



Article

Chasing Quality TVET Curricula

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Abstract

The curriculum serves as the backbone of any educational system which is crucial in shaping individuals and fostering desirable skills. In the realm of Technical and Vocational Education and Training (TVET), a well-structured curriculum not only equips learners with skills and competencies to meet industry demands but also enhances productivity and help combat poverty. However, many TVET initiatives often fail to achieve their goals due to inadequate curriculum development. This paper aims to delineate the fundamental components of a high-quality TVET curriculum, exploring definitions and key attributes, and discussing effective curriculum development models, including the frameworks forwarded by Tyler, Taba, and Wheeler. Furthermore, it evaluates three distinct curriculum types - traditional, outcome-based, and competency-based - highlighting the relevance of the competency-based approach for TVET. This model's emphasis on practical skills, real-world applicability, and alignment with industry standards positions it as the most effective method to prepare students for the workforce. Ultimately, the paper underscores the necessity of continuous engagement with industry stakeholders and adaptability in curriculum design to empower learners and foster sustainable development within society.

Keywords: TVET, curriculum, competency - based, outcome - based

Introduction

The curriculum serves as the foundational framework of an education system, shaping the types of individuals that society nurtures and the skills they acquire. Key decisions regarding the curriculum play a pivotal role in defining the teaching-learning process, as a well-structured curriculum is essential for achieving high-quality learning outcomes. According to Philip (2016), the curriculum encompasses a deliberate and organized selection of knowledge, skills, and values

designed to facilitate significant learning experiences for individuals.

In the context of Technical and Vocational Education and Training (TVET), the curriculum is particularly significant. TVET is widely recognized as a mechanism for augmenting productivity and contributing to poverty alleviation. It arms individuals with competitive skills that play their parts to the social, economic, and environmental growth of a country (Pavlova, 2014). As the gateway

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to future opportunities, a robust TVET curriculum dictates what content is taught, the conditions under which it is delivered, the intended outcomes, and the methods for assessing learners' achievements. Therefore, meticulous planning, design and implementation of the curriculum are essentials of the successful TVET programs.

The ultimate goal of a TVET curriculum is to enrich the learning experiences of youths and boost their employability prospects in the labor market. Nonetheless, many TVET initiatives face difficulty to produce the desired results due to inadequate focus on curriculum development. It can be attributed to several reasons, including the lack of industry input and insufficient alignment with labor market needs as well as excessive theoretical knowledge. In the recent years, it has been noted that in Nepal, majority of students failed in mathematics or in English subjects but passed other occupational subjects in the TVET courses. Given the profound influence of curriculum on the holistic development of individuals and their ability to shape their futures, this paper aims to explore the elements that constitute a quality curriculum within the TVET sector. It will start by establishing a fundamental understanding of curriculum, then examine various models and types, and underscore the critical quality attributes of an effective TVET curriculum.

The Curriculum

The term "curriculum" originates from the Latin word "currere," which means

"race course" (Hlebowitsh, 2004, as cited in Musingafi, et al., 2015). This metaphor illustrates the trajectory of instructional programs designed to achieve specific educational goals. Over time, numerous scholars and educational institutions have offered various definitions of curriculum, reflecting the evolving understanding of its purpose and design process. Despite their differences, many of these definitions converge on a common theme: the curriculum serves as a structured framework that guides educational practice.

For centuries, educational philosophers and theorists have grappled with fundamental questions regarding curriculum such as what to teach, how to teach, and how to whet teaching effectiveness. Historically, the concept of curriculum has been approached in two primary ways: prescriptive and descriptive.

Prescriptive definitions articulate what "ought" to happen in educational contexts which often present an ideal program or expert opinion on the necessary components of a course of study. Notable figures such as John Dewey, Franklin Bobbitt, and Ralph W. Tyler have contributed prescriptive definitions that emphasize the planned and intentional aspects of curriculum design (Glatthorn et al., 2018). These scholars share a common view regarding curriculum, which they consider it as a continuous process of development. This process includes a range of planned or unplanned experiences, which are concerned with unfolding the abilities of the individuals.

In contrast, descriptive definitions focus on what actually occurs in educational settings, emphasizing the lived experiences of learners and educators as they navigate the curriculum. D.F. Brown and E. Silva are prominent scholars to provide their descriptive perspectives (Glatthorn et al., 2018). These scholars emphasized the experiences relating to the improvement of knowledge and skills of learners by enabling them to think critically and creatively as well as to be able to solve problems and communicate effectively rather than mere acquisition of information. Their definitions guide educators in constructing educational experiences that align with specific goals, outcomes and values deemed important by the experts and stakeholders in the field. While prescriptive definitions aim a systematic approach to curriculum development, descriptive definitions offer insights into the practical realities and complexities of teaching and learning.

Together, these perspectives underscore the dynamic nature of curriculum, illustrating how it serves both as a roadmap for educational progression and as a reflection of the multifaceted interactions that occur within educational environments. Understanding the curriculum through both prescriptive and descriptive lenses allows educators and policymakers to create more effective and relevant educational experiences that meet the needs of diverse learners.

Throughout the history, various organizations have defined the curriculum in several ways.

UNESCO (n.d.) describes it as an organized program of studies necessary for achieving specific educational goals. The curriculum is considered a vision agreed upon politically and socially, accommodating local, national and global needs (Stabback, 2016). The European Centre for the Development of Vocational Training (Cedefop, 2024) further emphasizes that the curriculum encompasses activities related to educational design, organization and planning, including the establishment of learning objectives and assessment methods.

In summary, the curriculum is an ongoing process that develops individual abilities through various experiences, focusing on enhancement of critical thinking and problem-solving skills rather than just information acquisition. It serves as a roadmap for educational progression and addresses the complexities of teaching and learning. Additionally, the curriculum is a structured program designed to achieve specific educational objectives while meeting societal needs.

TVET Curriculum

When TVET programs aim to enable individuals to demonstrate their knowledge and skills in the real world, the curriculum must arm students with competencies applicable in the workplace (UNESCO, 2016). Consequently, the TVET curriculum is descriptive in nature and primarily underlines skills and competency development. This distinction clearly sets the TVET curriculum apart from general education curricula in

terms of focus, content, teaching methods, assessment, certification, and pathways to higher education or the labor market.

The TVET curriculum concentrates on providing practical skills and knowledge directly related to specific trades and occupations, while the general school curriculum covers a broader range of subjects and disciplines. In terms of content, the TVET curriculum highlights skills relevant to particular industries (Brewer & Comyn, 2015), whereas the general curriculum encompasses a wide array of subjects, including languages, mathematics, sciences, and the arts.

Regarding teaching methods, the TVET curriculum stresses practical training, internships, and workplace-based learning experiences (Brewer & Comyn, 2015), whereas general education primarily relies on traditional classroom-based instruction. Furthermore, in the Nepali formal education context, the TVET curriculum leads to vocational qualifications and certifications pertinent to specific trades or industries, while general education culminates in general education qualifications such as a School Leaving Certificate upon completing Grade 10.

As for pathways, TVET curricula aim to prepare graduates, enabling them to enter the labor market with appropriate employability skills or to pursue further studies at higher level (Cave et. al., 2023) or entrepreneurship related to their fields. In contrast, general education curricula typically prepare

students to advance to the tertiary education institutions or pursue additional academic qualifications.

In reality, the TVET curriculum serves as a vital instrument to address the economic and social needs of young individuals seeking acquisition of knowledge and skills to excel in the workplace. Therefore, it is essential to focus on the objective of TVET programs, which is to enable individuals so that they can demonstrate their job competencies in real-world settings. Therefore, the TVET curriculum should be designed to provide students with skills and knowledge that are directly applicable in the workplace.

When advocating for the improvement and effectiveness of the TVET curriculum, it is important to consider various models of curriculum development.

Models of Curriculum Development

Curriculum development models play a crucial role in guiding education planners, mentors and administrators in creating purposeful, organized and progressive curricula (Bhuttah & Xiaoduan, 2019). These models offer valuable insights for selecting appropriate types of curricula in TVET. This paper will discuss three distinct models: Tyler's model, Hilda Taba's model, and Wheeler's model because these models share common features, followed by an exploration of the types of curricula to ensure the quality of TVET programs.

Tyler's Model

Ralph W. Tyler identified four fundamental

questions in the 1940's that should be addressed in developing any curriculum and instructional plan. These questions are:

1. What educational purposes should the educational establishment seek to attain?
2. What educational experiences can be provided that are likely to attain these purposes?
3. How can these educational experiences be effectively organized?
4. How can we determine whether these purposes are being attained?

Tyler's model lays emphasis on alignment of curriculum planning with the goals and mission of an educational institution. The first question involves determining aims and objectives, which refer to the expected outcomes resulting from exposure to learning experiences. These outcomes may include the acquisition of new skills, knowledge or information by the learner, as well as meeting broader societal expectations for TVET institutions.

On the second question, Tyler advises specifying particular learning experiences that will help achieve the defined objectives. Here, the discussion centres around the criteria for selecting certain learning experiences over others and identifying what those experiences should entail. The third question under Tyler's framework pertains to the organization and coordination of the selected learning experiences in alignment with the established objectives. This aspect is crucial, as learning experiences are derived from various subjects, influenced by

different teachers, and shaped by the overall educational environment. The final question addresses evaluation, where Tyler asserts that curriculum planners must assess whether the curriculum objectives are being met.

The Tyler's model is linear, as it does not show the connections among those four questions. Despite facing criticism for its linear nature and perceived lack of interconnection between the steps (Bhuttah & Xiaoduan, 2019), Tyler's model remains relevant. It has provided a solid foundation for curriculum development, which subsequent models have built upon to improve the curriculum planning process.

Taba's Model

Hilda Taba expanded upon Tyler's model by presenting a cyclic approach to curriculum planning. A significant contribution of Taba's model is its effort to bridge the gap between theory and practice. She proposed a seven-step process for curriculum planning (Ornstein & Hunkins, 2018). These include:

1. Diagnosis of need (needs assessment)
2. Formulation of objectives
3. Selection of content
4. Organization of content
5. Selection of learning experiences (methods/activities)
6. Organization of learning experiences (methods/activities)
7. Determination of what to evaluate and the methods for doing so.

Taba's model includes three additional steps compared to Tyler's model: the diagnosis

of needs prior to formulating objectives as well as the selection and organization of content. While Tyler's model accentuates educational experiences, focusing primarily on instructional methods and outcomes, Taba's model adopts a more learner-centered approach. Taba places greater highlight on both the selection and organization of learning experiences, underlining the importance of catering to the learners' needs throughout the curriculum development process.

Wheeler's Model

Wheeler built upon Tyler's work in 1967, but placed greater emphasis on learning experiences. While Tyler's model focused primarily on learning outcomes, Wheeler's model shifted the focus to the experiences. Wheeler's main concern was organizing opportunities for learners to interact with their learning environment to facilitate effective learning (Bhuttah & Xiaoduan, 2019).

Wheeler's model stressed the interrelatedness of various elements within curriculum development and laid emphasis that evaluation can occur at any point in the process rather than solely at the final step. His model consists of five key steps:

1. Determination of aims and objectives
2. Selection of learning experiences
3. Selection of content
4. Organization and interpretation of learning experiences
5. Evaluation

Wheeler's model is cyclical, illustrating

flexibility and continuity in the curriculum development process. It promotes the ongoing improvement by incorporating new information and insights (Bhuttah & Xiaoduan, 2019).

Despite the differences, all three models share common features. Ralph Tyler's model, being the earlier framework, has its four principles of curriculum rationale acknowledged and adapted by both Taba and Wheeler. While Taba and Wheeler build upon Tyler's principles with their own models, they introduce slight variations. Tyler accentuates the significance of aims, evaluation and regulation. In contrast, Taba's rationale begins with the identification of needs of a particular society before formulating objectives. Wheeler, on the other hand, underscores the interdependent nature of curriculum systems through his cyclical model, which promotes continuous improvement through the integration of new information.

In our pursuit of optimizing the TVET curriculum, the curriculum development process should begin with a thorough understanding of learners' needs and their current level of understanding. This foundation will be followed by defining clear and relevant objectives, which will guide the selection of course content and learning experiences.

As emphasized by Wheeler, evaluation should be an integral part of each stage of the curriculum development process. This continuous assessment will enable us to

refine and update the TVET curriculum, ensuring that it remains relevant and effective in meeting the needs of learners and the demands of the job market.

Next, we will discuss how these models are reflected while developing TVET curricula. We will also discuss the most favorable type of curricula that is suited best to ensure the quality of TVET programs.

Types of Curricula

There are many different types of curricula, each with its own strengths and weaknesses. For the purpose of this paper, we will focus on three types of curricula that aim to determine the best approach to ensure the quality of TVET programs. These types are:

1. Traditional curriculum
2. Outcome-based curriculum
3. Competency-based curriculum

Each of these curricula offers distinct perspectives on education and training.

A traditional curriculum is characterized by a structured framework centered around a fixed body of knowledge, often adhering to a standardized format. This type of curriculum gives emphasis to the delivery of content in a linear, sequential manner, primarily focusing on face-to-face, teacher-centered instruction. In a traditional curriculum, the teacher typically leads discussions and imparts knowledge directly to students. Instructional materials predominantly consist of textbooks, lectures, and individual written assignments (Sherpa, 2018).

An outcome-based curriculum (OBC) is a learner-centered approach that focuses on the desired results or outcomes of the educational process (Shamsudeen, 2023). This shift from a traditional, teacher-centred model emphasises on what students should know and be able to do by the end of a course or program. At the core of the OBC is the idea that learning outcomes, teaching methods, and assessment strategies should be aligned and work together to achieve the intended learning goals (Spady, 1994).

A key aspect of the OBC is its focus on learning outcomes, which are clear and specific statements of what students are expected to achieve. These outcomes serve as the foundation for designing the curriculum, teaching methods, and assessment strategies. By prioritizing learning outcomes, educators can ensure consistency and coherence in the design process. The OBC places students at the center of the learning process, encouraging active participation and engagement (Shamsudeen, 2023). This approach recognizes that students are unique individuals with diverse learning needs and styles, and it allows them to take ownership of their learning. The OBC's focus is also on skills and knowledge that are relevant in real-world contexts, preparing students for success in their future careers.

To achieve the specified outcomes, the OBC often utilizes a variety of assessment methods such as project-based evaluations, presentations and self-assessments in addition to traditional exams. This allows

educators to measure student learning in a more comprehensive and nuanced way.

A *competency-based curriculum (CBC)* accentuates the development of specific competencies - knowledge, skills and attitudes - that student must demonstrate to progress in their education. This approach is learner centered that often includes individualized learning materials, allowing students to advance at their own pace based on their mastery of the skills (Boahin, 2018; Guthrie, 2009). CBC focuses on competencies that are directly aligned with industry standards and job requirements, ensuring that students acquire the practical skills and knowledge necessary for success in the workforce (Boahin, 2018). This alignment is particularly crucial in technical fields where practical skills are essential for employability.

All three types of curricula include the key elements that are highlighted in the models discussed above. The common elements include what has to be learnt by the learners (objectives), how will they learn (learning experiences), what methods/media will help them learn and how well they have learnt (evaluation). While analysing, one can identify the limitation of the traditional curriculum for its tendency to overlook individual learning needs and styles. Additionally, it often places less emphasis on the real-world applicability of knowledge, which can hinder students' ability to connect their learning to practical applications in the workplace. Whereas, the OBC provides

flexible learning paths or methods for students to choose from, facilitating them to select the approaches that suit best to their learning styles and needs. This flexibility fosters a more inclusive and supportive learning environment, where students feel empowered to learn and grow.

Among all, competency-based programs typically involve hands-on training and real-world tasks, making the learning experience both relevant and applicable. Students actively engage in real-world scenarios to practice and refine their skills, thereby reinforcing their learning through practical applications. Assessment in CBC is both formative and summative (Boahin, 2018), providing ongoing feedback to students regarding their progress toward mastering specific competencies. This feedback mechanism allows students to understand their strengths and areas for improvement, fostering a growth mindset.

Selection of the most appropriate curriculum approach for TVET programs hinges on both the needs of the students and the requirements of the industries for which they are being trained. Among the traditional, outcome-based, and competency-based curricula, the CBC is often regarded as the most effective for TVET programs for several compelling reasons:

Level of knowledge: Traditional curricula may provide a broad foundational knowledge but often fall short in equipping students with the specific technical skills and competencies required in the workplace. These curricula

tend to emphasize rote memorization and structured content delivery, which may not accurately reflect real-world skills (Boahin, 2018). While OBC offers a stronger emphasis on learning outcomes, it may lack the flexibility and focus on practical skill application that CBC provides. The OBC typically operates within a more structured, time-based framework, which may limit the adaptability necessary for effective vocational training (Shamsudeen, 2023).

Alignment with industry requirements:

Traditional curricula are often developed by educators with limited input from industry stakeholders, resulting in programs that may not be regularly updated to meet current industry demands. Although the OBC may consider industry requirements, the CBC is specifically designed to align closely with these standards, ensuring that students acquire the skills and competencies that are directly relevant to today's job market.

Learning approach: Traditional curricula are often content-based, relying heavily on textbooks and worksheets, and usually teacher-centered. In this model, students tend to be passive listeners, with their learning primarily assessed through written exams. Conversely, the OBC focuses on the overall achievements of learners, while the CBC stands out for its learner-centered approach. The latter employs individualized learning materials and emphasizes not just what students need to know but also how they can apply their knowledge, skills and attitudes in real-world contexts.

Flexibility: Traditional curricula are typically rigid and follow a strict timeline, making it difficult for students to progress at their own pace. The OBC also adheres to a set timeline with defined exit outcomes. In contrast, the CBC offers a flexible learning environment that encourages continuous feedback, allowing learners to develop the competencies required in their respective industries at their own pace.

Curriculum Practices and Labor Market Trend in Nepal

Nepali labor market is changing rapidly and mainly influenced by the global technological advancement. This trend, however, presents adequate opportunities for Nepal to improve its labor productivity in various sectors by producing competent human resources through TVET programs. This can be achieved by increasing investment in human resources by providing technical skills to the perspective youths through the labor market responsive TVET programs. However, many studies have revealed significant gaps between the competencies acquired by the TVET graduates and the competencies required by the labor market in Nepal. The study conducted by Rimal (2023) highlighted the labor market mismatch in the TVET sector with a high skills gap among graduates. There are several reasons identified for the mismatch of skills in various studies such as lack of qualified teachers (Bhatta, 2023), lack of workplace learning (Paudel & Parajuli, 2023), and mismatch between the course and industry needs (Bagale, 2018). The reasons

highlighted by these studies indicate that the TVET curriculum in Nepal is not yet aligned with the industry needs.

The TVET programs are successful only when the curriculum comply with the market demands. The CBC is generally the best fit in the TVET arena due to its strong focus on practical skills, alignment with industry needs, individualized learning paths, and emphasis on real-world competencies. Furthermore, it places huge importance on mastery of skills over mere completion of course content, helping students develop competencies required in the labor market. Ultimately, the CBC prepares students not only for immediate entry into the workforce but also for continued education, equipping them with the skills required for lifelong learning and adaptability in their careers.

Conclusion

In conclusion, the curriculum plays a pivotal role in shaping the educational landscape, particularly in TVET. A well-structured curriculum not only defines the knowledge, skills and values that learners should acquire but also aligns with industry needs to augment employability and productivity. The distinction between traditional, outcome-based, and competency-based curricula underscores the varying approaches to imparting education, with the CBC emerging as the most effective model for TVET.

The CBC emphasizes practical skills, flexibility, and individualized learning paths, making is sure that students are resourceful

with the skills required by the workplaces. This model not only focuses on what students need to learn but also how they can apply their knowledge and skills in real-world contexts. By incorporating continuous feedback and aligning closely with industry standards, the CBC prepares learners for immediate entry into the job market while fostering lifelong learning abilities.

Ultimately, for the TVET programs to thrive and effectively meet the economic and social needs of society, the curriculum must be thoughtfully designed and implemented. This involves continuous engagement with industry stakeholders, adaptability to the changing workforce demands, and a persistent focus on both student needs and real-world applicability. As such, the pursuit of a high-quality TVET curriculum rooted in the principle of competency-based education is imperative for empowering individuals and driving sustainable development.

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