DECEMBER 2023

DISCUSSION PAPER SERIES NO. 2023-28

Toward Measuring Soft Skills for Youth Development: A Scoping Study

Allan B. I. Bernardo, Jose Ramon G. Albert, Jana Flor V. Vizmanos, and Mika S. Muñoz

CONTACT US:

RESEARCH INFORMATION DEPARTMENT
Philippine Institute for Development Studies

18th Floor, Three Cyberpod Centris - North Tower
EDSA corner Quezon Avenue, Quezon City, Philippines

publications@pids.gov.ph
(+632) 8877-4000

https://www.pids.gov.ph

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Allan B. I. Bernardo
Jose Ramon G. Albert
Jana Flor V. Vizmanos
Mika S. Muñoz

PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES

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Abstract

Rapid technological advancements and shifting economic paradigms in the 21st century also continuously change the nature of work wherein more complex and sophisticated skill sets are being required. There is a growing recognition of the pivotal role soft skills play in preparing the youth for this evolving environment. However, there remains a notable gap in identifying what comprises these soft skills, or Transversal Competencies (TVC). The study aims to contribute to policy discussions to support the government in enhancing its understanding of soft skills building and in formulating strategies to cultivate a workforce well-prepared for the future. The study utilized different interrelated methodological approaches: scoping review and key informant interviews (KIIs), with distinct data-collection methods. The results of the scoping review and KIIs suggest there was no clear common definition of the concept or its dimensions. However, the Philippine articulations of TVCs commonly identify these three categories: (a) critical thinking and other cognitive skills, (b) interpersonal skills, and (c) intrapersonal skills. While these dimensions are prioritized, the data were less clear about what the priorities were in which TVC concepts and skills should be assessed. To lay the groundwork on potential assessments, a recommendation of the study involves a need to formulate a multicomponent assessment of soft skills aligned with basic and higher education curricula. Co-creating a systematic approach of developing assessments of TVCs may include stakeholder consultations, cost-benefit analyses, and meticulous test development phases to ensure technical expertise and appropriateness to local contexts. In the future, these assessments may also be leveraged for human resource development and learning in various employment sectors.

Keywords: 21st century skills, soft skills, transversal competencies

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Toward Measuring Soft Skills for Youth Development: A Scoping Study

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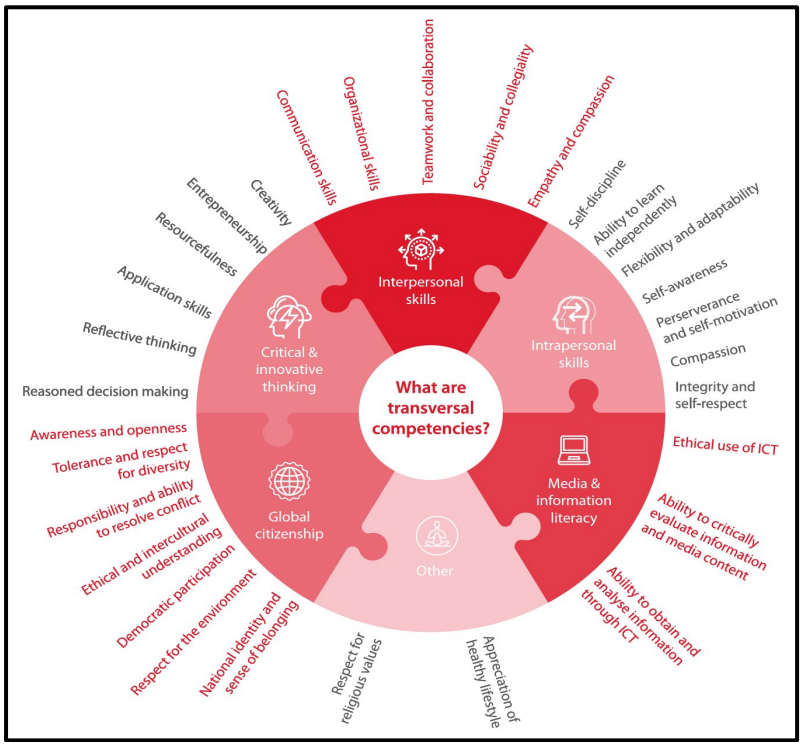
1. Introduction

At the start of the 21st century, the demand for repetitive and routine tasks has significantly diminished, thus changing the nature of work (Autor *et al.* 2003). Today's workforce requires a skill set that emphasizes sophisticated and complex problem-solving abilities, along with advanced communication and coordination skills, to keep pace with rapid technological advancements (ACTRC 2015). While the importance of soft skills, especially among the young, is widely recognized especially in the private sector, there remains a notable gap in identifying what comprise these soft skills, referred to as Transversal Competencies (TVC), and in measuring them. TVCs, crucial for navigating the social, economic and technological disruptions of the 21st century, present a complex challenge in measurement, due to the multidimensional and varied definitions (refer to **Figure 1** for the UNESCO definition of the TVC dimensions). In the Philippines, the development of TVC is presumed to be integrated within the curriculum of subjects like mathematics, social studies, science, and values education (Care & Luo 2016).

Figure 1. Transversal Competency Framework



Source: UNESCO

[*] The first author is a Distinguished University Professor and University Fellow at the De La Salle University (DLSU). The second author is a senior research fellow, the third author is a supervising research specialist, and the last author is a research analyst at the Philippine Institute for Development Studies (PIDS). The views expressed here are the authors' own and do not necessarily reflect the positions of the organizations that the writers are associated with.

International organizations such as the World Economic Forum (WEF), the Asian Development Bank (ADB) and the World Bank, have reported that disruptive industry changes driven by emerging technologies are drastically reshaping business models and necessitating new skills sets (WEF 2016; WEF 2018; ADB 2018; World Bank 2019). These changes place a growing emphasis on soft skills for the current and future workforce. The Philippines faces imminent challenges, such as technological unemployment or rising inequalities, from the growing use of artificial intelligence (AI), biotechnology, nanotechnology, sensorization, 3D printing, the internet of things, big data, renewable energy, and autonomous systems. These "new disruptors" have already affected the country's economy, including production and consumption, and it is likely they will also impact on the workforce (Albert *et al*. 2018).

In the face of rapid technological advancements, the workforce is at a pivotal crossroads. Emerging technologies especially AI, machine learning and automation are redefining job roles and the skills required to perform them effectively. While these emerging technologies offer immense potential for economic growth and efficiency, they also pose significant challenges, particularly in the context of what TVCs do the labor force have as it prepares to work side by side with AI.

The current workforce, largely trained and skilled for a pre-digital era, often lacks TVCs to adapt to emerging technological shifts. This gap is evident in several key areas: Adaptability and Continuous Lifelong Learning, where the rapid pace of technological change requires workers to continuously update their skills; Problem-Solving in a Digital Context, as the context in which problems now arise is often digital, hindering effective problem-solving; and Collaboration Across Digital Platforms, with the rise of remote work and digital collaboration tools demanding an ability to work effectively in virtual teams.

For the incoming workforce, the challenges are twofold. Firstly, there is a risk of a skills mismatch, where the skills being taught in educational institutions do not align with the demands of a tech-centric job market. Secondly, there is the challenge of preparing for jobs that do not yet exist, as emerging technologies of the Fourth Industrial Revolution (FIRe) are creating entirely new jobs.

The lack of TVCs in both the current and future workforce directly impacts their ability to navigate the challenges brought about by FIRe technologies. Without skills like digital literacy, adaptability, and collaborative problem-solving, workers are less equipped to handle the demands of a rapidly evolving job market. This gap not only affects individual career prospects but also has broader implications for economic competitiveness as well as innovation and productivity.

As we move deeper into the 21st century, the need for a workforce proficient in TVCs thus becomes increasingly critical. Addressing this gap requires a concerted effort from educational institutions, policymakers, and industry leaders to redefine skill development frameworks and prioritize the cultivation of these essential competencies. By doing so, we can ensure that both the current and future workforce are not only prepared to meet the challenges of emerging technologies but are also equipped to thrive in a digital future.

This study aims to assist the government in enhancing its understanding of soft skills building and in building strategies to fosters a future-ready workforce. The study aims to do so by clarifying how the concept of *soft skills* is understood by different stakeholders, and exploring

how the meanings of soft skills are currently measured in different domains in Philippine society. The specific objectives of the study are to:

a) summarize existing models of TVCs used in government agencies, private organizations, civil society and other groups;
b) describe the challenges associated with developing and measurement of TVCs in young people entering the workforce; and
c) propose a plan for the development of a TVS assessment tool for young individuals entering the workforce.

Objective (a) will identify the domains of TVCs that will be the foundation of a future test development project, and also clarify the likely assessment purposes and functions of test to be developed. Objective (b) will provide contextual information on the anticipated used of the test to be developed. The results of the analysis related to these two objects will serve as the bases for the plans to be articulated in objective (c). The study can contribute on policy discussions toward adjustments in the curricula of basic and higher education resulting in the production of graduates better prepared for jobs in the future.

2. Literature Review

Kechagias (2011) defines soft skills as "intra- and inter-personal (socio- emotional) skills, essential for personal development, social participation, and workplace success" (p.33); soft skills should be distinguished from technical skill. Meanwhile, Boyatzis, Goleman, and Rhee (2000) suggest four general blocks of 20 soft skills. Those four blocks are emotional self-awareness, self-management or self-government, social awareness, management of social relations and skills. In sum, a large part of soft skills relates to a set of personal attributes and interpersonal skills that will prepare individuals for both employment and further learning. Thus, soft skills could be developed and measured. Results from a study by Heckman (2012) revealed that Traditional academic assessments frequently do not adequately evaluate soft skills, which encompass personality characteristics, aspirations, motivations, and preferences that are vital in workplace, educational, and other settings. Additionally, soft skills not only predict success but also actively facilitate achieving it. Hence, initiatives focused on cultivating soft skills constitute a key element of any comprehensive collection of public policies aimed at promoting individual and societal well-being. A dedicated evaluation tool for soft skills must be developed that draws from current approaches, is customized for application in youth programs, and appropriately suits the intended age demographic. (Galloway *et al.* 2017).

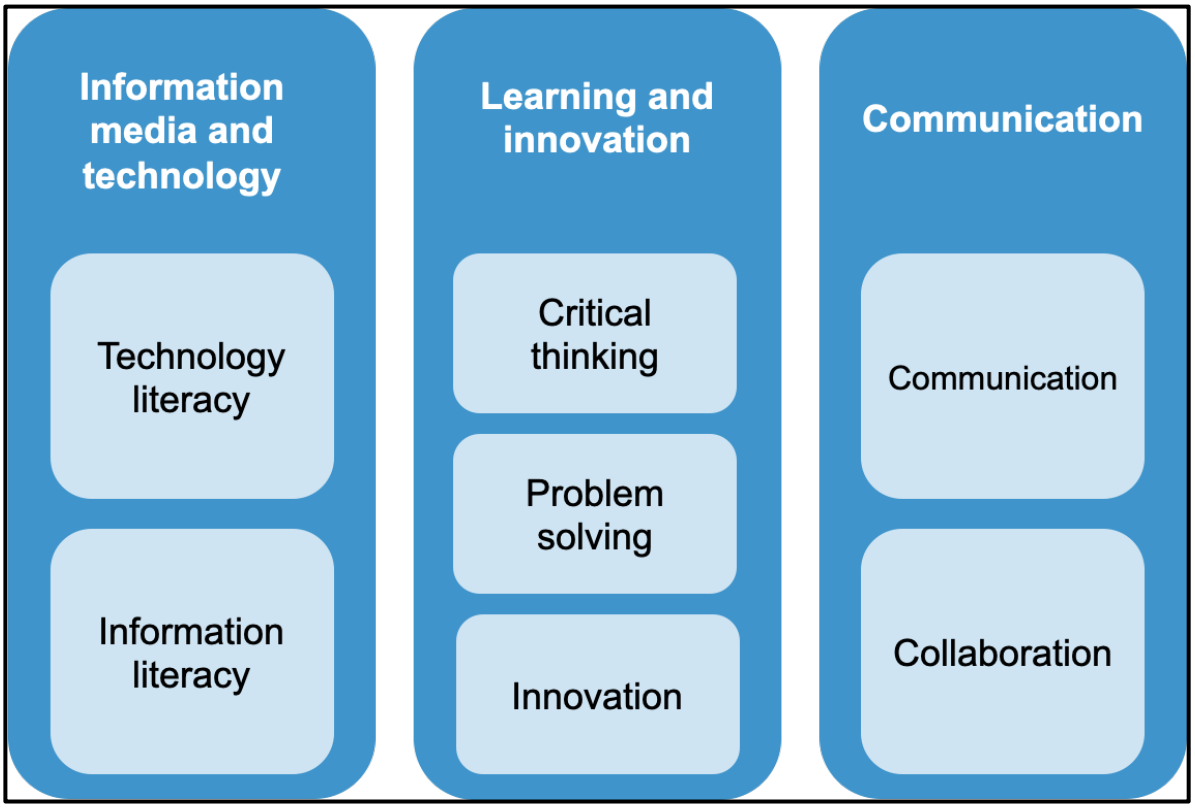
Soft skills, or TVCs, are mentioned in the Philippines' basic education curriculum: 'every graduate of basic education shall be an empowered individual who has learned…the competence to engage in work and be productive…[and], the capability to engage in autonomous, creative, and critical thinking…(RA 10533 Section 2), as part of the goal of nurturing the "holistically developed Filipino"' (DepEd, 2016). However, an assessment conducted by UNESCO in 2016 revealed that while there is a current focus on assessment of TVC at the central level of the DepEd through its Bureau of Educational Assessment (BEA), schools have not yet been provided with specific guidelines on TVC implementation and assessment. Further, the report noted challenges in the country implementing government policies on TVC assessment that are primarily operational-systemic, including insufficient lead time to implement policy, lack of teacher training and incentives, lack of IT infrastructure and technical expertise, insufficient classroom materials and inadequate budget (Care & Luo 2016).

3. Methodological Framework and Research Design

3.1. Methodological Framework

The proposed methodology will include an expanded review of the different frameworks, and also international efforts to measure TVCs.

Figure 2. 21st Century Skills



Source: ACTRC, 2015

Prior to the development of a valid tool for assessing soft skills, it is essential to address certain critical assumptions. This involves more than merely adhering to the technical processes of scale development; it requires a clear clarification of the construct under examination. The terms "21st-century skills" or "transversal skills" are inherently multidimensional by definition, creating challenges due to potential variations in interpretation among individuals. This variability in understanding adds complexity to the assessment. Additionally, the second crucial aspect in skill development—scale development—necessitates thoughtful consideration of its intended application.

In order to make an assessment instrument useful, it is important to identify the network of concepts that are essential for the assessment. This allows for the instrument to be structured in a way that prioritizes and rationalizes the concepts. When measuring transversal skills, it is important to consider how the assessment results will be used and the associated issues. Unlike objective metrics such as height or weight, each assessment tool is designed with a specific purpose. Therefore, it is possible to measure specific aspects of the construct based on the intended use of the scale.

3.2. Research Design

The study utilized different interrelated methodological approaches, such as scoping review and key informant interviews (KIIs) with distinct data-collection methods. The findings from these different methods will be integrated to the possible policy actions that can lead to the development and utilization of TVC assessments in improving skills-building in the youth workforce.

Table 1. Summary mapping of study objectives and the corresponding data and analyses

Specific Objective	***Data Items*** *(List the data items that will be used/analyzed to address the objectives.)*	***Data Analyses*** *(Specify how the analyses would answer each of the specific objectives of the research)*
Summarize existing models of TVCs used in government agencies, private organizations, civil society and other groups;	• Published research articles in scoping review. • Key informant interview	Thematic analysis
Describe issues associated with the development and measurement of TVCs in young people entering the workforce;	• Published research articles in scoping review. • Key informant interview	Thematic analysis and narrative review
Propose a plan for the development of a TVS assessment tool for young individuals entering the workforce.	• Analyses from first two objectives	

The scoping review sought to identify the domain or structure of transversal skills as it is referred to in published research involving soft skills among Philippine populations (*e.g.,* workers, students, teachers, etc.). Further, the study will utilize the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) framework to determine the eligibility of studies. The chosen of databases were SCOPUS and EBSCO. EBSCO has a distinctive feature by incorporating non-published works, and SCOPUS concentrates exclusively on published content. GoogleScholar was originally considered because of its comprehensive coverage; however, initial searches indicate that the EBSCO and SCOPUS entries were also included in GoogleScholar, so for efficiency, the search was limited to the two databases.

The eligibility criteria was guided by the Population-Concept-Context (PCC) framework, which will involve systematically downloading all published articles the were reported after using the following search terms: “transversal skills” “transversal competencies” “21st-century skills” “social-emotional learning” and “Philippines. The entries identifies in EBSCO and SCOPUS comprised the initial set for the scoping review. This inclusive approach involves various stakeholders such as teachers, curriculum developers, educators, policymakers, employers, and employees.

Scoping reviews are typically undertaken as a precursor to a systematic review or to some other research undertaking. The conditions for a scoping review are typically assumed to be the following (Munn et al. 2018, p.2):

- To identify the types of available evidence in a given field;
- To clarify key concepts and definitions in the literature;
- To examine how research is conducted on a certain topic or field;

- To identify key characteristics or factors related to a concept; and
- To identify and analyze knowledge gaps.

The scoping review applied these aims to understanding the nature of TVCs, its structure, dimensions, and measurement. Consistent with the requirements of the scoping review methodology, an (a) *a priori* protocol for including articles in the review was set, (b) using an explicit, transparent, peer review search strategy, and (c) standardized data extraction forms.

In addition, representatives of different organizations were also interviewed to build an understanding of the nature of TVCs, its structure, dimensions, and measurement from the perspective of actors in the Philippine policy, employment, and educational sectors. In particular, representatives from the following sectors will be identified: (a) education sector (*e.g.,* DepEd, TESDA), (b) test developers and professional assessment agencies, (c) business and industry (*e.g.,* management and employment associations), (d) government agencies (*e.g.,* Civil Service Commission, HR of LGUs), and (e) civil society groups (*e.g.,* PBEd, PBSB).

The interviews focused on the same topics as the scoping review: the respondents' understanding the nature of TVCs, its structure, dimensions, and measurement. The interviews also inquired in how the participants saw the uses of measurement soft TVCs, and the potential problems associated with use of measures of TVCs in their sector. The interview data were analyzed using establish thematic analysis protocols.

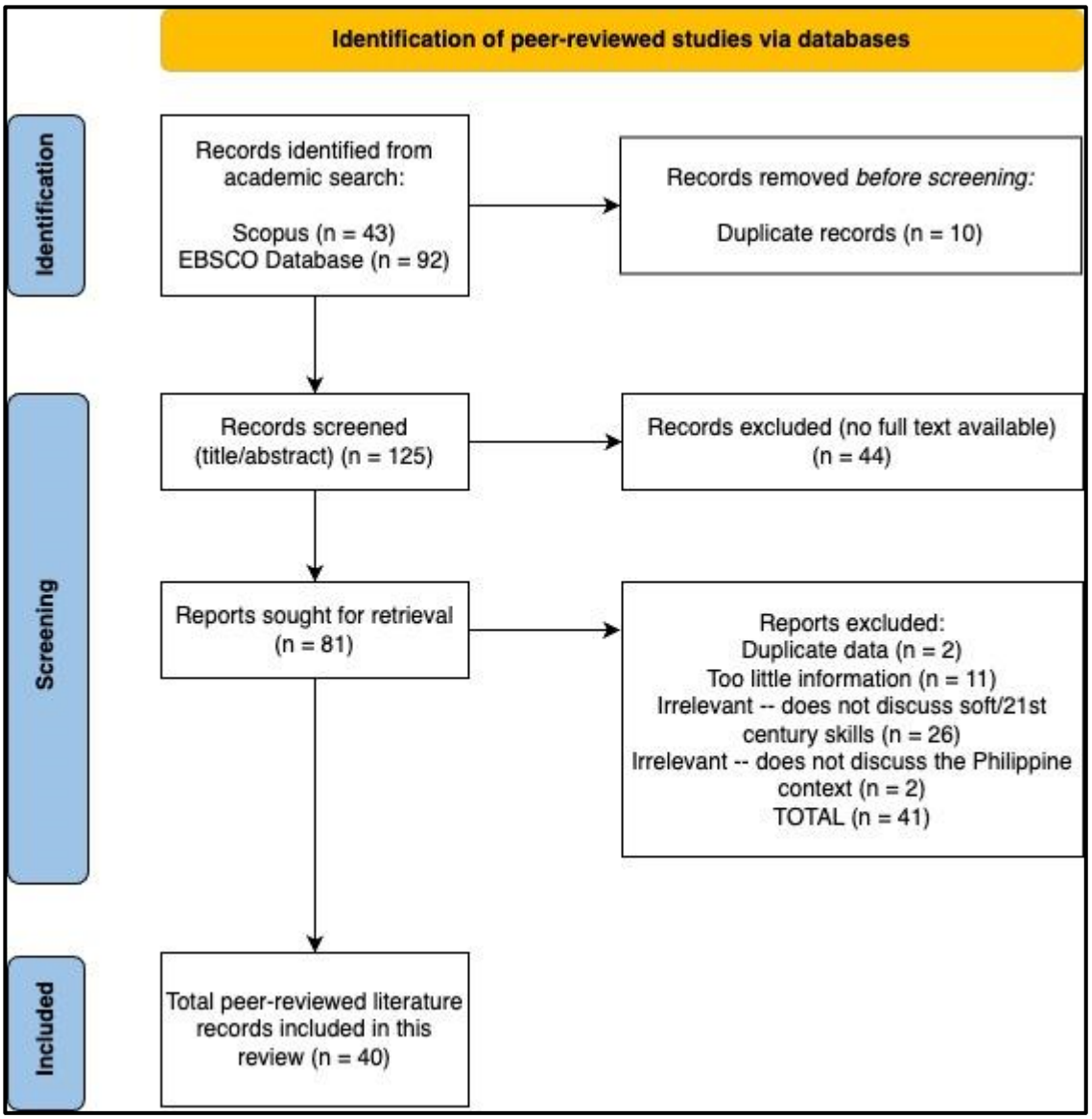
For both the scoping review and key informant interviews, the key concepts were identified and organized within the themes, which were further organized into higher order thematic categories. Based on the design of the scoping review data extraction protocol and the KII interview protocol, a few higher order themes are already expected: (a) definitions and dimensions of TVCs, (b) functions and benefits of TVCs, (c) development of TVCs, and (d) measurement of TVCs.

4. Results and Discussion

4.1. Scoping Review

Figure 3 summarizes the search and selection process for the scoping review using the preferred reporting items for systematic reviews and meta-analysis (PRISMA) flow diagram. From a total of 135 sources identified, 10 duplicate records were excluded; 125 items were subject to screening, but another 44 were excluded because no full texts of the report were available. From the 81 items sought for evaluation, 41 were excluded for various reasons (*e.g.,* did not sufficiently discuss TVCs or the Philippine context, among others). The final set of sources included in the review were 40 publications. Most of the studies pertain to the educational sector, with 24 studies referring to some dimension of students' TVCs and 10 studies referring to teachers' TVCs. Of the 10 studies that focused on teachers, only 3 actually referred to teachers who were already in the service and 7 involved teachers who were still in the pre-service education phase. Of the 24 studies involving students, 2 involved students doing their practicum or internship and were preparing to enter the workforce. Only 6 of the studies selected involved discussions of the TVCs among Filipino workers. Although most of the studies referred to the education sector, the discussion of TVCs in these studies make reference to job skills and other competencies required beyond the educational setting, and as such the contents and discussion of those studies are relevant to the current investigation.

Figure 3. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow diagram for the scoping review



4.1.1. Definitions and dimensions of TVCs

Although all 40 selected studies explicitly refer to either TVCs, transversal skills, or 21st century skills, it is important to note that there was no clear common definition of the concept or its dimensions. This is not surprising as different models of the concept are provided in the research literature and policy discussions. Nevertheless, there were some concepts where there was convergence, and we distinguish among these concepts and dimensions below.

The following dimensions were most frequently explicitly referred to among the studies:

- Critical thinking and problem-solving skills
- Communication
- Interpersonal skills
- Collaboration or teamwork
- Creativity or innovation skills

- Lifelong and career skills
- Use of technologies, digital and information literacy

Most of these dimensions are aligned with three broad dimensions of common frameworks of TVCs proposed by policy-related documents on education and labor/human capital development. These three broad dimensions are (a) critical thinking, which is typically the broad category of cognitive competencies that also include creativity, (b) interpersonal skills that includes communication skills, collaboration and teamwork, and (c) information literacy. Problem solving and the use of technologies are not typically included in frameworks of TVCs mainly because there are competencies that are part of the conventional academic and professional competencies. The reference to lifelong and career skills probably alludes to the broadest notion of TVCs, and might actually refer to a lot of other more specific competencies.

There were other concepts that were mentioned often, but not in the majority of the studies selected for review. These were the following:

- Adaptability
- Initiative and self-direction skills
- Global citizenship/connections
- Local citizenship/connections
- Conflict resolution
- Leadership skills

These concepts represent two other broad dimensions of TVCs not referred to in the first set of more frequently mentioned dimensions: (a) intrapersonal skills that include adaptability or flexibility and self-motivation or initiative/self-direction, and (b) global citizenship, which include the competencies related to resolving conflict, respect for cultural diversity, national identity and democratic participation. On the other hand, leadership is not typically included in frameworks of TVCs, also because this is a competency that is presumed to be part of conventional professional qualifications.

A few other concepts were mentioned in a few studies:

- Mentoring/coaching skills
- Positive work attitudes
- Negotiation skills
- Social and ethical responsibility
- Coping with stress and emotion

These concepts are not typically included in most frameworks of TVCs but some of them can be associated with some of the broad categories referred to above: interpersonal and intrapersonal skills, and global citizenship.

So far, the scoping review indicates that Philippine articulations of TVCs are associated with five broad categories of competencies: critical and innovative thinking, interpersonal skills, intrapersonal skills, information literacy, and global citizenship. But the articulations also include competencies that are not typically included in TVCs (*e.g.,* leadership, problem-solving, technological skills).

4.1.2. Measurement of TVCs

Most of the studies selected for the scoping review also included some measure or survey of TVCs; 27 of the 40 actually included some survey instrument or scale that refers to specific dimensions of TVCs. But only 3 studies used standardized or validated measures of TVCs or specific dimensions of these; the other 24 used researcher-developed surveys or measures, most of which did not actually measure the competencies, but instead assessed knowledge, attitudes, or perceived importance of dimensions of TVCs. The remaining 13 studies selected in the scoping review did not include a measure or survey of TVCs, but in some of those, the importance of assessing TVCs was mentioned.

As most of the studies that reported using researcher-developed measures, and these reports did not always specify the competencies included in the measures, there was less information on what dimensions of TVCs were typically assessed. However, there were some competencies that were often mentioned:

- Critical thinking/problem solving
- Communication
- Collaboration/teamwork
- Creativity
- Interpersonal skills

All these were also mentioned in the preceding section that referred to definitions and dimensions. Presumably these skills are the ones that can be more easily operationalized for measurement purposes. In contrast, many of the other TVCs competencies mentioned in the preceding sections were not included in researcher-developed measures, particularly those that are not observable, and perhaps, more difficult to operationalize.

That majority of the publications included in the scoping review involved some quantitative assessment of particular TVCs dimensions indicates an appreciation of the need to quantify the competency using some self-report measures. However, many of the studies included did not measure the individual's acquisition and/or proficiency of TVCs; instead, many of the measures aimed to obtain self-reports on the participants' knowledge, beliefs, and attitudes about concepts and dimensions of TVCs. Some of the studies that actually measured some TVCs used available standardized measures such as the Student Engagement in School Inventory and the Real-World Work Readiness Scale (Magallanes 2022), the Colorado Learning Attitude about Science Survey (Abaniel 2021),the Socio-emotional Skills Domains of Science Students Questionnaire (Peras & Prudente 2021), which are foreign-developed scales. But there was an attempt to develop a measure, and this was the Soft Skills-Graduate Attribute Scale (Llenares & Deocaris 2019). Some of the standardized measures tended to be very specific (*e.g.,* science learners), but some are intended to be more domain-general.

The results of the scoping review of the published studies on TVCs related to the Philippines points to particular emphasis on the dimensions of TVC in the definitions and a more focused coverage in the measures. In the next section, the emphasis and coverage of stakeholders will be discussed.

4.2. Key Informant Interviews

To explore whether perspectives of stakeholders mirror the definitions, dimensions, and measures of TVCs indicated in the scoping review, Key Informant Interviews (KIIs) were conducted. The KIIs involved 10 respondents across various sectors. **Table 2** below shows the distribution of respondents, offering a comprehensive view of the diverse perspectives of soft skills.

Table 2. Distribution of Key Informant Interview Respondents by Sector

KIIs	Number of Respondents
Education sector	1
Test developers and professional assessment agencies	3
Business and industry	2
Government agencies	3
Civil Society Groups	1
Total	10

4.2.1. Definitions and dimensions of TVCs

There were observable differences in how stakeholders define TVCs. Given the more technical nature of the scope of their work, the representatives of assessment centers tended to be more explicit in their definitions and conceptualization of TVCs; for example, there were references to frameworks such as CASEL (Collaborative for Academic, Social, and Emotional Learning) and OECD's Big-5 Framework. In these contexts, TVCs are typically characterized by specific parameters and criteria that guide the assessment process. On the other hand, representatives from industries, universities, and government entities tend to associate soft skills more broadly with values and competencies. Instead of relying on predefined frameworks, these stakeholders often interpret soft skills in the context of overarching values and essential competencies relevant to their specific domains. The diversity in how soft skills are understood emphasizes the varied perspectives found in different sectors, revealing the intricate and multifaceted nature of this construct.

Across the different stakeholders, there were some frequently cited TVCs, which are visually depicted in **Figure 4**. These more frequently mentioned concepts:

- critical thinking
- grit
- social skills
- communication
- teamwork

Figure 4. Word cloud of commonly cited soft skills

Source: Authors' generated word cloud

These most frequently mentioned concepts fall within the three broad categories of TVCs: critical thinking, interpersonal skills (communication, social skills, teamwork), and intrapersonal (grit). But other concepts that were also mentioned by several stakeholders fall under one other broad category (global citizenship) and also include more specific competencies under the three already identified earlier. Under global citizenship, there were references to patriotism and citizenship, but perhaps not explicitly related to intercultural or global citizenship. There were several references to different intrapersonal competencies, such as: self-management, self-regulation, self-awareness, resilience, integrity, and the growth mindset. There were also notable references to spirituality and values, which are included in some broad frameworks of TVCs.

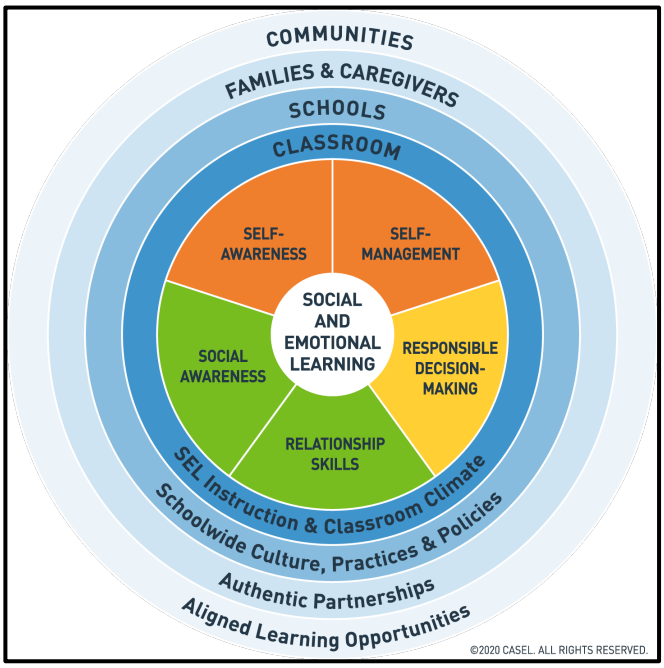
4.2.2. Measurement of TVCs

The KII respondents were explicitly asked if their organizations had some form of assessing TVCs, and all but one indicated that there was some assessment. For four of the respondents, the assessment was more qualitative. These respondents, who represented academic institutions, government, and civil society sectors, indicated the lack of dedicated assessment tools for soft skills, opting instead for integration within school activities and incorporation into pre-employment interviews or through observations of how the individual works on tasks and in teams performing tasks. For these qualitative forms of assessment, the persons responsible for the assessment are guided by some performance standards or checklists of important qualities or attributes. The other five respondents referenced specific standardized measures, which are described below.

Not surprisingly, the assessment centers have developed tools to measure TVCs in different Filipino populations. Although the tools draw significant inspiration from the CASEL framework (**Figure 5**), a foreign model, the assessment tools underwent a process of localization to adapt to the specific nuances of the Filipino context. These assessment centers also adopt a customized approach and adapt assessments to the unique demographics of their clients—students, professionals, workers, and teachers. The integration of the CASEL

framework provides a robust foundation, enabling assessment centers to fine-tune evaluations to meet the nuanced requirements of diverse groups within the broader context of soft skills measurement.

Figure 5. CASEL Framework



Source: https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/

The development of assessment tools in partnership with local assessment experts in education and human resource management was also mentioned by two other KII participants, and these various tools are in different stages of development, and are designed to be used for specific populations (*e.g.,* for primary school students, for workers in particular industries). Only one participant mentioned the use of third-party assessment systems for pre-employment screening.

Perhaps because most of the KII participants were not directly involved in the development and use of the assessment tools, it was difficult to ascertain which specific TVC dimensions were measured in the scales referred. The presumption seems to be that the tests used or that will be developed capture the same dimensions that the participants defined in the first part of the KII.

4.3 Integration and Key Observations

4.3.1 Relevance and importance of TVCs

The results of the scoping review and KIIs suggest that there is an appreciable level of attention and importance given to the concept of TVCs (or 21st Century Skills or soft skills) in the Philippines, at least in the education and labor sector. Even if the scoping review indicated that much of the work on TVCs has focused on the education sector, there was a clear understanding that developing TVCs among students is an important goal to enable students to take on the requirements and challenges of their future places of work. As such, the appreciation of TVCs in the Philippine context seems to be clearly framed as relevant and important to the development of the country's labor and professional sector.

4.3.2 Definition and dimensions of TVCs

Given the multidimensional nature of TVC as a construct, it was expected that there would be heterogeneity in how the construct is understood in the Philippine context. But there was noticeable convergence on some concepts and dimensions of TVCs, and also some apparent divergences in how the construct may be understood. These will be the focus of the sections below.

4.3.2.1 The core categories of TVCs

Across the scoping review and KIIs, three categories of TVCs were clearly prioritized: (a) critical thinking and other cognitive skills, (b) interpersonal skills, and (c) intrapersonal skills.

Critical thinking skills were consistently articulated across the published studies and in the stakeholder interviews. It is difficult to ascertain whether a specific definition of critical thinking skills was shared across all these data sources, but there was a clear prioritization of the ability to think critically and analytically in different problems domains. In addition, the cognitive competencies associated with innovative and creative thinking were considered to be important skills.

Various interpersonal skills were mentioned in the published studies and KIIs, but the most frequently mentioned referred to communication skills, collaboration, and teamwork, and to a lesser extent social skills in different (learning or work) contexts. All these interpersonal skills are presumed to be important in different learning and work contexts as more tasks require the input and coordination of multiple individuals, maybe even working in different organizations and physical spaces.

Many different personal attributes, dispositions, and qualities were referenced across the published studies and interviews, making the intrapersonal skills category the most conceptually diverse. These concepts include: adaptability, self-motivation, initiative, self-awareness, self-management, self-regulation, resilience, integrity, grit and the growth mindset. Many of these concepts are overlapping, but what is common is that most of these qualities seem to be required for individuals to effectively engage changing and challenging tasks and work in a sustained and effective manner.

4.3.2.2 Secondary categories of TVCs

Two other categories of TVCs were mentioned less frequently: information literacy and global citizenship, and there was a competency typically classified as “other” in some TVC frameworks.

Information literacy was referred to in many of the published studies, but was hardly mentioned in the KIIs. Perhaps it was because most of the published studies refer to the education section, where information literacy is emphasized in curricular discourses. On the other hand, in the labor sector, information literacy may not be as important from the perspective of labor and human resource development.
Similarly, global competencies such as those related to resolving conflicts, respecting diversity across cultures, global and national citizenship values were mentioned in the published studies, but not emphasized in the KIIs. This pattern might again indicate a divergence in priorities of the educational and labor/professional human development sectors.

In an opposite direction, spirituality and values were mentioned in the KIIs (although not very often), while these were not articulated in the published studies. Taken together, the divergences in these categories reflect possible differences or misalignments in priorities of the education and work sectors. But prioritizing of the TVC dimensions might also reflect current discourses in each of the section, and thus, it might be premature to assume that information literacy and global competencies are deemed unimportant in the work sector, especially as ITC becomes an increasingly important component of many sectors of employment and industry, and as more industries and organization become more intensively engaged in the global economy.

4.3.2.3 Absent TVC competencies

While the results of the scoping review and KIIs highlight some of the competencies included in most TVC frameworks, there are competencies that are notably absent in the data from the two components of the study. These include cognitive competencies such as resourcefulness, reflective thinking, and reasoned decision making, and also interpersonal skills such as empathy, compassion, and organizational skills.

4.3.2.4 Related (non-TVC) competencies

Across the published studies and KIIs, there were a few competencies that were salient but that are not typically included in TVC frameworks. In particular, the scoping review pointed to problem-solving skills, use of technology, and leadership as dimensions of TVCs. These competencies are undoubtedly important, but they are typically presumed to be part of the more conventional set of competencies expected of learners and professionals, and are thus, not considered part of the new set of competencies to effectively engage the 21st century work environments. Perhaps, these concepts were mentioned because there is a sense that these competencies are not developed in most students, workers, and professionals; that is, the articulation might be an expression of the desire to strengthen important basic competencies that are perceived as week.

4.3.3 Measurement of TVCs

The measurement of TVCs was articulated in different ways across the two substudies. As much of the published studies were quantitative, some measures of TVCs were included, but most of these did not actually involve assessing the attainment or demonstration of TVCs. There were also stakeholders that described the development and adaptation of TVC measures in the Philippine context, although there were also reports of more qualitative ways of assessing the TVCs. It seems that in theory, there is an abstract appreciation of how a quantitative assessment of TVCs may be useful, but current practices still do not reflect this appreciation.

A positive sign is the reports of several efforts to develop more contextualized tools to assess TVCs, adapting foreign theories and measures to respond to the needs and realities of Philippine (work and educational) organizations. Even as these efforts might still be isolated, they indicate a push towards acknowledging the importance of assessing these qualities and competencies in a manner that can be useful for the different aspirations of organizations.

The data were less clear about what the priorities were in which TVC concepts and skills should be assessed. Nevertheless, respondents suggest a consensus on the importance of testing soft skills among students, with varying recommendations on when to initiate assessments, and more importantly, the practice of testing for soft skills during the hiring process is widely endorsed by key informants. They emphasize the crucial role of soft skills assessment in securing candidates who align with the organizational values, vision, and mission. This endorsement is supported by the reasons, including enhancing the alignment of workers' traits with the overarching goals of the organization. It contributes to creating a more cohesive work environment. Additionally, the use of soft skills assessments is viewed as a means to improve hiring decisions, ensuring that candidates possess the necessary interpersonal and communication skills. The implementation of soft skills testing is viewed as fostering effective communication between educational institutions and industries. The recognition of the link between pre-employment assessment results and longer retention rates emphasizes the strategic importance of assessing soft skills in predicting an employee's potential for sustained success within the organization.

5. Summary, Policy Issues and Ways Forward

Discussions on the readiness of Filipino workers for the jobs of the 21st century have highlighted the need for the range of soft skills or 21st century skills aside from the technical skills relevant to the different types of jobs. The results of this study point to some common concepts within the multidimensional construct of TVC that are most salient in Philippine discourses related to TVC, but also highlight how some TVC concepts are less important for the employment and professional sectors. The results also point to interest in developing and using assessment tools to measure TVCs that are appropriate for the Philippine context. Aside from adapting and using existing TVC assessment tools that were developed in foreign countries, there are efforts to construct new assessment tools specifically for the Filipinos. What are the prospects for the assessment of TVCs in the Philippine employment sector?

There are actually no Philippine laws that directly refer to the use of any assessment tools for employment. But there are laws related to the work of the Professional Regulation Commission (PRC), which involves the administration of examinations for licensing in the different professions and occupations. Passing these examinations allows one to practice the relevant professions; the license to practice is typically used as a requirement for employment in the profession, but the PRC laws do not indicate how PRC examination results should be used in the assessment for employment. For employment in the government sector, the Civil Service Commission (CSC) administers examinations for Career Service Professional Eligibility, Career Service Subprofessional Eligibility, among other examinations for particular government positions (Foreign Service Officer, Fire Officer, Penology Officer, Local Treasury). As with the PRC examinations, passing these CSC examinations makes an individual eligible for the relevant positions in government. For employment purposes, the CSC also has issued resolutions that pertain to the use of additional tests for the recruitment, placement, and promotion of workers in the government agencies: Pre-Employment Test, Promotional Test, and the Ethics-Oriented Personality Test (EOPT). These tests are part of the broader assessment system that individual government agencies may put in place, and which typically consider other criteria and evaluation procedures. In the private sectors, individual companies decide on whether they will require assessments for recruitment and promotion, as there are no laws or regulations that govern these processes in private organizations for the different professions and types of employment.

If there is a strong interest in assessing TVCs among Filipino workers in the public and private sectors, what are the important technical considerations for a system for assessing TVC? Some of these important considerations are discussed in this section, and these are lined up for purposes of proposing a plan for the development of a TVCs assessment tool for Filipino workers.

5.1. Functions of Assessment

All forms of assessment serve a particular function, and the design and components of the assessment tool have to be valid for the function it is intended for. It is important to underscore that the validity of assessment tools are always determined relative to the intended functions of the tool. In the preceding paragraphs, the use of examinations as a tool for certifying eligibility is currently in place. For example, passing the CSC eligibility tests is a hard requirement for working in government agencies. The other CSC exams are intended for screening and for promotion to higher positions in government agencies. Presumably, these additional exams assess competencies that are assumed to be either required or preferred for the different positions, and the tests provide data on the individual applicant's or worker's demonstration of such competencies. In employment settings, this particular function of assessment aims to provide evidence for particular competencies to establish qualification and/or fit for the intended position, and the assessment may focus on skills, aptitudes, and personality traits that are appropriate for the position.

Aside from screening for competencies to establish fit for a position, assessment can also provide information that relates to professional learning and development programs of the organization. For this function, the assessment tool provides evidence of the competencies that are already established, competencies that are observed but that need to be strengthened, and competencies that are absent and need to be developed or trained. Organizations can then design appropriate learning and development programs and interventions to target individuals or groups based on relevant evidence on the professional development capacities.

Assessments used to help in learning and development programs of organizations can also leverage on how assessment can be used to motivate employees. Providing employees very specific information on their competencies and the organizations' goals and aspirations for their professional development can encourage workers to engage in self-improvement and professional-development opportunities more purposefully, especially if the assessments can provide information on their progress towards the ideal levels of competence.

Discussions on the assessment of TVCs will need to consider how the results of such assessment tools will be used. Presumably, organizations can use them for screening for employment, where job applicants who do not demonstrate the important TVCs will not be considered further for hiring or promotion. But given the likelihood that such TVCs are weak or even absent, using the tool to reduce the pool of qualified workers may not be viable in the long run. Instead, using TVC assessment tools for learning and development might be more useful and helpful in developing a more competent workforce. But the use of assessment tools for TVC as inputs to learning and development programs, presumes that the organization has learning and development programs. In this regard, the discussions on the development of assessment tools cannot be separated from discussions on programs for the professional learning and development of workers in the organization. There is a common expression in assessment that, "weighing the pig will not make it fatter." The idea is that simply measuring something does not make that something increase; there needs to be a plan to cause that

something to grow. So measuring TVCs with valid assessment tools is not going to strengthen TVCs among workers, there needs to be learning and development plans to actually build up these competencies.

5.2. Domains of assessment

All valid assessments also define the domains of assessment, or the specific competencies that will be measured by the assessment tool; the domains refer to the "what" of the assessment. The validity of the tool is based on whether there is a sound and meaningful definition of the "what" (categories and subcategories of competencies) to be measured, whether the items or elements of the test are valid indicators of the competencies as defined, and whether taken together, these elements provide a reliable index of what these competencies are. Given that TVC is a multidimensional construct, it will be important to define which dimensions of TVC will be set as the domains of the assessment.

The results of the scoping review and KIIs point to categories of TVCs that seem to be seen as important (i.e., critical thinking, communication and collaboration skills, and a range of intrapersonal skills), and to categories of TVCs that seem to be important among educators, but not for those in the employment and professional sectors. Additionally, the results point to competencies that are not typically associated with TVC frameworks and to important TVCs that are absent or not mentioned in the published literature and KIIs. The results of studies like this can indicate or at least suggest what the important domains for assessment ought to be. However, there might need to be a wider range of consultations for this decision. There was already considerable divergence in the results of the two studies, it might be important to get more inputs and perspectives, before the final domains of assessment are determined.

As the results of this study were based on analysis of the labels used by the researchers and interviewees to express their ideas, there might need to be an effort to determine whether the terms used are understood in the same way. Terms like "critical thinking," "communication skills," "interpersonal skills," "adaptability," among others will need to be probed and unpacked so that the correct meanings and indicators are included in the tests to be developed.

For practical purposes, different domains can be considered and weighted differently in a multicomponent assessment. That is, certain components/domains are universally applicable, and others are optional based on the specific job requirements. For example, if a job assignment or position necessitates working autonomously and independently, without direct supervision, a distinct set of domains and subdomains may be "required.". Or if the position involves interacting with individuals outside one's organization, country, or culture, an distinct set of domains and subdomains could be considered. While this approach aligns with good practices in the educational and assessment sectors, the feasibility and viability of implementing such a strategy in governmental sectors and among smaller employers, such as small and medium-sized enterprises (SMEs), might be less practical.

5.3. Type of assessment

There are different types of assessments used that can be used for employees. As indicated in the KIIs, many organizations use a range of assessments including observations and evaluations by supervisors and peers, structured interviews, evaluation of outputs based on defined metrics of performance among others. Some of the interviewees referred to the development and/or use of standardized assessment tools, which seem to be examples of psychometric assessment of

knowledge, skills, aptitudes or personality traits. Discussions on the assessment of TVCs needs to consider what it the type of assessment that might be most useful, also in consideration of the function and domain of assessment.

Human resource managers in organizations are not likely to base hiring and promotion decisions purely on the basis of test scores. Instead, data from different assessments are used to inform such complex decisions. But test scores can be used to screen applicants who clearly do not demonstrate the minimum competency standards. In this regard, the type of assessment will need to be aligned with the function of assessment.

Some dimensions of TVCs might also be seen as more credibly assessed through qualitative approaches or through observations over periods of time. Some would say that competencies such as adaptability and flexibility, collaboration, self-regulation, and other intrapersonal qualities are best observed in actual tasks, in real work contexts, and over time. There might be concerns about whether self-reports are the best sources of evidence for such types of TVCs. In this regard, there needs to be a very informed discernment on what type of assessment will best measure the most important domains of TVCs.

5.4 Planning for Philippine assessment of TVC for workers

If and when policy decision makers and stakeholders sees the usefulness of standardized assessments of TVCs, a systematic approach to the development and use of such assessments can consider the following incremental approach:

a. *Extensive stakeholder consultations and consensus building on the important domains and subdomains of TVCs for assessment*. Such consultation should be premised on teh assumption that many stakeholders do not have a good technical understanding of TVCs and of the specific concepts and labels associated with TVCs. So stakeholders need to be able to clarify and map the specific set of competencies that the see as important, guided by precise conceptual and technical definitions and inputs. These consultations could also be separated for different employment sectors, types of industries, and levels of professional responsibilities/competencies.
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b. *Extensive stakeholder consultation and consensus building on the functions of assessment*. Such consultations should how different organizations can utilize assessment data within their human resources programs, mindful of the divergent goals and resources of different organizations. For government agencies, such functions may need to be referenced to existing laws, regulations, and resolutions of particular government agencies, or be codified in new regulations and resolutions.

c. *Cost-benefit analysis of test adaptation vs. test development*. There are existing assessment tools develop by local experts or by foreign entities, and one option is to adopt and/or adapt these tools for the local context. There are benefits to adopting such tools as it bypasses the long process of development and validation before a good scale can be used with confidence. But there might be concerns about how appropriate such tests are for particular local organizations. On the other hand, test development is a long-drawn process with many technical processes that have to be executed in sequence. So while there is greater confidence as to the tool's appropriateness to the local context, the time lines involved might not be ideal for many stakeholders.

d. If test development is considered, the standard phases of test development and validation will have to be carefully planned, executed, and monitored:
    d1. planning: defining the domains and functions of assessment for which contexts, deciding on the types and format of items or item clusters, on the response and scoring options;
    d2. item writing: developing a large pool of potential items for each domain;
    d3. preliminary administration of items in the item pool;
    d4. preliminary analysis of psychometric properties of the scales and subscales;
    d5. establishing the different types of validity of the scales and subscales;
    d6. establishing protocols for scoring and interpretation
    d7. preparation of the test manuals and guidelines for use of scores for decision making

These steps will all have to be undertaken with proper technical expertise and oversight, even before the test is pilot tested in organizations and used for decision making purposes.

In summary, the study emphasizes the necessity of clarifying the nature and dimensions of TVCs of Filipino workers in alignment with the evolving job landscape of the 21st century, mindful that some of the operative frameworks of TVCs in the Philippine pertain to educational frameworks and not occupational or employment frameworks. The study also points to important considerations to the goals of measuring TVCs among Filipino workers in ways that align with the fast changing requirements of labor and industries. Existing laws primarily focus on licensing and eligibility exams, pointing to a gap in utilizing assessment tools for employment (i.e., recruitment, learning and development, promotion) in both public and private sectors. It is important to consider the purpose, domains, and types of assessments for examining TVCs, in ways that will align with and support medium and longer term human capital development, but also to identify current gaps in the competencies of the workforce. A comprehensive strategy to the development and use of such assessments will contribute to the cultivation of a competent and future-ready workforce.

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