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Bachelor of Technical Teacher Education versus Bachelor of Technical-Vocational Teacher Education: A comparative analysis of technical teacher education curricula

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Abstract

Technical teachers are the main contributors to the development of effective technicians and TVET practitioners. The effective implementation of the curriculum depends on the capabilities of technical teachers. Thus, this study sought to compare and analyze the Bachelor of Technical Teacher Education and Bachelor of Technical-Vocational Teacher Education curricula in a state university in Southern Luzon. It identified the similarities and differences in the curricula regarding its general educational objectives, program specifications and goals, and program outcomes and competency standards. This descriptive-comparative study utilized qualitative procedures to compare the curricula under investigation. Document analyses and guided interviews were used as methods of gathering data. Baseline data from the CHED Memorandum Issuances were mainly utilized in the analysis. Findings revealed that the BTVTEd curriculum is better in general educational objectives. Program specifications and goals are common in both curricula regarding graduate attributes and the adequacy of the program to produce quality graduates. BTVTEd curriculum is better considering the addition of TLE and TM courses. However, BTTE is better considering its provision for multiple entries and exits in the program. There are differences between the TLE and ICT competencies in terms of program outcomes and competencies. BTVTEd is better in this consideration, but in terms of balance in theory and practice, BTTE is better. The research recommends that the general educational objectives of both curricula must be adhered to at all times to result in an aligned teaching-learning process approach. Curricularists should review the program specifications and goals and incorporate revisions. The competencies and program outcomes should be revisited with consultation with the people of the industry to set standards aligned to the needs of the industry properly.

Keywords: BTTE curriculum, BTVTEd curriculum, comparative analysis, education, technical teacher

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1. Introduction

Technical teachers are essential agents of change in society. Their roles underpin developments necessary for forming technical workers and the country's labor force. From the fundamental fields of technology to its complex forms, technical teachers are behind the success of every technician that contributes to nation-building.

The Commission on Higher Education (CHED) is the governing body that facilitates program offerings in the Philippines. CHED Memorandum Order (CMO) No. 56 series of 2007 pertains to the Policies, Standards, and Guidelines for the Ladderized Bachelor of Technical Teacher Education (BTTE). It is intended to rationalize undergraduate teacher education to keep up with global competitiveness demands [1]. In 2018, tertiary education curricula were adjusted and modified for alignment due to the advent of the Enhanced Basic Education Curriculum, popularly known as the K to 12 Program under RA 10533 [2]. The BTTE program was shifted to BTVTEd or the Bachelor of Technical-Vocational Teacher Education under CMO No. 79 series of 2017 [3]. The shift in the name has a significant change in the curriculum and its whole approach. There are subjects taken out of the original curriculum, and some subjects are added. The revised version is not as well ladderized, unlike the old one.

The Enhanced Basic Education Act of 2013, or the K to 12 Act [2], introduces Grades 11 and 12 to high school education in public and private schools. The program's objective is to establish a functional basic education system capable of producing productive and responsible citizens with the necessary competencies and skills for lifelong learning and employment. One of the curriculum's primary objectives is to alter public perceptions of high school education as merely a preparation for college; instead, it should prepare students to pursue gainful careers, employment, and self-employment in an increasingly globalized and rapidly changing environment. This results in graduates having the skills and competencies necessary to be productive members of society or pursue higher education.

The senior high school of the K to 12 Curriculum provides options to students on what track they may be interested in or where their skills may be aligned. A student may take among academic, sports, arts and design, and technical-vocational-livelihood (TVL) tracks. In the TVL track [4], it is the Technical Education and Skills Development Authority (TESDA) that crafted the curriculum for teaching technical vocational education and training (TVET) courses to students. Students are prepared for tertiary education, middle-skill development, employment, and entrepreneurship through the new educational

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model. There are twenty-three (23) tech-voc courses that have been developed. The advent of this new field in basic education demands competent and skillful teachers and trainers that technical teacher education institutions should answer.

Before offering the K to 12 Curriculum in basic education, the BTTE program is the existing college curriculum for technical teacher education in the country. It is aligned with the former Basic Education Curriculum (BEC). The Commission on Higher Education [1] detailed the policies, standards, and guidelines for the ladderized Bachelor of Technical Teacher Education (BTTE). The memorandum includes the program's mission statement, specifications, and other pertinent features, including subjects or courses for a student to take. It helps teacher education institutions be guided in the implementation process of the curriculum. Though it states the non-negotiable standards, it still offers academic freedom to enhance the program based on the contextualization of the institution. One of the features of this program is the ladderized approach. The memorandum covers two models, one for high school graduates, one for two-year trade technical curriculum graduates, and a three-year diploma in technology program.

CMO No. 79 [3] covers the principles, standards, and guidelines (PSG) for the Bachelor of Technical-Vocational Teacher Education. Based on the Guidelines for the Implementation of CMO No. 46 series of 2012, this PSG implements the shift to learning competency-based standards/outcomes-based education in response to the 21st Century Philippine Teacher Education framework. Furthermore, this PSG is anchored on the salient features of the K to 12 Enhanced Basic Education Curriculum (RA 10533), the Philippine Qualifications Framework (EO 83, series of 2012), the National Competency-Based Teacher Standards (NCBTS) now the Philippine Professional Standards for Teachers (DO 42 series of 2017) and other relevant documents. It specifies the core competencies expected of Bachelor of Technical-Vocational Teacher Education (BTVTEd) graduates regardless of the type of Higher Education Institutions (HEIs) they graduate from. However, in recognition of the spirit of outcomes-based education and the typology of HEIs, this PSG allows ample room for them to innovate in the curriculum in response to assessments of the most effective methods for achieving learning outcomes in their particular contexts and missions.

Furthermore, a state university in the Philippines is piloting its Technical Teacher Education program. The said program addresses the present needs of the Senior High School - Technical Vocational and Livelihood (TVL) Track of the K to 12 curricula for technical teachers. Since the BTVTEd is a new curriculum, the university is continuously reviewing its substance for some modification points in the future. On this premise, this research was conducted to investigate several aspects of the old and new curricula for technical teacher education. The investigation attempted to discover venues of strengths and improvements by comparing and analyzing the curricula. Specifically, it sought the similarities and differences of the curricula in the following considerations: general educational objectives, program specifications and goals, and program outcomes and competency standards. Moreover, since the results of the study are essential baseline data for curriculum development, ways and means were also recommended to improve the currently existing curriculum.

2. Research Problems

This study aims to compare and analyze the Bachelor of Technical Teacher Education and Bachelor of Technical-Vocational Teacher Education curricula in a state university. Specifically, the central research question is:

• What are the similarities and differences of the BTTE and BTVTEd in terms of:

a. General Educational Objectives?
b. Program Specifications and Goals?
c. Program Outcomes and Competency Standards?

3. Methodology

This research employed the descriptive-comparative research method. The method involved collecting data to answer questions concerning the current status of the subject under study. The research method also suited the purpose of the present study, which sought to make apparent the similarities and differences in the curricula of Bachelor of Technical Teacher Education and Bachelor of Technical-Vocational Teacher Education. The study involved selected individuals and experts in technical teacher education chosen purposively. These involved three (3) professors of the technical teacher education courses and two (2) supervisors in both curricula.

The researcher used various materials to examine the similarities and differences of the curricula under study. To get impressions of how the BTTE and BTVTEd operate without necessarily interrupting the program, the researcher employed the qualitative interview technique to help review and analyze the CHED Memoranda of both curricula. According to Villena *et al*. [5], it can be done through the actual review and analysis of existing and available documents such as memoranda, circulars, orders, minutes, procedures, and the like. This provides the researcher with comprehensive and even historical information about the implementation of the programs.

An interview guide was crafted and validated by research experts in TVTEd and curriculum and instruction. The interviews had a semi-structured format. In this format, the interviewer asked predetermined questions but also attempted to give the interviewees more freedom to discuss topics of importance based on their experiences in the curriculum. Participants have scheduled in-person interviews as well as focus group discussions. The interviews were analyzed at a convenient time for each individual and each group. Consequently, the researcher employed probing questions to elicit more comprehensive responses from the participants. For data accuracy, transcripts were sent back to participants. Responses were coded for qualitative analysis.

The data collected from libraries, correspondence, and interviews were examined and analyzed by the researcher using the following subheadings in both curricula:

• General Educational Objectives;
• Program Specifications and Goals; and
• Program Outcomes and Competency Standards

Table 1. Summary of results.

Similarities	Differences
General Educational Objectives	
• gearing toward a quality technical teacher education	• alignment to basic education curricula
• incorporating exposure to the industry	• target graduates
• dual structure (professional education and industry-based courses)	• alignment to standards
• statements on educational objectives	
Program Specifications and Goals	
•program descriptions	• target technical certifications
•capacity to equip graduates with knowledge in their fields of specialization	• Technology and Livelihood Education (TLE) courses
•provisions for industry exposure, field studies, and pre-service teaching experience	• ladderized features and exit points
Program Outcomes and Competencies	
• graduate standards (both for the teaching profession and for the industry)	• TLE components
	• ICT integration
	• number of program outcomes
	• course congestion
	• balance in theory and practice courses

The data were then interpreted. The use of interviews was the primary source of analysis in this study. The analysis compares and contrasts the two curricula involved in the study, the BTTE and BTVTEd curricula. Commonalities were obtained upon interpreting the data, and so towards the end, it was recommended that the technical teacher education curriculum be enriched.

4. Results

The following results have been arranged according to the research problems based on the data analysis. Table 1 summarizes the similarities and differences among the key variables in the research problem.

4.1 General educational objectives

4.1.1 Similarities

One of the significant commonalities of the BTTE and BTVTED curricula is their educational objectives. They are both gearing toward a quality technical teacher education that will address the need of the country for trainers in technical and vocational educational institutions. They also both incorporate exposure to the industry before graduation. Both curricula are dual in structure with professional education and industry-based courses. As stated in both CMOs, both curricula are expected to produce effective synthesizers of organized knowledge capable of analytical and critical thinking, efficient promoters and facilitators of learning capable of enabling learners to maximize their potential for self-education, committed humanists whose clear understanding and appreciation of human ideals and values inspire learners to reach greater heights of human aspirations. Model teachers are imbued with the spirit of education.

4.1.2 Differences

BTVTEd curriculum is an updated program aligned to the K to 12 Curriculum. Its focus adds Grades 9-10 and Senior High School teachers as target products. It is also aligned with the Philippine Professional Standards for Teachers, an updated version of the NCBTS. In contrast with the BTTE, it is aligned with the old NCBTS. Its graduates' focus is on preparing teachers for TVET and higher education institutions. It is also evident in the responses that there is an additional sixth role in the BTVTEd curriculum, which focuses on implementing the TVTE approaches and practices in the context of the K to 12 Senior High School TVL Track.

4.2 Program specifications and goals

4.2.1 Similarities

It is evident from the responses that the program descriptions of both curricula are quite the same. Their foci are both towards the development of skills in specific fields. Towards the end of the program, students are also expected to learn to facilitate the teaching-learning process aligned to particular standards like the NCBTS for BTTE and PPST for BTVTEd. One of the significant commonalities of the two curricula in terms of program specifications and goals is their capacity to equip graduates with knowledge in their fields of specialization. Both curricula provide industry exposure, field studies, and pre-service teaching experience. They are also adequate in producing graduates with the required entry-level knowledge and skills.

4.2.2 Differences

BTTE is gearing towards National Certification (NC) while BTVTEd targets Trainer's Methodology (TM). This is a big challenge for the BTVTEd and is an advantage. Since TM is an essential requirement for a person to be an assessor in a particular field, the program is an advantage. BTVTEd is as well more detailed and comprehensive, according to the responses. It clearly stated specialization, general education, and professional education components. On the BTVTEd, there are details on allied fields and specific careers for graduates. Though both curricula are adequate in producing graduates with the required entry-level knowledge and skills, BTTE has a disadvantage since it does not cover different areas in Technology and Livelihood Education (TLE). It is the advantage of the BTTE to be specialized but a disadvantage since the licensure examination for teachers covers all areas of TLE.

In addition, BTTE is a ladderized program. Two models, Model A and Model B have given students the options. Responses say that the ladderized approach is more advantageous. Model A is available to high school graduates who meet the college's admission requirements. In contrast, Model B is open to graduates of the Two-Year Trade Technical Curriculum or the Three-Year Diploma of Technology Program with at least one year of industry experience. This has given access to technical

workers to become prospective teachers in their respective areas of specialization. This is a major difference in both curricula since the feature is absent in the BTVTEd curriculum.

4.3 Program outcomes and competency standards

4.3.1 Similarities

There are commonalities in the competencies and program outcomes of the BTTE and BTVTEd curricula. Both tackled the expected graduate to be adaptive both in the teaching profession and in the industry of their field of specialization.

4.3.2 Differences

There are differences in the specifications of the competencies and program outcomes. One of which is the lacking TLE components in the BTTE program. Responses also detailed the lack of ICT integration in BTTE. BTTE has additional program outcomes that are not presented in the BTVTEd. This is item 6.8 of the BTTE CMO that says, 'can demonstrate and practice the professional and ethical requirements of the teaching professions.' In BTTE, as one respondent commented, the time frame is not congested. BTTE also has a better balance in terms of theory and practice. The On-the-Job Training period is enough for the students to learn more in their fieldwork. BTVTEd, on the contrary, provides a broader chance for students to grasp experiential learning.

5. Discussion

BTVTEd is an updated version of BTTE. However, dilemmas are arising in the change of curriculum that gave the reason to pursue this study. The study compared and contrasted the two curricula focusing on the program's educational objectives, program specifications and goals, and program outcomes and competency standards. Abaddeni *et al*. [8] emphasized the importance of a degree's program educational objectives (PEOs). It derives from the fact that it symbolizes students' accomplishments several years after graduation. The Program Educational Objectives then serve as the ultimate assessment of a degree's relevance and success.

Additionally, program educational objectives are linked to student outcomes and the curriculum. Students are prepared to achieve PEOs through curriculum and student outcomes. As a result, if students do not meet the program's PEOs after graduation, there are likely issues with the curriculum and student outcomes of the degree program. Curriculum designers must carefully consider the program's educational objectives and ensure that the curriculum and its outcomes adequately prepare students to achieve them. Since PEOs are geared towards their attainment, it is truly a task for curriculum experts to continue modifying them to keep pace with society's changing demands.

There are also commonalities in the foundations of both curricula. This includes philosophical, historical, psychological, sociological, and technological bases common in technical teacher education. Both were founded in the same background, and these technical teacher programs should also be governed by the Technical Education and Skills Development Authority (TESDA). It is mentioned that the strength of the BTTE program is its technological foundation. BTTE is said to be more specialized, having adequately distinguished subjects and concentrating on its specific field alone. However, this is also part of its weakness since the Licensure Examination for Teacher (LET) measures all areas of the TLE, generalist in nature.

Bilbao *et al*. [9] stressed in their book, Four Major Foundations of Curriculum and their Importance in Education, that any curriculum should be deeply rooted in philosophy, history, psychology, and sociology. Educators, curriculum developers, and teachers must have espoused a philosophy or set of philosophies deemed necessary to plan, implement, and evaluate a school curriculum. They have adopted a philosophy that will assist them in defining the school's purpose, the critical subjects to be taught, the learning students must possess and how they can acquire it, the instructional materials, methods, and strategies to be used, and how students will be evaluated. Similarly, philosophy contributes to problem-solving by assisting administrators, curriculum planners, and teachers in making sound judgments. An individual's philosophy is shaped by life experiences, social and economic background, shared beliefs, and education. When John Dewey stated that education is a way of life, his philosophy became a reality. Dewey's philosophy has served as the bedrock of the educational system in many countries, most notably the Philippines.

The history of a country can influence its educational system and curriculum. This can be traced back to Franklin Bobbit's 1918 book, "The Curriculum." Numerous changes occurred between Bobbit and Tyler in the curriculum's purposes, principles, and content.

Psychology influences the curriculum. Psychology elucidates the teaching and learning processes. In addition, it seeks answers regarding how a curriculum should be organized to maximize students' learning and the amount of information they can absorb while learning the various curriculum contents.

Because the school exists within a societal context, society and curriculum have a reciprocal and encompassing relationship. While schools are formal educational institutions, other units of society, such as families, friends, and communities, educate and influence how people think. Due to the dynamic nature of society, numerous developments are difficult to cope with and adjust to. However, schools are designed to address and comprehend changes in one's country and the world. As a result, schools must remain relevant by expanding their innovative and interdisciplinary curricula-a curriculum capable of addressing the diversity of global learners, the explosion of knowledge enabled by the internet, and the United Nations' educational reforms and policies. However, a country's curriculum must reflect and preserve its culture and aspirations for national identity. Regardless of how far individuals go, it is the country's responsibility to ensure that schools educate the citizenry. It is then very relevant to consider the mentioned concepts in the technical teacher education curriculum.

Most of the responses say that BTVTEd is better in general educational objectives. They premise their answers to the fact that BTVTEd is aligned with the K to 12 programs of Basic Education. They have reasoned that it has addressed the gaps in the TLE by inserting subjects like Agri-Fishery Arts, Industrial Arts, ICT, and Home Economics. However, the argument is balanced by the statement that it is still an impending problem in

the BTVTEd program because the skills needed to be developed were addressed in Senior High School. After all, some subject areas both in the general and professional education courses were deleted. Those deleted courses are present in the old BTTE curriculum. The shift to competency-based/outcomes-based education of the BTVTEd is also highlighted. BTVTEd is also praised for the addition of courses on ethics and entrepreneurship.

According to Abbott [10], as cited by Rodriguez [11], school administrators, educational experts' reform organizations, and government agencies can align professional development activities such as training, sessions, workshops, conferences, and resources with the goals of specific policies, improvement plans, or academic mastery. This is evident in the BTVTEd curriculum, which includes TLE areas, as mentioned above. This will mobilize teachers to move closer to the alignment of competencies that they need to acquire in the program and the subjects they will be teaching in the future.

Odufowokan [12] used a descriptive survey research design to examine the relationship between industry planning and students' academic performance in southwest Nigerian schools. The study discovered a strong correlation between industry planning and students' academic performance and was significantly related to instructional space planning. Therefore, since BTTE and BTVTEd are programs based on the industry's needs, they will significantly help develop program descriptions and specifications to involve the industry in the planning stage. This collaboration will strengthen the program to meet the needs of the industry.

In the study of Atkinson [13], he reviewed twenty UK institutions, eighty undergraduate modules, and some four hundred thirty-five individual competencies and program outcomes. It reveals the lack of definition of competencies and program outcomes in developing skills attractive to employers. The article argues that employability skills should be more explicitly articulated in the curricular outcomes. Moreover, it implies that institutional development of employability skills requires sustained attention to ensuring transparency in module design to facilitate student choice and quantifiable skill acquisition. This is also in connection with Odufowokan's [12] study that the industry should actively engage in curricular programs that are either technical or are bound to be employed in the industry.

In addition, several strengths and weaknesses are identified in both curricula. BTTE has the ladderized feature as one of its significant advantages. This also allows students to exit (per year) the program with certification. BTVTEd, on the contrary, enhanced the BTTE program with its additional features. These include the clear statement on the specified body of knowledge and skills expected from a graduate, inclusion of the TLE areas, and the provision of experiential learning that targets the trainer's methodology certification.

Balingbing [6] studied the academic profile of BTTE students as the basis for an intervention program. According to his article, students of BTTE who take the TESDA assessment can express excellent and valuable ideas, manage their time effectively, and respond to practical questions. But they occasionally request to repeat or rephrase those questions. They also attempt to understand and cope with questions using the Filipino language. They are willing to learn and complete tasks but not under time constraints and pressure. They can also explain the details of what they have done. However, they prefer the Filipino language to English when explaining tasks. These results obtained are views of the evaluation of the BTTE curriculum.

On the contrary, since the BTTE curriculum lacks TLE areas, it is one of its main disadvantages. This includes special research projects that are offered only in a single semester, not giving ample time for student-researchers to finish their thesis. In the BTVTEd curriculum, the special research project is offered in two semesters. But it is offered in the semester of the second year of students in the program. This posed lacking necessary preparation on the part of the students. The curriculum is said to be congested as well. Since the curriculum offered courses on Trainer's Methodology, there are no sufficient materials or references.

In terms of weaknesses of the BTTE curriculum, as evaluated by Balingbing [6], BTTE students have poor English grammar and communication skills, are easily distracted by gadgets/technology, have poor listening habits, and are unable to control their negative behavior during the assessment. They are also unfamiliar with tools and equipment, have poor time management, have difficulty understanding instructions (logical or critical thinking), have behavior problems, and have poor comprehension.

However, there are also identified areas of improvement as this study's main outcome. The central theme of the responses focuses on the sufficient provisions of laboratory materials, tools, and equipment. Participants look forward to the government providing the necessary funding so that the graduates can be well-equipped. It is also a vision to look forward to a more substantial and comprehensive curriculum for technical teacher education. Respondents also hope that proponents of technical teacher education programs will eventually push for a separate licensure examination. It will never be under the TLE program, so more specialization subjects can be added to its curriculum, thus strengthening its technical and professional side.

According to a growing body of research [7], school facilities can significantly impact teacher and student outcomes. School facilities affect teacher recruitment, retention, commitment, and effort. School facilities affect students' health, behavior, engagement, learning, and achievement growth. Thus, researchers generally conclude that serving many children with complex needs is difficult without adequate facilities and resources. Nearly three-fourths of all existing schools in the United States were built before 1970 in 1996. Around one-third of these schools required extensive repair or replacement, while almost two-thirds had at least one substandard building feature, such as substandard plumbing, roofing, or electrical systems. Additionally, 58% of respondents reported having at least one unsatisfactory environmental condition, such as insufficient ventilation, acoustics, or physical security.

Researchers discovered that most schools lack 21st-century infrastructure, laboratories, and instructional space besides general maintenance and construction issues. More than half lack the adaptable instructional space necessary for effective teaching. Thus, the facility's quality strongly correlates with

teacher retention and student learning. Students' and teachers' physical and emotional health are contingent on the quality of their physical environment, which makes establishing safe, healthy buildings critical. This is the same dilemma that state universities in the Philippines are experiencing. Facility and equipment are an integral part of the effective implementation of the curriculum.

6. Implications for curriculum and instruction

Curriculum and instruction are two ever-changing concepts in the field of education. They are the meat of the educational process. Actual educational change occurs due to changes in the content teachers teach, students learn, and the instructional methods teachers use. Curriculum and instruction are shaped by expectations for the educational outcomes that students should demonstrate by the time they graduate high school. These realities are implemented simply because the written curriculum guides them. Though other facets of the curriculum take place in the teaching and learning process, the Memoranda from the Commission on Higher Education in this study is still the guiding framework of the Bachelor of Technical Teacher Education and the Bachelor Technical-Vocational Teacher Education. The comparative study between the two curricula is a substantial start in revisiting the standards set by the Commission. It has revealed valid data that show the strengths and weaknesses of both curricula. Results that were driven are inputs for improving the present and existing program, the BTVTEd. It may adopt the strong points of the BTTE program and eliminate the weak points of the BTVTEd. Still, it will be beneficial if the competencies and program outcomes are revisited with consultation with the people of the industry to set standards aligned to the needs of the industry properly.

On the instruction part, analyses of the written curriculum have substantial input to implementing the taught curriculum well. Since instruction is directly affected by the written curriculum, revisiting its content will also impact the teaching and learning process. Curriculum change is the primary concern of research to better develop graduates and individuals in the field.

7. Conclusions

Studying and comparing the technical teacher education curricula have brought about the following conclusions:

• The pertinent review of the general educational objectives of the BTTE and BTVTEd curricula permitted a broad view of their common aims and foundations. Basically, it can be said that similarities outweigh the differences. However, the BTVTEd curriculum is better regarding general educational objectives in this particular area of consideration.

• Program specifications and goals are common in both curricula regarding graduate attributes and the adequacy of the program to produce quality graduates. BTVTEd curriculum is better considering the addition of TLE and TM courses. However, BTTE is better considering its provision for multiple entries and exits in the program (Model A and B).

• The competencies and program outcomes of both curricula are similar, in general. However, there are existing differences in the TLE and ICT competencies. BTVTEd is better in this consideration, but in terms of balance in theory and practice, BTTE is better.

8. Recommendations

It is evident in the data gathered that the curricula of technical teacher education in a state university in the Philippines have commonalities and differences. From this diversity, there are emerging strengths and weaknesses in both curricula. In view of the conclusions, the following recommendations are worth mentioning:

• The general educational objectives of BTTE and BTVTEd curricula must have been adhered to at all times to result in aligned approaches to the teaching-learning process.

• Curricularists and educational experts should thoroughly review the program specifications and goals of BTTE and BTVTEd, and then a revision of the process can be incorporated.

• The competencies and program outcomes should be revisited with consultation with the people of the industry to set standards aligned to the needs of the industry properly.

• Government should increase the budgetary allocation to technical teacher education institutions to provide tools, facilities, and equipment for better delivery of competencies to students.

• A study of the same nature may be pursued, focusing on the other areas of the CHED Memorandum Orders.

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