラムで指導を実施するにあたっての障壁や難しさがありましたら教えてください。

自由記述欄:

13. あなたの学校の新カリキュラムに基づいた指導を実施して、具体的に
子どもにどのような変化が見られたと思いますか。（お手数ですが、各項目にチェック
をお願いいたします）

<table>
<thead>
<tr>
<th>批判的思考・創造的思考について</th>
<th>増加した</th>
<th>変わらない</th>
<th>減少した</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 批判的思考力のある子ども</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 得られた情報を分析・評価でき る子ども</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>対人関係スキル</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. 考えたこと・感じたことを表現できるようになった子ども
2. 自分の考えをまとめて発表することができる子ども
3. 人前で発表できる子ども
4. 級友と議論や相談することができる子ども

内省的思考能力
1. 学習意欲がある子ども
2. 学習習慣が身についている子ども

責任ある市民としての考え方
1. 地域の環境や社会についての理解がある子ども
2. 地球規模の課題に興味がある子ども
3. 多様性を尊重している子ども

その他
1. 基礎的な知識やスキルを獲得している子ども
2. 事実を明確に理解できる子ども
3. 授業についていけない子ども
4. 疲れている子ども
5. 児童集団の学力水準
6. 児童間の学力格差

IX. ご意見を自由にお書きください
2. 新学習指導要領「生きる力」（あなたの学校の新カリキュラム）に最も期待することはなんですか。

自由記述欄：

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2. ご専門の教科における「言語活動」の指導方法についてどんな事例があげられますか。

自由記述欄:

3. 1）ICT（情報通信技術）は授業で活用されていますか。もし活用されていましたらどのような機器・ソフトを何の授業でどのようにお使いになられていますか。事例を教えてください。

自由記述欄:

2）上記のICTの活用法はどのような点で有効でしょうか。

自由記述欄:

ご協力どうもありがとうございました