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Asia-Pacific Education System Review Series

Transversal Skills in TVET: Pedagogies and Assessment



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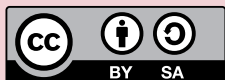
**Transversal Skills in TVET:
Pedagogies and Assessment**

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Preface to the Series

The Asia-Pacific Education System Review Series is published by the Education Policy and Reform Unit of the UNESCO Asia and Pacific Regional Bureau for Education (UNESCO Bangkok). The series aims to summarize what is known, based on research, about selected contemporary policy issues relating to the national education systems of countries in the Asia-Pacific region.

The series provides practice-oriented guidance for those engaged in the review of education policy and systems, as well as in the implementation of reforms related to the specific topics that the booklets address.

The booklets are designed to serve as rapid and credible reference materials for education policy makers, planners and managers, offering busy readers (a) an overview and quick analysis of pertinent education issues; (b) a choice of approaches and options to address these issues based on experiences of countries in the region; and (c) a set of recommendations or guiding questions to consider when preparing a sector or sub-sector review and reform.



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List of Abbreviations

ASEAN	Association of Southeast Asian Nations
ATC21S	Assessment and Teaching of 21st Century Skills
BDTVEC	Brunei Darussalam Technical and Vocational Education Council
IBTE	Institute Brunei Technical Education
HNTec	Higher National Technical Education Certificate
ICT	Information and Communication Technology
ISQ	Industrial Skills Qualifications
KRIVET	Korea Research Institute for Education and Training
NQF	National Qualification Framework
NTec	National Technical Education Certificate
NVQF	National Vocational Education Qualifications Framework
OVEC	Office of the Vocational Education Commission
P21	Partnerships for 21st Century Skills
SEAMEO VOCTECH	Southeast Asian Ministers of Education Organization Regional Centre for Vocational and Technical Education and Training
SC+EP	School Creative Career Education Programme
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization
VBC	Vocational Basic Competency
VBCAT	Vocational Basic Competency Assessment Test



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Brunei Darussalam

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Foreword

This is the ninth booklet in the Asia-Pacific Education System Review Series. It is a follow-up to its predecessor in the series which explored the extent to which transversal skills are defined in policies and curricula in selected countries of the Asia-Pacific region, and which presented some key issues related to their implementation. One of the main findings from the eighth booklet points to challenges in pedagogies and assessment of transversal skills in TVET. To explore these issues in more depth, this current booklet looks at experiences in these areas in relation to transversal skills in three countries, namely Brunei Darussalam, Thailand and the Republic of Korea. It identifies both good practices and remaining challenges in effective pedagogies and assessment.

The purpose of this booklet is to add to the existing literature on transversal skills and shed light on TVET practices in the Asia-Pacific region. Despite the remaining challenges to the implementation of innovative pedagogies and effective assessments, this report highlights ongoing initiatives in developing transversal skills in the region. We hope that it will encourage policy makers and educators to seek out further information when making informed decisions on policies that can contribute to giving their TVET graduates the comparative advantage needed in today's competitive labour markets.



Gwang-Jo Kim
Director
UNESCO Bangkok

Section 1:

Introduction

The purpose of this report is to provide insight into transversal skills education in Technical and Vocational Education and Training (TVET) by examining teaching and assessment of these skills in selected countries of the Asia-Pacific region. There are different understandings and conceptualizations of transversal skills across countries but in general these skills refer to a number of important competencies for life and work (namely communication, entrepreneurship, problem-solving, innovation, collaboration skills, etc.) that can be acquired through education and training and can help people better progress through pathways between education levels and across employment sectors.

In an effort to prepare young people to live meaningful, sustainable and responsible lives in the 21st century, a shift of focus has taken place in education from cognitive skills towards a recognition of the importance of non-cognitive skills and competencies (UNESCO, 2013). In that context, several initiatives have been established to examine transversal skills, such as the Partnership for 21st Century Skills (P21) and the Assessment and Teaching of 21st Century Skills (ATC21S). Likewise, UNESCO Asia and Pacific Regional Bureau for Education (UNESCO Bangkok) conducted a collaborative regional research on transversal skills in general education which identified a number of common transversal skills and competencies¹ among ten participating countries and economies.

The current report is a follow-up to a previous study conducted by UNESCO Bangkok entitled *Transversal Skills in TVET: Policy Implications* (2014) and relies on this study's findings in relation to key policy issues of transversal skills. Bearing in mind different understandings of transversal skills across countries, this study adopted the same definition as the previous study, which follows UNESCO's EFA Global Monitoring Report (2012) outlining three types of skills: (1) foundation skills, (2) transferable (transversal) skills, and (3) technical and vocational skills. The report refers to foundation skills, fundamentally as 'literacy and numeracy skills necessary for getting work that pays enough to meet daily needs; transferable/transversal skills as 'a broad range of skills that can be

1) creative and innovative thinking domain: critical thinking, innovative thinking, reflective thinking and reasoned decision-making; and

2) inter-personal skills domain: communication skills, collaboration

transferred and adapted to different work needs and environments', and technical and vocational skills that can be considered 'specific technical know-how' (UNESCO, 2012, p. 171-172) After examining policy documents in several countries of the Asia-Pacific, UNESCO (2014) found five transversal skills —communication, collaboration, problem-solving, entrepreneurship, and learning to learn— that are referred to in the majority of the examined national policy documents. It is important to note however that despite this initial analysis, policies on transversal skills in the Asia-Pacific region need further in-depth analysis.

After examining policy documents in relation to transversal skills, the study (UNESCO, 2014) clearly identified pedagogies and assessment as key areas that need further consideration for effective policy implementation on transversal skills. The current study is therefore an effort to examine concrete ways of improving teaching and assessment of transversal skills in TVET. It consolidates major findings from national studies in formal TVET conducted between early 2014 and late 2015 by researchers in Brunei Darussalam, the Republic of Korea and Thailand. Country researchers based their studies on surveys, interviews and case studies of teachers, students and principals. In Brunei Darussalam, researchers from the SEAMEO Regional Centre for Vocational and Technical Education and Training (SEAMEO VOCTECH) conducted a survey among school managers, teachers and students in seven schools under the Institute Brunei Technical Education (IBTE). In the Republic of Korea, an expert from the Korea Research Institute for Vocational Education and Training (KRIVET) reviewed the status of transversal skills education mainly through school visits, face-to-face and phone interviews with teachers and students of twenty vocational and Meister schools,² and desk research on national and school policies. In Thailand, six TVET colleges were selected by a researcher affiliated with the Office of the Vocational Education Commission (OVEC) to analyse transversal skills education in Thailand by using information gathered from schools visits, interviews and national policies.

In contrast to the previous report, this study explores concrete country cases focusing on specific issues related to teaching and assessing transversal skills in TVET schools. In particular, the current study

2 Meister schools are a new type of vocational high school in the Republic of Korea which attempts to train 'young Meisters', those students who can be characterized as excellent vocational professionals. These schools are requested to innovate the vocational education through close cooperation with industry partners and well-resourced quality vocational education. Since 2010, 42 schools have been designated as Meister high schools.

examines the following key questions:

Teaching of transversal skills:

- How should transversal skills education in TVET be designed? Should it be integrated into existing subjects (infusion model), offered as a separate subject (diffusion model) or delivered in the form of extra-curricular activities?
- What types of teaching methods should be used?
- What additional measures should be taken for effective transversal skills education in TVET?

Assessment of transversal skills:

- What are the challenges in measuring and assessing transversal skills in TVET?
- What measures should be taken to ensure valid and objective assessment?
- How can assessment results of transversal skills in TVET be effectively used?

By addressing these questions in relation to the country studies conducted in Brunei Darussalam, Thailand and the Republic of Korea, it is expected that concrete practices related to transversal skills in TVET can be revealed, challenges and opportunities identified and recommendations formulated. However, practices in the three countries should not be regarded as best practices that can be adopted without further consideration. The main purpose of this study is to contribute to experience-sharing in transversal skills education in the Asia-Pacific region and to advance development of policies and practice.

Section 2:

Review of Policies Related to Transversal Skills in TVET

It is worth reviewing policy frameworks of transversal skills in each country prior to discussing pedagogy and assessment. Among the three countries reviewed in this study, Brunei has the most sophisticated policies related to transversal skills education. There are detailed national guidelines, including definitions of specific transversal skills, as well as teaching and assessment modules. In Thailand, the National Qualification Framework (NQF) defines competency levels for certain transversal skills. However, detailed guidelines for teaching and assessment are yet to be developed. The Republic of Korea is less developed in relation to transversal skill policies since it does not have clear guidelines but only basic articulation of the importance of transversal skills and some initiatives related to these skills. Even though the Republic of Korea has launched a national examination of transversal skills (referred to as Vocational Basic Competency) as an alternative to the academic ability test, this exam does not test transversal skills per se but rather general skills such as literacy and numeracy in a slightly modified form in the vocational context. All these issues will be examined in more detail in the following sections.

Brunei Darussalam

In Brunei Darussalam there are guidelines for teaching and assessment of transversal skills (currently referred to as 'life skills') which have been implemented in technical and vocational schools and colleges since 2012. The Guide on Life Skills and the Brunei Technical Education Life Skills Implementation Guide, published by the Brunei Darussalam Technical and Vocational Education Council (BDTVEC), lists eight life skills (Table 1).

Table 1: Life skills in Brunei Darussalam

Life Skills

1. Self-management
2. Planning and organizing
3. Communication skills
4. Working with others
5. Problem- solving
6. Initiative and entrepreneurship
7. Application of numeracy and IT skills
8. Ability to learn

In Brunei there is a compulsory module on life skills for all levels of technical and vocational education. These skills are divided into two components: (1) ‘personal and interpersonal skills’ which include self-management, planning and organizing, working with others, problem-solving, initiative taking and entrepreneurship, and ability to learn; and (2) ‘workplace skills’ covering communication skills, application of numeracy, and IT skills. As outlined in the Brunei Technical Education Life Skills Implementation Guide, ‘workplace skills’ carry ten credits and are taught and assessed in a formal way while ‘personal and interpersonal skills’ do not carry any credits.

Out of the eight life skills, the development of numeracy/ IT skills, communication skills, and initiative/entrepreneurship is especially encouraged through specific subjects. The other skills are embedded in subjects as part of assignments or class activities. They are therefore not the focus but are still expected to be monitored and assessed.

In addition to the compulsory module, the Institute of Brunei Technical Education (IBTE) produced modules for life skills in the workplace for additional programmes³. Each module describes the credit value, passing mark, and module structure. It also gives information on teaching and assessment of life skills that includes teaching hours and details on assessment weighing. The module structure covers the objectives, teaching-learning strategies, assessment methods, recommended facilities and materials as well as reference books, among others.

3 The programmes resulted in the Industrial Skills Qualification (ISQ), the National Technical Education Certificate (NTec), and the Higher National Technical Education Certificate (HNTec).

These modules are used by teachers as reference in their teaching and assessment of students' life skills.

At the school level, implementation of the guidelines and modules varies from school to school, and only a few schools seem to have integrated life skills based on these tools. Most schools integrate life skills into courses to varying degrees and rely heavily on teachers' own initiatives. Teachers are required to incorporate life skills into their teaching. Teaching and assessment of life skills are in fact considered as part of their job – meaning that teachers are not offered any incentives. Another challenge is that teachers do not have a clear understanding of life skills which prevents them from fostering these skills in their students. Many new teachers are not being briefed or are unaware of the guidelines/modules on life skills.

Other evidence shows differences of opinion regarding transversal skills between teachers and school principals. For example, 100 percent of surveyed principals responded that guidelines provided by the government are fully reflected in their school plans and policies while about half of their teachers agreed. Such results show that life skills education seems operational on the surface but there are still challenges in implementing them in practice.

Republic of Korea

In the Republic of Korea, the term Vocational Basic Competency (VBC) is commonly used to refer to what could be understood as transversal skills. VBC is composed of communication skills, numeracy, self-management skills and problem-solving skills (Jin, M. 2014).

In relation to VBC, the Vocational Basic Competency Assessment Test (VBCAT) for vocational high schools was introduced in 2012. It was developed and implemented as a substitute to the national standardized academic achievement test for vocational high school students. VBCAT assesses skills, focusing on communication, numeracy, and problem-solving, which were added to the vocational school curriculum with the introduction of VBCAT. However, it seems that the test is more likely to assess the knowledge of these skills rather than students' ability to exert these skills in the workplace.

At the school level, transversal skills education is not widespread. For example, out of 450 webpages of vocational high schools, only very few display clear descriptions of VBC in school visions or educational plans. The exception are Meister high schools which make reference to VBC education in their schools' mission and vision statements as shown in Table 2.

Table 2: Examples of Meister Schools Referring to VBC in School Visions/Education Plans

Meister High Schools	Vocational Basic Competency in School Plan
Seoul Robot Meister High School	To provide English classes that emphasize practical language competency and can thereby enhance VBC
Busan National Mechanical and Technical High School	To equip young Meister students with problem-solving To strengthen VBC to achieve educational objectives
Busan Marine High School for Technicians	To provide an experiential VBC programme in a life-culture centre where marine technicians learn how to deal with everyday work situations
Incheon Marine Technician High School	To strengthen VBC to meet the demand of the industry
Daeduck Software Meister High School	To systematically develop VBC
Suwon High-Tech High School	To develop VBC and other professional skills through innovative teaching methods
PyeongTaek Mechanical and Industrial High School	To develop students' VBC through creativity and intellectual stimulation
Hapduk Steel and Industrial High School	To certify and continue developing students' VBC
Korea Port Logistics High School	To develop students' VBC through learning school debates and the study of harbour management practices and logistics;
Koomi Electronic Engineering High School	To develop Meister students with a 'good' character and VBC
Kumo Industrial High School	To develop students with creativity, talent and VBC
Youncheon Business High School	To strengthen VBC for employability

Based on this analysis, it seems that Meister high schools consider transversal skills education more than regular vocational schools. However, beyond mission statements, there is little reference to policies or practices which shows that transversal skills education is still new to many TVET schools in the Republic of Korea

Thailand

In Thailand, transversal skills can be identified in the learning objectives of the National Education Act (1999) and the Vocational Education Act (2008). In addition, these skills are included in the National Qualification Framework (NQF) which was approved in 2013. The main objectives of the Thai NQF are to (1) ensure harmonization of learning outcome levels with competency levels set by industries, and (2) to provide pathways for those with skills but without formal qualifications.

The Thai NQF has nine levels with each level divided into three components of learning outcomes: knowledge, skills, and desired characteristics. Transversal skills can be identified at every level of the NQF – starting from basic to advanced levels (1-9) - and in all three components of learning outcomes (knowledge, skills, and desired characteristics). TVET qualifications are an integral part of the NQF and are included at levels 3-5. At all these levels, reference is made to transversal skills (see Table 3). NQF also describes different levels of communication, collaboration, problem-solving, entrepreneurship and ability to learn necessary for working in different contexts.

Table 3: Reference to Transversal Skills in the Thai NQF at Levels 3-5

Level	Transversal Skills
Level 3	<ul style="list-style-type: none"> • Ability to communicate in Thai, English and other Association of Southeast Asian Nations (ASEAN) languages • Basic ICT skills • Problem-solving • Being responsible, independent, and accountable to others
Level 4	<ul style="list-style-type: none"> • All skills included in Level 3 • Teamwork • Ability to learn
Level 5	<ul style="list-style-type: none"> • All skills included in level 4 • Collaboration • Leadership • Thinking skills

In addition, the National Vocational Education Qualifications Framework (NVQF) identifies three learning outcomes for TVET graduates: (1) attributes, (2) core/generic competency, and (3) occupational competency. Transversal skills, such as communication, collaboration, problem-solving, ability to learn and entrepreneurship skills are included in these three learning outcomes. Their development is fostered by integrating theoretical and practical subjects, internships and extra-curricular activities.

According to the Decree on NVQF (2013), the TVET curriculum is divided into (1) life skills, (2) occupational skills, (3) electives, and (4) extra-curricular activities. Transversal skills are included under life skills which are understood as the ability for self-development and eagerness to learn and explore new knowledge. Specific subjects are designed to impart life skills alongside traditional subjects such as languages, mathematics, and science, among others. Elements of life skills are also integrated into teaching and learning of occupational skills, electives and extra-curricular activities (at least two hours a week or forty hours a semester).

In response to interest from industries to strengthen life skills in TVET graduates, the Office of the Vocational Education Commission (OVEC), Ministry of Education, developed teaching guides for transversal skills.

In addition, teacher training is offered to enhance pedagogical capacity related to transversal skills (three or five-day training programmes), especially for master teachers (multipliers). The main focus of these trainings is on integrating transversal skills into traditional subjects. Teachers are asked to design lessons with greater emphasis on group work and problem-solving with the aim to develop collaboration skills and the ability to learn in students. Different approaches to learning, such as constructionism, project-based, work-based/integrated, and competency-based learning, as well as community service and entrepreneurship development programmes are incorporated into teacher training. Furthermore, student performance is used as an indicator for measuring performance of administrators and teachers. Teachers are also encouraged to organize activities conducive to the development of transversal skills, such as student contests on innovative product design and business planning.

To summarize, Thailand appears to fall between Brunei Darussalam and the Republic of Korea in terms of progress in transversal skill policies. Like Brunei, Thailand established an NQF with level descriptors for transversal skills at each level and with teaching guides for these skills. Nevertheless, in Brunei there seems to be greater availability of material and guidelines, such as Life Skills for Workplace. However, since the degree to which these guidelines are utilized in schools is questionable, it is difficult to claim that Brunei is more advanced in terms of transversal skills implementation.

Section 3:

Pedagogical Practices Related to Transversal Skills in TVET

Brunei Darussalam, the Republic of Korea and Thailand show commonalities in basic pedagogical approaches to transversal skills. There are however also differences between and within these countries. One commonality is that all three countries appear to have adopted an 'integrative approach' which incorporates elements of transversal skills into traditional subjects instead of creating subjects specific to transversal skills. The degree of integration, skills integrated and ways of integration into subjects vary among and within the countries. While the diversity of approaches may seem understandable it might not be the most effective way of imparting transversal skills. Some elements of transversal skills (for example entrepreneurship skills) are taught in separate activities. In some cases, transversal skills education takes the form of school contests or specialized out-of-school programmes run in cooperation with other schools or organisations. In addition, students are also encouraged to actively engage in learning through project-based learning and out-of-school activities. Despite these activities, schools and teachers are often expected to design and deliver transversal skills education with limited resources and without clear policy guidelines. As a result, there seems to be a lack of careful design and implementation of transversal skills education in these countries.

Brunei Darussalam

In Brunei Darussalam, teachers seem to have introduced various approaches to developing transversal skills, including encouraging parental involvement, organizing workshops, inviting experts and students to give presentations, setting up collaborative projects, and many others. Through various teaching techniques and activities, such as discovery and drama, teachers are expected to enhance students' awareness of transversal skills and eventually their ability to use these skills.

The most common way of teaching transversal skills in Brunei Darussalam seems to be through the integrative approach. This often creates a concern that integrating transversal skills into existing subjects can negatively impact the learning of the core subject. In Brunei, this

concern seems not to be relevant as around 40 percent of teachers, interviewed for the country study, integrate transversal skills into their core subjects without affecting the teaching of the core subject.

In terms of teaching practices, 59.4 percent of interviewed teachers indicate that they are incorporating transversal skills through classroom teaching, 46.1 percent through student monitoring, and 42.8 percent through out-of-classroom activities (see Table 4).

Table 4: Teachers' Perception on the Approaches to Imparting Transversal Skills in Brunei

Approaches to imparting life skills	f	%
Through teaching	107	59.44
Through out-of-classroom activities	77	42.78
Through monitoring	83	46.11
Others: Workshop, study, research, reporting, assessment	5	2.78
Total multiple responses	272	151.11
Total sample	180	100.00

These different pedagogical approaches relate to the nature of different transversal skills. According to interviewed teachers, '[the national taskforce] asked us to integrate all eight life skills in our teaching but, from what I see, not all life skills can be integrated. For example, basic accounting and bookkeeping don't require ICT skills while they do require numeracy'. It can be therefore assumed that the degree to which transversal skills are integrated into subjects as well as the teaching method differ from subject to subject in Brunei.

Simultaneously, flexible teaching approaches can help in responding to students' specific needs. To adequately respond to these, shifting pedagogical approaches from teacher-centred to learner-centred is required. In relation to transversal skills, teachers in Brunei seem to be adopting a learner-centred approach. As shown in Table 5. 65 percent of teachers use learner-centred while only 15 percent still use teacher-centred pedagogies.

Table 5: Type of Pedagogies Adopted by Teachers in Brunei

Types of pedagogies	f	%
Teacher-centred	27	15.00
Student-centred	117	65.00
Self-directed	35	19.44
Other: Combinations of various types - from teacher-centred to learner-centred pedagogy	3	1.67
Total multiple responses	182	125.56
Total sample	180	100.00

In addition to classroom teaching, out-of-school activities can be considered beneficial for enhancing students' transversal skill levels. However, it seems that not all teachers in Brunei are utilizing extra-curricular activities to enhance students' transversal skills. 31.1 percent of teachers planned some outside activities for all eight life skills while only 22.8 percent of them conducted all outside activities to support all or some life skills. In addition, teachers who organized out-of-school activities have mixed perceptions as to whether these activities are really successful or not. In addition, some teachers were not teaching transversal skills either inside or outside the classroom but only monitor students for assessment purposes.

Despite these mixed result students show positive attitudes to out-of-school activities. One student in Brunei stated that '(our) school organized a fare and my class decided to join. We sold different items and food. We divided tasks based on our respective strengths and when we encountered problems such as lack of funds we managed to handle it. The whole experience was very challenging because it was our first time to participate in such a fare. But it was very good experience for our future.'

Even though a lot of progress has been made in Brunei in terms of transversal skills education, several challenges still exist. Despite the Government's emphasis on the importance of transversal skills, no clear assessment guidelines for each transversal skill are available. This explains why one teacher stated that his 'major concern is on the weighing of the eight skills. There are certain skills which might be more important than others.' Some teachers also shared the concern that integration of transversal skills has not yet been fully realized in Brunei and that the real value of these skills is still unclear to teachers

and school principals. For example, one teacher stated: 'I feel that we are still lacking the understanding of implementation of life skills' and a principal added that his 'concern is with the actual implementation of life skills. I want to see the real value of life skills and their assessment.' These examples imply that there are still challenges in imparting transversal skills despite seemingly active implementation of transversal skills education in TVET in Brunei.

Republic of Korea

Given that transversal skills education has been introduced fairly recently and implemented only partially in the Republic of Korea, various approaches to integrating transversal skills in the curriculum have been attempted but remain at an experimental stage. At school level, curricula remain subject-based and subjects are generally academic in nature. This can be seen in subjects such as Korean language, maths, science, computer programming and agro-mechanics. In some cases, transversal skills are taught as stand-alone subjects. For example in 'career and occupation', transversal skills such as communication, entrepreneurial skills, interpersonal and problem-solving skills are taught.

In contrast, VBC are integrated into existing subjects, such as Korean language classes which include communication skills, and maths where problem-solving and numeracy are imparted. Between 2010 and 2012, four vocational schools in the Republic of Korea developed and piloted programmes that integrated VBC into existing subjects. In these pilot schools, vocational teachers in cooperation with general subject teachers attempted to integrate VBC in maths, English and Korean by creating a matrix of VBC elements based on existing textbooks. The integrative approach turned out to be difficult in practise as teachers taught subjects following a standard curriculum and textbooks. It was also difficult to decide which teacher should impart the integrative VBC subjects. Teachers who taught Korean language, maths and English were reluctant to take on the added responsibility of teaching VBC. One teacher expressed the following sentiment:

We have to prepare Korean communication tests. I think Korean teachers have to teach this. But they are reluctant to teach communication skills as they think it is both hard and troublesome to teach new skills. They think they are Korean language teachers, not Korean communication skills teachers.

Compared to regular vocational schools, VBC is given more importance in Meister schools which have implemented diverse VBC strategies. For instance, one Meister school (Kumo Industrial High School) offers students two-day workshops twice a year during which communication, interpersonal skills, resources-management and cooperation are fostered. The workshops include group work, preparation of presentations and portfolios on different themes.

In addition, transversal skills are taught in non-academic subjects such as experiential learning classes or extra-curricular activities. While academic subjects are fixed in terms of duration and assessment methods, non-academic subjects are flexible when it comes to duration and types of activities, which depend on the aims and objectives of the school.

It should be noted that in the Republic of Korea, several experiential learning methodologies, such as project-based learning, module classes, drama, role-play, work-based learning and competitions, are being utilized to foster transversal skills. In addition, User-Content-Creation (UCC) creation, online chatting, smart books, among others, are being applied as pedagogical tools for transversal skills.

Among all transversal skills, entrepreneurial skills are increasingly being considered essential in alleviating youth unemployment. In the Republic of Korea, entrepreneurial skills have not been taught in any systematic way as a school subject. However, in 2002, the Small and Medium Business Administration of Korea started to support BIZCOOL - business-and-school programmes in elementary and secondary schools, including vocational high schools. Up to now, 1,300 schools and almost 900,000 students have benefited from this programme. Usually, these schools organize two-day camps where students are supported in developing business plans. The BIZCOOL programme is composed of three elements: foundational education, experiential activities, and presentations by guest speakers. All participating schools have implemented this programme differently depending on students' needs, local industries, school type,

etc. Primary and high schools tend to focus on foundational education, while vocational high schools spend more time on business plan development. This programme can be considered beneficial for enhancing awareness of entrepreneurship among students in the Republic of Korea.

Thailand

In Thailand, transversal skills education have been affected by changing national priorities of the overall education policy. For instance, the Vocational Act of 2002 puts emphasis on continuous learning, dual vocational education, and entrepreneurship. Workplace learning is considered a vital process in fostering not only technical skills but also transversal skills required by employers. Therefore, while basic communication skills are taught through various subjects in college, workplace experiences are recognized as an avenue to help learners in developing transversal skills such as reading working manuals, following directions of trainers or mentors, writing reports, and presenting what they learn from the workplaces. Problem-solving skills are also thought to be better developed in real work environments such as during internships.

In order to ensure that transversal skills are imparted to students effectively, the Office of Vocational Education Committee (OVEC) in Thailand developed guidelines to facilitate various learning models. Teacher training is also provided to strengthen the capacity in teaching transversal skills, especially for master teachers (multipliers) through a 3-5 day training programme. The main focus is on integrating those skills into the teaching and learning process of each subject. Table 6 summarizes various approaches to transversal skills adopted in post-secondary TVET colleges in Thailand.

Table 6: Pedagogies Applied to Impart Transversal Skills in TVET in Thai Colleges

Colleges	Pedagogies
Ubon Ratchathani Vocational College	<ul style="list-style-type: none"> • Entrepreneurship learning model • Project-based learning
Chiangrai Agricultural College: Natoe Campus	<ul style="list-style-type: none"> • Farm/work-based learning
Phang-Nga Technical College	<ul style="list-style-type: none"> • Sciences and technology-based learning with strong focus on project-based learning
Saowabha Vocational College	<ul style="list-style-type: none"> • Work-based learning with strong focus on competency building and networking with industries
Sisaket Technical College	<ul style="list-style-type: none"> • Project-based learning to facilitate invention • Community service projects

As shown in Table 6, most learning activities in Thailand are based on the educational philosophy of constructionism that emphasizes active involvement of students in the learning process. In Maptaphut Technical College theoretical lessons are delivered in classrooms but students are also exposed to real-life activities outside the classroom such as firefighting. It is believed that students can acquire communication, teamwork and problem-solving skills through real-life situations. Thus, students are encouraged to raise questions, find answers and learn useful skills needed for dealing with different life situations. Colleges, such as Ubon Ratchathani Vocational College and Saowabha Vocational College, offer trade programmes with an aim to enhance entrepreneurship skills through business planning exercises designed for small groups of students. Project-based learning is also utilized for active involvement of students. For instance, in Phang-Nga Technical College, project-based learning is being implemented in the science field in cooperation with local universities. Theoretical subjects related to the sciences, mathematics, languages, social studies, health and physical education are taught by professors from nearby universities. Vocational teachers also take part in theoretical subjects in order to facilitate students' individual and group projects. Project-based learning is also organized every semester in both secondary and post-secondary schools. Students spend 5-8 hours per week on an assigned project, which is included under extra-curricular activities and out-of-

classroom hours, geared to develop their thinking, problem-solving, communication, collaboration and, more importantly, learning-to-learn skills. Teachers plan the learning activities and take on the role of mentors to facilitate student learning.

Section 4:

Assessment Practices of Transversal Skills in TVET

Brunei Darussalam and Thailand share some commonalities with regard to assessment practices in the sense that both countries use standardized achievement levels in transversal skills assessment. In Brunei, teachers use ‘assessment frontsheets’ (see Brunei Darussalam) containing the assessment criteria and attainment levels set in a national guidebook. Similarly, TVET institutions in Thailand assess transversal skills by applying attainment levels for transversal skills set in the NQF. However, even though these two countries have developed standardized achievement levels, methods for assessing students’ transversal skill levels have not been fully developed. The Republic of Korea has introduced a national examination for measuring VBC in vocational students but the examination is criticised for failing to measure transversal skills. These country examples clearly indicate that assessment methods for transversal skills are relatively underdeveloped when compared to the teaching methods of these skills.

Brunei Darussalam

In Brunei Darussalam, teachers of vocational and technical subjects develop assessment frontsheets that are given to students for their reference. This frontsheets explains the assessment criteria, the task or assignment including its components, and the marking scheme. The frontsheets also describes life skills to be assessed, listing all eight of them, and indicates the relevant life skills that will be assessed for the particular course. The attainment level against which each student is assessed is set following the guidelines developed by BDTVET and updated by IBTE.

Besides developing frontsheets, teachers have to assess students’ attainment levels of life skills using other measures. Table 7 shows measures teachers opt for to assess life skills. According to this data, some of the most common practices are teacher assessment (55 percent), followed by self-assessment using rubrics (38.9 percent), checklists (28.3 percent) and peer assessment (23.9 percent). In addition, most teachers (75 percent) also consider student behaviour during school hours as part of life skills assessment.

Table 7: Types of Measures to Assess Life Skills According to Teachers

Measures to assess life skills	f	%
Self-assessment using checklist	51	28.33
Self-assessment using rubrics	70	38.89
Peer assessment	43	23.89
Teacher assessment	99	55.00
Others, either rubrics or checklists	2	1.11
Total multiple responses	265	147.22
Total sample	180	100.00

In terms of assessment types, teachers commonly use a combination of summative and formative assessments (50.6 percent), as compared to using summative (31.7 percent) or formative (8.3 percent) assessment only (Table 8).

Table 8: Types of Assessment Used according to Teachers

Type of assessment used to evaluate students' life skills	f	%
Formative (for improvement)	15	8.33
Summative (for final marking)	57	31.67
Both	91	50.56
No assessment	12	6.67
Not checked	5	2.78
Total	180	100.00

Only 45.6 percent of teachers store and share assessment data, 35.6 percent store but do not share it, and 12.2 percent neither store nor share the data (see Table 9). This implies that the results of such assessments are not properly used to serve potential purposes, such as helping students better plan their futures. Therefore, even though life skill assessment in Brunei appears to be systematically controlled and developed, there remains room for further development, particularly with regard to the use of assessment results.

Table 9: Practice of Storing and Sharing Assessment Data according to Teachers

Storing and sharing assessment data	f	%
Yes, stored but not shared	64	35.56
Yes, stored and shared	82	45.56
Neither stored nor shared	22	12.22
Other: shared among teaching staff only, shared among peers	3	1.67
Not checked	9	5.00
Total sample	180	100.00

Perhaps such limited use of results is related to the issues of fairness and validity of life skills assessment. If validity of assessment results is contested, they cannot be used for grading student achievement. Thus, the issue of how to secure the validity of transversal skills assessment is crucial in the development of transversal skills education. In Brunei, the most common approach to ensuring fairness and validity seems to be through employing of multiple assessors.

Another issue raised by TVET teachers in Brunei is a need for every teacher to assess all eight life skills. According to the national guidelines, every teacher has to assess all eight life skills regardless of the subjects they are teaching. Some teachers feel that some life skills may not be relevant to their course and they would therefore prefer to have a certain degree of autonomy in deciding which skills to measure. Teachers also report that tools for assessing life skills need to be further improved. For example, criteria and mark descriptors of life skills are considered too vague and inappropriate for the use of numeric scales. A simple assessment checklist that includes definitions of morals, etiquette, performance and attitudes should be made available to both staff and students.

Republic of Korea

In the Republic of Korea, three types of assessment for transversal skills have been adopted: VBCAT at the national level, assessment practices at school level and an ad-hoc research survey conducted as a part of the SC+EP⁴ initiative. As previously mentioned, VBCAT is an alternative

4 SC+EP refers to School Creative Career Education Programme which aims at fostering communication skills, cooperative skills, entrepreneurial skills, and the ability to learn. This programme covers primary to upper-secondary schools, including upper-secondary TVET schools.

test to measure the achievement of vocational high school students. Despite its reference to VBC, it cannot be said that VBCAT assesses VBC. It rather assesses knowledge of a certain workplace situation rather than transversal skills required for work.

Even though VBCAT was launched as an attempt to promote practical education in vocational high schools, it will require substantial reform in order to achieve its original goal. Establishment of a competency-based TVET system and practice in the Republic of Korea could contribute to such a reform. It also seems that results of VBCAT have not yet been utilized effectively - either for improvement of school practices nor in guiding students in their future careers.

Except VBCAT, no systemic or formal assessment of transversal skills has been developed in the Republic of Korea. Most transversal skills education takes place through extra-curricular activities, such as creative and experiential learning for which formal/ systematic assessment is close to non-existent at the moment. Instead, assessment for VBC in the context of extra-curricular activities has been undertaken in diverse ways depending on school context. As most teachers try to teach VBC through the process of learning by doing, assessment of VBC is often performance-based, using portfolios, performance, worksheets and business plans, amongst others. In many cases, entrepreneurship is measured in the form of contests, where students are encouraged to participate in teams or groups. For example, contests for business plans, mock-marketing exercises, and sales competitions are used, and the assessment concerns the performance of teams or groups rather than individuals.

A survey to assess the performance of SC+EP pilot schools in terms of improvement of students' transversal skills was also conducted in the Republic of Korea. Students, who participated in the programme, seem to have significantly improved in relation to cooperation, communication, lifelong and entrepreneurship. These results can be considered evidence in favour of scaling up of the SC+EP programme, which is closely related to transversal skills education. Nevertheless, since the purpose of the survey was to evaluate the performance of the SC+EP programme, the results should only serve as evidence to the importance of transversal skills education, not as a legitimate tool for practical assessment of students.

Thailand

In Thailand, most TVET institutions assess transversal skills against curriculum standards and by using methods that they develop according to the different occupational fields. In addition, NQF defines levels of occupational competency for each field of study and sets specific attainment levels for transversal skills and occupational skills. Formative and summative assessment are used to measure the development of transversal skills.

Teachers in Thailand assess students' transversal skills by means of portfolios, reports, observation sheets and institution specific methods such as feedback from local employers who are involved in transversal skills education. In project-based learning, formative assessment is used to measure development of transversal skills in the course of the project, while summative assessment is used to provide information on the learning outcome. Assessment data on transversal skills is stored at school level and shared among teachers in order to assist students in improving their transversal skills. External assessors, such as industry representatives, experts in the field, or customers, are involved in overall assessment in order to ensure an adequate level of performance of graduates (Table 10).

Table 10: Assessment Practices of Transversal Skills in Thai Colleges

Colleges	Assessment practices
Maptaphut Technical College	Involvement of industries from selecting and training to evaluating students
Ubon Ratchathani Vocational College	Full participation of experts and customers in the assessment process of a self-employment project
Natoe Campus of Chiangrai Agricultural College	Feedback from farmers, supervisors, experts and parents
Phang-Nga Technical College	Involvement of university professors who provide theoretical knowledge and work closely with teachers and mentors to assess students on the basis of projects
Srisaket Technical College	Assessment carried out by teachers in collaboration with employers and experts; Involvement of local leaders and parents in providing feedback to the college on community projects

It seems that the involvement of external stakeholders, such as local employers or local farmers, can be beneficial in many respects. First of all, teachers can acquire practical knowledge and skills that are important to ensure relevance of TVET programmes. Secondly, by experiencing real workplace situations, students gain practical experiences that can motivate them to continue learning, especially by strengthening their occupational and transversal skills. Thirdly, by utilizing external feedback, the objectivity of assessment can be improved which is particularly important for assessing transversal skills. Improving assessment of transversal skills therefore requires closer collaboration with employers and other external stakeholders, which seems feasible based on practices in Thailand.

Section 5:

Key Policy Challenges and Recommendations

Based on experiences in Brunei, Thailand and the Republic of Korea, transversal skills education in TVET appears to be facing many challenges in spite of its importance, which is repeatedly highlighted by policy makers and scholars. All three countries clearly emphasize the necessity of reforming TVET to foster transversal skills and ensure students' adaptability to today's ever-changing skill demands. However, even in countries with national policies related to transversal skills education in TVET, concrete methods for teaching and assessing transversal skills have not yet been adequately developed or widely disseminated.

There is therefore a persistent gap between the alleged importance of transversal skills in TVET and actual practices. Considering that the issue of transversal skills education in TVET is a recent policy development, the lag in the development of teaching and assessment methods is not surprising. To address the gap, more effort should be devoted to the study of transversal skills in various settings in the Asia-Pacific region. As part of such an endeavour, this report summarizes findings from a limited number of country studies and draws some recommendations, though limited, that can be referred to by policy makers, teachers, employers, parents and students interested in transversal skills education in TVET.

Summary

Countries with national competency standards, such as Brunei and Thailand, seem to have more concrete policies on transversal skills education, which include requirements and levels for transversal skills to be attained in different occupations and for different types of qualifications. However, the definition of transversal skills appears to differ even in countries with established competency standards, which makes drawing up of policy recommendations for transversal skills education challenging. Such differences stem from the very nature of transversal skills that often reflect the unique socio-economic contexts of different countries.

In terms of pedagogies in transversal skills education, the most common approach is to integrate these skills into traditional subjects. For example, communication skills can be integrated into national or

foreign language courses, and problem-solving skills can be integrated into mathematics. Imparting transversal skills, even when integrated into traditional subjects, appears to take place in active learning environments in the form of group work and project-based learning. Teaching in real-life settings, such as in work places, is also being attempted. Unlike most transversal skills, entrepreneurship is in many cases taught as a separate subject or an extra-curricular activity. In addition, many activities related to transversal skills take place outside of schools alongside those in classrooms. This indicates that a certain level of flexibility should be given in terms of location and method of transversal skills education so that more diverse settings and methods can be explored.

It seems that methods for assessing students' progress (or achievement) are even less developed than those for teaching transversal skills. Even in Brunei where teachers are using frontsheets to monitor levels of certain skills, teachers are at times experiencing difficulties in objectively assessing transversal skills levels. In some cases, involvement of external stakeholders can be helpful in terms of objectivity and validity. For example, some Thai colleges organize extra-curricular activities that focus on transversal skills and involve employers (such as farmers) by requesting their input on student performance. However, such involvement can only partially address the issue of objectivity. There is also the question of social currency of assessment results that will remain without commonly-agreed and clear criteria for different transversal skills levels. It seems that none of the three countries has yet responded to the challenge of social currency of transversal skills assessment.

Challenges

This section presents a series of challenges with regard to policies, pedagogies and assessment of transversal skills education in TVET. A discussion of concrete measures necessary for developing transversal skills education in TVET will follow.

Lack of Clear National Guidelines for Transversal Skills Education in TVET

No comprehensive national guidelines for implementing transversal skills education in TVET are available in any of the three countries. In Brunei, there seems to be a well-elaborated national policy but clear

guidelines on how to teach/ assess transversal skills, and how to use assessment results are yet to be developed. School principals and teachers are currently developing and applying their own methods without any guarantee that assessment results will be recognised. If assessment results cannot be used as competency indicators, very few teachers will be motivated to design and conduct transversal skills education in their schools. Moreover, a lack of clear national guidelines can lead to inefficient resource utilization. Instead of asking teachers to spend their time and resources for the preparation of transversal skills courses and materials, it would be more efficient for the government to take this role and prepare concrete guidelines so that teachers can simply adapt them as needed.

Continued Misperception of Transversal Skills

It seems that transversal skills and transversal skills education are still not clearly understood in all three countries. For example, in the Republic of Korea, transversal skills education is narrowly identified as etiquette education. Transversal skills seem to be often understood by principals, teachers and employers as instilling a certain attitude, good character and responsibility for the workplace. Therefore, ‘character education’ which is expected to nurture desirable attitudes according to prevailing social norms, and transversal skills education which aims to impart interpersonal skills, among others, are being used interchangeably.

In addition, entrepreneurial skills are often interpreted as technical knowledge/ skills for setting up a business. In that case, entrepreneurship education should cater exclusively to students who want to set up their own business and might be irrelevant for those with no business aspirations. Instead of seeing entrepreneurship education as preparation for students who wish to set up their own business, it should focus on enhancing students’ understanding of how to contribute to sustained socio-economic development. This understanding of entrepreneurship education is particularly pertinent nowadays as social entrepreneurship is gaining importance.

Unclear Difference between Transversal and Subject-Specific Skills

While subject-specific skills have some commonality with transversal skills, these skills should not be mixed up. For example, communication skills are not simply a students' vocabulary or knowledge of grammar but rather their ability to express thoughts and understand others.

Similarly, problem-solving skills should not be mistaken for the ability to solve mathematical problems by using formulas. In practice, however it seems difficult to clearly differentiate transversal skills from subject-specific skills. For instance, solving complex mathematical problems can be considered the very essence of problem-solving. Despite certain commonalities, transversal skills should not however be confused with subject-specific skills. Even in maths students should be encouraged to ask questions and find solutions as opposed to passively memorizing and repeating conventional methods often taught in schools.

In addition to difficulties in differentiating transversal from subject-specific skills, there is also the difficulty in developing adequate ways of teaching and assessing transversal skills in TVET as compared to general education. For example, one teacher from Brunei commented that:

In practice, teaching and assessing life skills in general education is easier compared to TVET. In TVET, students are more hands-on, more structured. It is hard to get them thinking outside the box. Teaching TVET is usually straightforward and practical.

If that observation is correct, a different method from the one adopted in general education should be applied in TVET. In essence, there is a need for a far deeper analysis of the impact and effectiveness of different teaching methods in transversal skills education to identify those that can be applied in TVET.

Insufficient Training of TVET Teachers

It is clear that competent TVET teachers are key for advancing transversal skills education in TVET. However, TVET teacher training in this area seems still quite limited. As a teacher in Brunei stated:

[Teaching life skills] is actually a challenge [for us teachers] because we were only briefed. There was no additional training, just some meetings. There was no capacity building on [integrating life skills into TVET]. Like I said, we don't really know much about life skills. We just see, this student did this and that, and that's how we assess.

A similar situation can be reported in the Republic of Korea. The following statement is by a teacher who took part in the piloting of VBC and who comments on the importance of teacher training:

It is important to provide practical training on teaching transversal skills, such as interpersonal or communication skills. Teachers know very well how to teach their subjects but not transversal skills. In addition, it would be good to provide training to strengthen teachers' ability to work in teams. Workshops or other extra-curricular activities can provide the opportunity to realize the concept of VBC through teachers.

Even though some countries are providing transversal skills education in one form or another, a lack of clear guidelines on transversal skills for teacher training hampers endeavours aimed at substantially improving the capacity of teachers and advancing the development of transversal skills education.

Increased Workload for TVET Teachers

Another important issue related to TVET teachers is the increased workload that some of them seem to experience in relation to transversal skills education. In Thailand, teachers seem to struggle in fulfilling the requirements related to transversal skills education. At Maptaphut Technical College for example, teachers are required to teach at least 18 hours a week and spend another 18 hours on teaching preparation and assessment. Developing and learning to use tools and methods that are needed for imparting transversal skills seem to require extra time. Without adequate time allocation for transversal skills education, teachers might not be able to teach and assess transversal skills adequately.

Limited Availability of Support Materials for Transversal Skills Education in TVET

It seems that there is a shortage of materials that can be used for the design and implementation of transversal skills education. This might be partially due to a lack of clear and fully-developed national guidelines on transversal skills education. If teachers have no access to support material, adequate development of transversal skills in students will be hampered.

Recommendations

Conduct In-Depth and Practical Research on Transversal Skill Education in TVET

To begin with, governments need to promote different types of research of transversal skills education which takes into account specific country contexts. Unlike cognitive skills that can be measured with conventional assessment methods, transversal skills cannot be measured with such tools. For example, communication skills cannot be assessed by means of questionnaires since these skills are highly dependent on specific contexts. In order to address such challenges, specific and contextualized studies of transversal skills education should be conducted in TVET. Based on results of such studies, measures could be taken to make teaching and assessment of transversal skills more effective. Enhancing research on transversal skills could also facilitate the development of transversal skills education that responds to the context of increasing economic integration and labour mobility.

Develop Comprehensive Policies and Strategies for Transversal Skills in TVET

Based on research findings, governments should prepare comprehensive policies and strategies for transversal skills education. Efforts should be made to develop detailed national guidelines on transversal skills education for different education levels and programmes, including TVET. These guidelines should contain information on different aspects of transversal skills, such as definition, achievement levels, and guidelines for teaching and assessment of these skills. In addition, manuals for teachers and principals should also be developed. Achievement levels for transversal skills can be aligned with competency standards and National Qualification Frameworks, such as in the cases of Brunei

and Thailand. Teaching and assessment guidelines would need to outline the purpose of transversal skills education and contain key considerations for the design and implementation of transversal skill courses. Given the complexity of transversal skills education however, it seems impossible to stipulate all details for teaching and assessment. Instead, there should be a clear and concise definition of transversal skills and key principles to follow. Based on those principles, models for teaching transversal skills could be developed and shared.

Developing assessment guidelines seems more challenging than developing those for teaching. Assessment is key for effective transversal skills education, but its development seems quite weak at this moment. It would be very difficult to develop assessment tools using paper-and-pencil tests due to the high contextual dependency of transversal skills. Instead, more effort should be devoted to identifying key indicators that are believed to demonstrate students' transversal skills, and ways to ensure objectivity and validity of transversal skills assessment results. Perhaps the most challenging task will be the formulation of guidelines on the use of assessment results. Given that developing adequate assessment of transversal skills might be a lengthy process, results should not be used to decide on students' academic pathways. Instead, results could be used to inform employers and encourage them to shape transversal skills education to reflect the skill needs of their businesses.

In addition, practical support measures should be developed to assist the implementation of transversal skills education in TVET institutions. National guidelines alone are not sufficient to make transversal skills education effective unless these are complemented by measures, such as targeted teacher training, development and sharing of best practices, development and use of practical manuals and incentives for employer engagements. Policies outlining such measures can be included in a comprehensive national strategy for the development of transversal skills education in TVET.

Encourage Involvement of Various Stakeholders in Transversal Skills Education in TVET

Involving external stakeholders can be beneficial for the development of transversal skills education. First of all, teachers should be exposed to real work situations in order to understand the context in which their students will be working in the future. For example, at the Chiangrai Agricultural and Technology College in Thailand, teachers take part in a farming programme where they are guided by TVET supervisors in the development of practical skills and transversal skills, such as communication, problem-solving, collaboration, entrepreneurship, and ability to learn. At the Saowabha Vocational College in Thailand, teachers spend around a week working in small and medium-size enterprises (SME) where they learn about the industry and gain an understanding of requirements related to transversal skills for specific jobs. The exposure of teachers to real work life can help them understand the context and therefore be more effective in designing transversal skill courses for their students.

Instead of individual schools finding ways to involve external partners, governments should put more effort into developing effective measures to encourage stakeholder involvement in TVET institutions, including local employers, local labour/trade unions, and representatives of NGOs. Such involvement could be promoted at a larger scale than simply between a limited number of employers and individual schools. For example, major employers and representatives of trade unions could be invited to join working groups or committees to discuss the strategic development of transversal skills education. In particular, the involvement of employers should be ensured given the critical role of work-based learning for TVET students in acquiring transversal and job-specific skills.

In relation to employer involvement, it should be emphasized that transversal skills are not skills required by employers only. Students should develop transversal skills for both their jobs but also for their lives outside of work. In fact, equipping TVET graduates with transversal skills can ultimately contribute to developing economies and societies that are supported by an environmentally-conscious workforce. In order to achieve this goal, involvement of labour/trade unions and other stakeholders, such as parents and student representatives, should also be considered in the development of transversal skills education.

Enhance Teachers' Capacity to Impart Transversal Skills in TVET

To implement effective transversal skills education, governments should enhance teachers' capacity to impart transversal skills in TVET. To begin with, training to improve basic understanding of transversal skills should be developed or strengthened. In Thailand for example, 3-to-5-day teacher training programmes are provided to enhance teaching capacity to impart transversal skills, especially for master teachers. The main focus of these programmes is for teachers to learn how to integrate transversal skills into existing subjects. In these programmes, teachers usually work in groups to design classes that integrate teaching and learning of collaboration skills and ability to learn. In addition, project-based learning is used to help teachers integrate problem solving into their classes.

Together with course-based transversal skills training, alternative approaches should be explored, such as teacher study groups. In the Republic of Korea, formation of such groups is encouraged by the government with small grants that aim to foster mutual learning on transversal skills education. Study groups choose their own discussion topics and methodologies for trainings. Activities such as entrepreneurial skills training or learning through drama are the most preferred options of teacher study groups. Some study groups choose to participate in entrepreneurial skill courses to which they invite practitioners. In addition, competitions, that award cash prizes or increase chances for promotion, have been an important incentive for teachers. Such alternative approaches can be promoted to stimulate the development of initiatives led by teachers. Simultaneously, experience-sharing on such creative approaches should be encouraged and their results translated into national policies on transversal skills education.

Prepare Different Types of Reference Materials for Transversal Skills Education in TVET

In addition to additional teacher training, policy efforts should be made to develop different types of reference materials that can be used by TVET teachers. Instead of requesting individual schools and/or teachers to prepare their own materials, the central government can facilitate the implementation of transversal skills education by providing reference materials. In this regard, the experience in the Republic of Korea is an interesting example.

In 2011, the Ministry of Education developed materials for teaching VBC in both general and vocational subjects for vocational high schools. This material, which includes teacher manuals, was disseminated through an internet portal for vocational high schools. Different types of teaching materials are available which can be adopted according to teachers' needs. Some of them are available as animated or short videos depicting the work environment that vocational graduates are most likely to encounter in their future jobs.

Policy makers can refer to the experience of the Republic of Korea when considering the development of materials for transversal skills education. It should however be mentioned that these materials developed in the Republic of Korea are not yet widely used by TVET teachers. It seems that teachers who already use different textbooks see no merit in using new teaching materials. This should be taken into account to ensure that teaching materials on transversal skills are clearly related to existing subject materials, and also respond to the diverse needs of teachers.

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Transversal Skills in TVET: Pedagogies and Assessment

The booklet is a follow-up to the eighth booklet of the same series which explored policies and practices of imparting transversal skills in Technical and Vocational Education and Training (TVET). Focusing on the implementation level, the current booklet identifies good practices and remaining challenges in the teaching and assessment of transversal skills in three countries in the Asia-Pacific region, namely Brunei Darussalam, the Republic of Korea and Thailand.

The purpose of the booklet is to add to the existing literature on pedagogy and assessment of transversal skills by shedding light on existing practices in the Asia-Pacific region. It identifies clear challenges and provides focused recommendations for improving teaching and learning transversal skills in TVET.



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